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ASSESSING FINANCING CONSTRAINTS FOR DOMESTIC PRIVATE FIRMS IN CHINA AND INDIA: EVIDENCE FROM THE WBES SURVEY

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Using a unique dataset from the World Business Environment Survey (WBES), this study finds preliminary evidence that India's financial system performs better than China's financial system in terms of providing capital to domestic private entrepreneurial firms. After controlling for a number of firm-and industry-level characteristics, Chinese firms in the WBES consistently report a higher level of financing constraints as compared with Indian firms in the WBES.

In any economy, finance is a critical factor determining the successes of a firm and the successes of an economy. The connections between the design and the functions of a financial system and the outcomes of economic development have been documented extensively in the economics literature.[2] These connections are especially relevant for developing economies such as China and India, which have low per-capita income and therefore are naturally capital constrained. There have been many studies on the banking and financial sectors in China and India respectively, some of which will be summarized in this paper, but there has not yet been any systematic study comparing the financing constraints facing firms in these two economies due mainly to the lack of hard data.

This study uses a unique dataset—from the World Business Environment Survey (WBES)—to assess the financing constraints facing domestic private firms in China and India.[3] I will provide more information on the WBES later in the paper but suffice it to say that the WBES is the only dataset this author is aware of that uses the same survey instruments for both countries and that was conducted during the same timeframe. It is this feature of the WBES dataset that allows us to compare the financing constraints in China and India in a somewhat systematic way.

Many of the comparative studies of China and India tend to cast India in an unfavorable light. The evidence that is often cited to support this view relates both to performance and to policies. For example, Sachs, Varshney and Bajpai (1999) and Ahluwalia (2002), after contrasting India's slower pace of export growth and FDI inflows with those in China, find India's rigid labor laws, substantially higher tariffs, restrictions on large firms, and exit barriers to be the sources of its lagging performance. Business

analysts readily concur with the view that India's performance has been less impressive than that of China.[4]

Many Western analysts also believe that institutional transformation has been wider and deeper in China than in India during their respective reform eras. Meghnad Desai (2003), a distinguished professor at London School of Economics, has this to say:

> *It was China, after 1978 under the influence of Deng, that accelerated leaving India far behind…. China did this paradoxically by adopting a much more 'capitalist road.' While India went on restricting its large native capitalist class after independence, China had to practically reinvent its own bourgeoisie after 1978.*

The claim that China, a Communist country, is more capitalistic than India, the world's largest democracy and a country with a more continuous history of capitalism, is nothing short of remarkable. But this claim is more often asserted than demonstrated. One way to test this claim is to examine the patterns of resource allocation—especially the allocation of a resource in critical shortage in poor countries such as China and India, i.e., capital—in the two countries: Does the financial system in China favor "the native capitalist class" more than the financial system in India favors its capitalist class?

The WBES is highly suitable for researching this question. All the firms in the sample, as will be explained later, are domestic, private firms. Another feature of this survey is extremely attractive: The survey includes both large and small domestic private firms. An empirical way to examine Desai's claim that China had to "reinvent its own bourgeoisie" is to show that the Chinese financial system should be particularly supportive of small private firms compared with the financial system in India. After all, since the Communist revolution completely decimated capitalism, the only way to reinvent the private sector was to support its growth.

An analysis of the WBES data does not support the claim that China, at least its financial system, is more supportive of its domestic private sector than the financial system in India. The evidence in fact points in the opposite direction. At least in one area—lending to small, private enterprises—and according to subjective perception data, India's financial system has performed better than China's financial system. Controlling for a variety of firm- and industry-level characteristics, domestic private firms in India, especially small firms, complain far less about financing constraints than their counterparts in China. A descriptive analysis of the WBES data also reveals that Chinese perceptions of their financing constraints differ substantially not only from the perceptions of Indian firms but also from the perceptions of firms based in Southeast Asia (such as Malaysia or Thailand). An extension of this finding is that the level of reported financing constraints on the part of Indian firms is closer to that reported by firms in Southeast Asia. Finally, Chinese perceptions of their financial system bear broad similarities to perceptions of firms based in other socialist, transitional *European* economies (such as Russia and Ukraine).

It is worth emphasizing that our findings are based on subjective perceptions by firms, not on objective data (which are extremely difficult to obtain). There are well-known framing issues and problems in research involving survey data and the findings in this paper should be interpreted with that caveat. In a later section I will detail how a number of potential complications can be safely ruled out given the characteristics of

the dataset and the particular findings. The regression analysis can also take measures to reduce—although not eliminating entirely—the magnitude of other potential complications.

That said, it is also worth noting that our findings can be readily reconciled with a number of "objective" stylized facts that we know about Chinese and Indian banks. Although a systematic comparison of the performance of the banking sectors in the two countries is lacking, the evidence that emerges from the research on the respective banking sectors in the two countries suggests that the Chinese banking sector is more troubled than the Indian banking sector. Compared with the Chinese banking sector, the Indian banking sector is more diversified in terms of government/private and domestic/foreign ownership, an indication that the Indian financial reforms may have proceeded deeper and wider than the Chinese financial reforms. Chinese banks also have a higher level of non-performing loans as compared with Indian banks. The reason for this may be that Chinese banks lent less to efficient private firms (and more to inefficient SOEs) than Indian banks.

The first section of the paper reviews the literature on Chinese and Indian banks. However, research on Chinese and Indian banks has so far not been explicitly comparative and much of the research is exclusively about the lending side rather than about the borrowing side. One potential contribution of this article is that it provides an explicit comparison of financing constraints in China and India from the point of view of the borrowers. The second section discusses details of the WBES and some of the sampling issues. The third section presents findings from an analysis of the China/India subsample of the WBES. The fourth section concludes by offering some broad conjectures from our findings.

I. DEVELOPMENTS IN THE BANKING SECTORS IN CHINA AND INDIA: A BRIEF REVIEW

Many of the comparisons between China and India are extremely broad in scope and coverage. There has been little work at the firm or sectoral levels. Such broad comparisons focusing on GDP growth, exports, FDI, and so forth typically favor China over India. This is also true of a number of studies on the general institutional characteristics of the two countries, such as regulatory quality, control of corruption, and policy stability. Arguably, the financial system is one of the most important institutions in an economy. There is some evidence from a number of detailed studies on the banking sectors in China and India that India may very well be ahead of China in terms of this particular sector, a finding supported by our analysis of the WBES data. This raises the questions of whether the broad institutional comparisons between China and India are accurate or whether the financial system constitutes an exception that proves the rule.

A representative body of research that rates the institutional performance of countries is found in a project conducted by three World Bank economists, Daniel Kaufmann, Aart Kraay, and Pablo Zoido-Lobaton, as described in "Governance Matters II: Updated Indicators for 2000-01."[5] Of the six institutional indicators (often known as KKZ indicators), (1) voice and accountability, (2) political stability, (3) government effectiveness, (4) regulatory quality, (5) rule of law, and (6) control of corruption, India is assigned higher scores than China in two areas—voice and accountability and rule of

law. This ranking order is not surprising given that India is a democracy. In all other areas, the KKZ indicators rank India either significantly worse than China (as in government effectiveness and political stability) or the ranks for the two countries are similar.[6] One interpretation of the KKZ ranking is that India is ranked high because of what it is—i.e., democracy—but China is ranked high because of what it does—policy effectiveness and regulatory quality, and so forth.

There is no explicit ranking of the financial system in the KKZ indicators but some of the indicators, such as government effectiveness, rule of law, regulatory quality, and control of corruption, must have implicitly taken into account the quality of the financial system. One study, conducted by consultants at McKinsey & Company, concludes that India's financial system lags behind that of China (Farrell and Key 2005). This study, however, assigns substantial weight to the ability of a financial system to mobilize—rather than to intermediate—capital. Not surprisingly, China's financial system looks more impressive by this criterion but this is mainly because China has a higher savings rate. It is not clear how the savings rate is related to the quality of the banking system. Work on China's savings rate typically points to a combination of demographic factors and the need for precautionary savings—in the face of substantial uncertainties in the economy—as the explanation for China's high savings rate, rather than the efficiency of the banking system.

More detailed studies of the banking sectors in China and India provide a different perspective from the one conveyed by these broad institutional comparisons. In this review, I focus on banks, not on the broad financial system, because the empirical work in this paper is mainly about financing constraints that arise in the banking sector. To the extent that evidence exists, it should be noted that India's capital market also appears to be better-performing than China's capital market. For example, in their work on the synchronicity of stock price movements, Morck, Yeung and Yu (2000) show that in countries that have poor corporate governance, information disclosures and minority investor protection, stock prices of listed companies tend to move together rather than individually. China has a higher synchronicity score (at 0.80) as compared with that of India (0.695). (As a benchmark, the score for the United States is 0.579.)

Except for Saez (2004), all of these studies deal with China and India separately. Thus the following represents not a summary of the research but some tentative conclusions that can drawn from surveying this body of research on the banking sector in the two countries. Two themes are highlighted here. First, the literature stresses substantial problems in the banking sectors in China and India. Second, although the evidence is mixed and can be subject to differing interpretations, one tentative conclusion is that the banking sector in India seems to have undergone more substantial reforms than the banking sector in China.

Probably, the best work on China's financial system is the book *China's Unfinished Economic Revolution*, by Nicholas Lardy (Lardy 1998). The book documents, in meticulous detail, how China's state-owned banking sector discriminated against the private sector, engaged heavily in political lending that benefited the state-owned enterprises, and over the years accumulated a vast amount of non-performing loans. Other economists have analyzed China's banking sector by using survey data. The conclusion of this body of research is more nuanced in that it shows that the lending

bias against the private sector, while substantial at the national level, is not a homogenous phenomenon. For whatever reasons, some regions have lent more to the private sector than other regions and some regions have allowed for the flourishing of an informal financial sector, which supplied credit to the private sector.[7] However, another paper, drawing also on survey data, shows that the financial treatment of the private sector has declined over time, even if this regional heterogeneity is taken into account (Haggard and Huang 2005). Although China scholars may disagree about the aggregate effect on economic growth,[8] almost all China scholars agree that the Chinese banking system is inefficient in performing its basic function—the intermediation of capital from savers to the most productive users of capital—and is deeply troubled.

In an interesting and indicative contrast to the research on the Chinese banking sector, recent work on India has completely sidestepped the question of whether or not Indian banks lend in favor of SOEs at the expense of private sector firms. In a series of papers on bank performance and competition in India, this kind of political bias that occupies a central place in the Chinese discussions never occurs. To the extent that there is a lending bias, the bias is between rural or urban areas, small or large firms, or modern or traditional industries. The verdict rendered in the academic research is negative on the efficiency and the risk management of India's banking system. A group of economists have documented that Indian banks do not lend at an "optimal level" and many of their customer-firms are credit constrained.[9] Growing and dynamic firms are often capital-constrained and banks lend according to a rather mechanistic operating framework. To the extent that there is a political bias, the bias manifests itself in the form of "lazy banking"—i.e., excessive lending to the government—rather than favoring inefficient SOEs at the expense of private sector firms. The public sector banks are very conservative in their business approach, in part because of the tightened political and regulatory monitoring, while private sector banks are more aggressive.

Although the general verdict is negative, this line of research also acknowledges the progress that the Indian banking sector has made toward more diversification of the ownership structure of Indian banks and toward providing credit to private firms. Indeed, in the area of competition, the Chinese and Indian banking landscapes appear to be substantially different. In China, competition in the banking sector is far more limited as compared with India.

Several researchers have identified the presence and growth of new private banks in India—such private banks that did not exist prior to 1993—as one of the most important developments in India's financial sector. By 2003 or so, these new private banks accounted for 12 percent of the total credit (Banerjee, Cole et al. 2005). In contrast, as Saez (2004) points out, "the presence of private banks in China is negligible." The first private bank in China was licensed in 1986; the second one, Minsheng Bank, was not licensed until 1996. But even here, as in all other areas of the Chinese economy, the nominally private banks in fact have substantial government ties and are controlled tightly by the government. In fact, even Minsheng Bank lends very little to private firms (although it does lend more than state banks).

The presence of foreign banks is similarly limited in China. As of 2003, foreign banks accounted for 8 percent of India's banking assets; in China, at the end of 2002, foreign banks accounted for just 1.7 percent of total banking assets. The example of

Citibank in the two countries is illustrative of their dramatic contrast. According to Saez (2004), as of 2000, the total assets of Citibank in India came to $35.8 billion; in contrast, Citibank only had $2.5 billion in assets in China. In fact, the assets of all foreign banks in China in 2000 amounted to only $34 billion. This is about the same as the assets held by one single foreign bank in India, Citibank.

Even public sector banks in India are no longer 100 percent owned by the government. In several of them, the government stake has been reduced to around 50 to 60 percent. This kind of ownership diversification has not occurred in China. The four largest state banks, which dominate China's banking business, are still 100 percent owned by the government. Another clear difference is in the area of interest rate liberalization. Singh (2004) reports that in India interest rate liberalization began gradually in 1991 and by the 2000s commercial banks "now generally charge rates of interest in accordance with their perceptions of creditworthiness of the borrowers…." In contrast, Song (2005) shows how the Chinese government maintained strict controls over interest rates during the entire reform era and how the resultant administrative allocation of credit has substantially restricted the private sector's access to capital.

Finally, Saez (2004) provides some evidence that the non-performing loan problems are not only deeper in China as compared with India but also the problems have not substantially improved over time. One reason for this can be attributed to the differences in the two reform approaches. According to Saez (2004), the Indian reform approach has placed far more emphasis on introducing greater competition by allowing new entries. The Chinese approach has favored restructuring of existing banks. The data provided earlier in this section also support the hypothesis that in India the banking landscape is more competitive than that in China.

II. THE WORLD BUSINESS ENVIRONMENT SURVEY (WBES)

Although the above studies provide some insights into the institutional structure and the performance of the financial sectors in the two countries, they are, to say the least, inconclusive. We do not know, for example, whether greater competition in India's banking sector translates into greater availability of credit for private firms. Also, we cannot assume that the stronger government control of banks in China automatically means restrictions of credit access for private firms. In the 1960s and 1970s, banks in Taiwan and Korea were controlled by the government but this did not lead to substantial credit constraints in the private sector. Because the WBES represents the perspective of the borrowing firms, we can empirically assess the relative financing constraints as perceived by firms in India and China.

WBES: Sample design and issues

The World Bank designed and implemented—with the cooperation of partner institutions—the WBES in 1999-2000. The survey was carried out in eighty-one countries and on more than 10,000 firms operating in these countries. The survey was designed to capture the firms' views on many aspects of the business environment pertaining to their operations. As far as this author is aware, there have been two studies that have used this dataset. One study was conducted by a group of World Bank economists who focus on assessing the business environment around the world (Batra, Kaufmann et al.

2003). The other study focuses on differences in policy treatments between foreign and domestic firms (Huang 2004).

This study addresses only one aspect of the business environment—the financing constraints facing mainly domestic private firms. Thus, the findings should not be generalized across the entire spectrum of the business environment in the two countries, but it should be noted that finance is one of the most critical dimensions of a business environment. An important feature of the WBES is its emphasis on entrepreneurial firms. The vast majority of the firms are owned privately. Of the entire WBES sample, only 12 percent of the firms reported some government ownership. Thus this survey can be read as reflecting not the business environment for all firms but specifically for privately-owned firms. This is an important feature for our analysis because so much of the debate revolves around the differential treatment of domestic privately-owned and entrepreneurial firms in China and India.

The WBES specifies a number of targets in terms of representation of industries, size and nationality, ownership characteristics, and export status of firms in the surveys across all regions. The sectoral composition of firms is roughly allocated in accordance with their contributions to GDP. However, the industry breakdowns are at an aggregated level. The firms are broken down along five broad economic sectors: manufacturing, service, agriculture, construction, and "other." At least 15 percent of the sample is set aside for small firms—defined as firms with fewer than 50 employees—and at least 15 percent is set aside for large firms (with more than 500 employees). At least 15 percent of the sample comprises firms with foreign ownership and at least 15 percent of the firms export 20 percent of their output. The realized sample differs from these targets somewhat. Large firms account for 20 percent of the sample and firms reported having foreign ownership account for 19 percent.

Several problems arise from these targets set by the WBES and the later findings should be interpreted with these caveats. One is that the sectoral composition is clearly too broad and our regressions may not sufficiently control for all the pertinent industry characteristics.[10] The second issue is that apart from the sectoral composition there is no explicit justification for why a number of targets are fixed at 15 percent of the sample (as the floor). The concern is whether the survey may have over-sampled those firms with the specified attributes in economies that in reality have few of these firms. There is no reason to expect the reported proportion of small (or large) firms, foreign firms, and exporting firms should correspond exactly to their importance in the economy and there is no information about how these firms should be considered as a representative sample of all the firms in the country of their operation.

China/India sub-sample

Of the 10,032 firms sampled by the WBES, the China/India sub-sample contains 311 firms. Of these 311 firms, 210 are based in India and 101 are based in China. All of the Chinese firms provided responses to the question on general financing constraints (GFC), our dependent variable, compared with 188 Indian firms. Thus for the financing constraint question, the maximum number of observations is 289. Because there are twice as many firms based in India as there are in China, the China/India sub-sample in the WBES is unbalanced. This means that the China/India sub-sample is probably

best suited to examine dynamics at the country level and is less suited for research questions at the firm level. That said, we will adopt two strategies to improve the comparability of our findings in these two countries. One is that we will conduct a series of single-country regressions in order to zero in on the firm-level dynamics more accurately. This strategy avoids reliance on the unbalanced sample to generate findings.

The other strategy is to make the China/India sub-sample more balanced. One difference between the China and the India sub-samples is that the India sub-sample is over-represented by publicly listed firms. Of the 101 firms based in China, only 2 are listed, compared with 87 firms in the India sub-sample of 210. One way to make the China/India sub-sample more balanced is to take out (and/or control for) those firms that are publicly listed. Doing so will result in a China sub-sample of 99 firms and an India sub-sample of 123 firms. Taking out or controlling for listed firms also has a substantive justification. Because we are primarily concerned with bank policies, we can make sure that we focus more closely on credit constraints by taking out the listed firms. However, this approach is not without problems. For example, it could contaminate our findings if the bank policies are somewhat correlated with access to the stock market. Fortunately, it turns out that taking out the listed firms or controlling for their effect has no effect on our major findings.

There are other differences between the China and India sub-sample that should be noted explicitly. The China sub-sample has more firms with foreign ownership than the India sub-sample: 35 percent of the firms in the China sub-sample have some foreign ownership compared with 28 percent of the firms in the India sub-sample. However, when the WBES asks whether or not a firm is foreign controlled, no firm in either country answered in the affirmative. This suggests that foreign ownership in both countries is passive in nature and firms in both countries can be considered as domestic firms from a control perspective. There are also more firms in the China sub-sample that have government ownership than firms in the India sub-sample, 24 percent as compared with 12 percent. Again, no firm is actually controlled by the government. Thus, the firms in these two countries sampled by the WBES are not fundamentally different from an ownership control perspective. They are all domestic and they are all private, even though there are some differences in the degree of passive foreign and governmental ownership between the firms in these two countries. In our regression runs, we will impose controls on the foreign and governmental ownership status of firms.

In the regression analysis, an important determinant of the perception of financing constraints is the size of the firms. The WBES, as pointed out earlier, defines the size of the firms in terms of employment. By this criterion, the WBES over-sampled small firms in China relative to those in India. Nearly half of the Chinese firms, 44.6 percent, are small, but only 14.3 percent of the Indian firms are small. Our pooled regressions will include a small firm dummy variable to ensure that the country-level effect does not solely reflect this difference in the sampling of small firms.

Another sampling issue involves the geographic location of the firms. For example, if many Chinese firms in the WBES are located in the peripheral regions of the country whereas Indian firms are located in big cities, then any differences in their perceptions of the financing constraints may very well reflect a difference in the geographic density

of banking networks.[11] Although the WBES asked the respondent firms to provide information on their locations (whether in the capital city, a major city, or other small city), unfortunately none of the Chinese and Indian firms answered this question and therefore we cannot definitively rule out this sampling bias.

However, the available but indirect evidence suggests that it would be highly unlikely that the Chinese sample is over-represented by firms located in rural backward regions. The reason is that the natural bias in the WBES operates in the opposite direction—i.e., over-sampling firms in the big cities. Indeed, for this reason, researchers at the World Bank specified a target of sampling about 15 percent of firms located in the rural regions, although it is difficult to know the actual distribution because the majority of the respondent firms did not provide any information on location.[12]

Other indicators suggest that it is highly unlikely that Chinese firms are skewed toward peripheral, backward areas whereas the Indian firms are skewed in the opposite direction. Chinese firms, for example, report a higher foreign ownership than Indian firms (35 percent vs. 28 percent). FDI is largely an urban phenomenon. Another, albeit indirect and partial, indicator is that across a number of questions about the quality of public services, such as telephones, power, water, public health, and education, the Chinese firms consistently give better scores than the Indian firms. While this may reflect a general difference in the level and quality of public goods provision in the two countries, the consistency of the findings in favor of China suggests that the sampling is not systematically skewed in terms of the rural/urban distribution of firms. It is unreasonable to believe that public goods in the backward rural regions of China are *consistently* better than those in the advanced urban regions of India.

Dependent variable: General financing constraint (GFC)

We rely on a group of questions in the WBES designed to allow firms to assess their financing constraints. These are the questions which form the basis for the dependent variables used in our analysis. We will focus on one question that is most generally formulated to assess the financing constraints. This is Question 38 in the WBES, which states, "Please judge on a four-point scale how problematic are the following factors for the operation and growth of your business." Question 38a lists "general financing constraint (GFC)" as one of the twelve constraints faced by firms, ranging from—in addition to financing—infrastructure to anti-competitive practices by the government or private firms. Although the wording is not explicit, the WBES financing constraint refers to credit constraint. All the related questions about the GFC concern the operations of banks, such as collateral requirements, and so forth.

The responses to these WBES questions are on a four-point scale, from 1 (=no obstacle), 2 (=a minor obstacle), 3 (=a modest obstacle) to 4 (=a major obstacle). The values of these responses form the basis for our dependent variables. In this paper, we focus on the question about the general financing constraint or GFC and we are not concerned with the other types of business constraints. Our dependent variable takes two forms. First, we use the original values of the firms' responses as our dependent variable. This is abbreviated as GFC in the paper. Second, the dependent variable is coded as 1 if the firms chose 4 in their responses and it is coded zero otherwise. (The variable name is affixed a number 4 to indicate this coding strategy.)[13] For example,

GFC_4 is equal to 1 if GFC takes on a value of 4. We use the probit model for the binary dependent variables and the ordered probit model for the ordinal dependent variables. We will mainly present findings based on the ordered probit models and use the findings based on the probit models as an additional check. The two different coding methodologies, it should be noted here, produce identical results.

III. ANALYSIS OF THE WBES DATA

We will first present the descriptive findings on the WBES data based on the China/India sub-sample and then will present the results from an analysis of the joint regressions for the two countries together followed by the separate regressions for each country.

Descriptive Findings

Ex ante, there are a number of reasons to believe that domestic private firms in China should be less constrained as compared with their counterparts in India. For one thing, China has a far larger banking sector. In 2001, for example, domestic credit provided by the banking sector as a percentage ratio of GDP was 132.7 percent in China but only 53.8 percent in India (World Bank 2003). This implies that Chinese banks, for a given unit of GDP, lend twice as much as Indian banks. China began its economic reforms a full decade earlier than India and one would expect to see financial reforms in China further ahead as compared with those in India. Finally, much of the literature on China-India comparisons portrays China as being more supportive of private entrepreneurial activities.

The findings based on Question 38 in the WBES data, however, show that domestic private firms in China reported a substantially higher level of financing constraints as compared with their counterparts in India. On the question of the GFC, 80.2 percent of Chinese firms gave a score of either 3, i.e., a moderate obstacle) or 4. i.e., a major obstacle, to this question whereas 52.1 percent of Indian firms gave a score of either 3 or 4 to this question. The differential in their responses is even greater if we only look at those firms that gave a score of 4 in their responses; 66.3 percent of the Chinese firms gave a score of 4 to this question (i.e., rating financing constraints as a major obstacle for the operation and growth of their businesses) and only 25.5 percent of the Indian firms gave a score of 4.[14]

Let me emphasize that the reported level of China's GFC is not just higher as compared with India but it is also is higher as compared with the majority of the countries included in the WBES. Table 1 presents the percentage shares of firms across a number of countries that ranked the GFC as a major constraint (i.e., a score of 4 in response to Question 38) or as a moderate/major obstacle (i.e., a score of either 3 or 4). Thus higher numbers indicate greater perceived financing constraints; 66.3 percent of Chinese firms ranked the GFC as a major constraint. This is the second highest number on this table, the highest being Moldova (at 69.1 percent). Combining the scores of 3 and 4 as a single measure of the GFC improves China's ranking somewhat. Pakistan, Kyrgyzstan, Moldova, and Ukraine have higher scores than China whereas Romania, Belarus, and Croatia have similar scores to those of China. The percentages of Chinese firms ranking the GFC as a major constraint or as a moderate/major constraint are substantially

higher than the WBES averages. The WBES averages for these two measures of the GFC are 36.3 percent and 63.5 percent, respectively. The Indian numbers are lower than the WBES averages.

Table 1
Perception of General Financing Constraints (GFC), China, India, and selected countries

	General financing constraints (GFC) based on Question 38a in the WBES: "Please judge on a four-point scale how problematic are the following factors for the operation and growth of your business:" 1=No obstacle, 2=Minor obstacle, 3=Moderate obstacle, 4=Major obstacle		
Countries	*% of firms giving a score of 4*	*% of firms giving a score of 3 or 4*	*Per capita dollar (PPP), 2001*
China	66.3	80.2	4,260
India	25.5	52.1	2,450
South Asia			
Bangladesh	37.0	54.5	1,680
Pakistan	47.5	83.1	1,920
East and Southeast Asia			
Indonesia		50.0	2,940
Malaysia	41.0	41.0	8,340
Philippines	22.1	57.0	4,390
Singapore	35.0	30.3	24,910
Thailand	9.1	75.3	6,550
Transitional economies:			
Russia	51.8	79.5	8,660
Romania	59.4	80.5	5,980
Belarus	54.9	82.3	8,083
Bulgaria	56.7	73.3	5,950
Croatia	58.7	81.0	8,440
Georgia	58.1	78.3	2,860
Kazakhstan	48.8	79.5	6,370
Kyrgyzstan	64	87.2	2,710
Lithuania	35.9	69.8	7,610

Source: WBES. Per-capita income data are from Table 1 of World Bank (2003).

Several other interesting patterns can be seen in Table 1. One is that the high Chinese GFC is not explained by income. In terms of per-capita income (PPP-based), several countries in the table are poorer than—or at least comparable to—China and yet they have lower GFC levels. These countries include India, Bangladesh, Indonesia, the Philippines, and Georgia. The second pattern is how China is dramatically different from those countries that many scholars put in the same category as China—the fast-growing Southeast Asian countries. No country in Southeast Asia comes remotely close to China in terms of its GFC ranking. The two countries with the highest GFC levels in the Southeast Asian region are Indonesia and Thailand, but only 41 percent of the firms in these two countries ranked the GFC as a major constraint, compared with 66.3 percent of the Chinese firms. In fact, India is far closer to the countries in Southeast Asia than China in terms of GFC profiles. India's ranking is very close to that of Malaysia (25.5 percent vs. 22.1 percent) and to that of the Philippines (25.5 percent vs. 35 percent).

That India is quite close to Southeast Asia in its GFC profile is *prima facie* evidence that the design of financial institutions—as opposed to culture or other geography-specific factors—matters the most for access to capital on the part of private firms. This point is reinforced by the fact that China's GFC profile is broadly similar to that of the other transitional economies. Every single transitional economy included in Table 1, except for Lithuania, has a higher reported GFC level compared with the established capitalist economies in the table. The only countries that have a higher GFC level than China are all transitional economies. This finding suggests that the source of the financing constraints for the private sector is rooted in the legacy central planning. A further implication of this finding is that at least in the area of the GFC there is no empirical basis for the assertion made by Desai that China is more capitalistic than India.[15]

There are other findings from the WBES that are broadly consistent with the view that Chinese private firms are more financially constrained as compared with Indian firms. Sources of finance for fixed-asset investment are an important barometer. Typically, firms in fast-growing economies resort to external sources of capital to rapidly ramp up production or investments. Internal financing is not sufficient. For example, Korean firms in the 1960s and 1970s relied heavily on the leverage factor for expansion. Given that the Chinese economy has grown faster than the Indian economy and that the size of the Chinese banking sector is twice the size of the Indian banking sector, one would expect that Chinese firms would draw on external sources of capital for expansion more than Indian firms.

This is not the case in the WBES. Retained earnings accounted for 57 percent of the sources of fixed-asset investment financing among the sampled Chinese firms in the WBES, compared with 27 percent of the sampled Indian firms. A remarkable statistic is that local commercial banks only accounted for 9 percent of fixed-asset financing among the sampled Chinese firms, compared with 22 percent for the Indian firms in the WBES. Again, China is closer to the transitional economies than to the rest of Asia. In terms of retained earnings as a source of fixed-asset investment, the percentages for countries such as Bulgaria, Russia, Moldova, Romania, and Ukraine range from 58 percent to 70 percent. For the rest of Asia, outside of China, the percentages range from 16 percent to 50 percent. By this measure, India, again, resembles other Asian countries more than China does.

One way to understand better the differences in the GFC perception by Chinese and Indian firms is to find the sources of their perceived financing constraints. The WBES asks the firms to identify the reasons why financing constraints arise in the first place. Five sources of financing difficulties are given in the WBES: 1) collateral requirements, 2) bank paperwork, 3) high interest rates, 4) special connections, and 5) the banks' lack of money to lend. On four of these measures, the Chinese firms in fact provide better ratings than the Indian firms. For example, 50.5 percent of the Indian firms view collateral requirements as a "major" or "moderate" obstacle toward obtaining finance, compared with only 20.2 percent of the Chinese firms. The Indian firms complain viscerally about bank paperwork (50.5 percent), high interest rates (81.2 percent), and the need for special connections (35 percent). In contrast, the Chinese scores in these three categories are 29 percent, 35.4 percent, and 25.3 percent respectively.

Why did the Chinese firms complain less about those aspects having to do with the banks' operating procedures than the Indian firms? Does this finding contradict the notion that the Chinese firms were more financially constrained than the Indian firms? In fact, the two findings are entirely consistent with each other. We can think of cumbersome operating procedures as a cost of borrowing from a bank. The more cumbersome these procedures are, the more costly the bank borrowing is. The fact that the Chinese firms simultaneously report higher financing constraints but lower borrowing costs suggests that the sources of financing constraints differ between China and India. In India, some of the firms in the WBES are financially constrained because of the high borrowing costs (due to cumbersome procedures, among others). Thus in India we have a familiar and classic situation whereby banks in developing countries are inefficient and underdeveloped. As a result, they impose high borrowing costs on their customers in order to reduce default risks.

In China, the source of the financing constraints is more likely to be a policy bias against private ownership. Until 1999, the four largest state banks were categorically banned from lending to domestic private firms. As China scholars have pointed out, the entire Chinese banking system is oriented to serve the SOEs, not the private firms. The banks' operating procedures, however cumbersome, would have little effect on the firms' borrowing decisions if the banks were predisposed not to lend to private firms.

The above dynamic shows up in the WBES data. China ranked better in the area of operating procedures—such as collateral requirements, paperwork, high interest rates, and special connections to banks—not only than India but also better than the United States. Does this suggest that China has better banks than the United States? Hardly. A far more plausible explanation is that these banking practices matter little to a firm if that firm never gets a loan. The WBES provides direct evidence on this issue. It asked the respondent firms whether or not their banks had enough capital to lend to them. The responses from the Indian and Chinese firms are surprising. Despite the fact that China's banking sector is twice as large as that of India, Chinese firms in the WBES complained strongly that the banks did not have enough capital to lend. On the question of whether the banks lack money to lend, 37 percent of the Chinese firms answered yes, but only 18.5 percent of the Indian firms answered yes. Keep in mind that all the firms in the WBES are private firms and thus this finding that the Chinese firms in the WBES perceive banks to lack capital suggests that the Chinese banks must have lent massively to firms outside the purview of the WBES—i.e., to the SOEs. The private firms sampled by the WBES—many of which are probably the best and largest in the country—are completely side-stepped by China's enormous banking system. The financial bias against private firms extends beyond the banking sector. In the WBES, equity financing accounted for 2.6 percent of the fixed-asset investments for the Chinese firms, while it was 5.2 percent for the Indian firms.

Joint Regressions of the Two-Country Subsample

In the next two sections, we will conduct a regression analysis of the WBES data based on the China/India subsample. First, the data will be pooled from both countries and then we will conduct a regression analysis of the data separately drawn from each country. In the case that our descriptive findings are influenced by such factors as

differences in firm size, industry composition, the extent of foreign and government ownership, and a host of other firm-level factors, the regression analysis enables us to control for these factors. Our analysis shows a number of things. First, controlling for these other firm-level factors, industry characteristics, and so forth does not change our finding that Chinese firms report a higher level of financing constraints than Indian firms. Second, in the joint regressions involving firms from both countries, most of the firm- or industry-level factors are unimportant in determining the perception of the financing constraints on the part of the respondent firms.

Before we discuss the definition and formulation of the variables and the statistical techniques, it should be noted that survey research is always subject to a number of potential biases. Two biases are highlighted here. One is the possibility that our survey responses are affected by the cultural or political environments of the respondents. For example, one may argue that the Indian and Chinese respondents may differ in their proclivity to complain.[16] This attitudinal difference may explain why the Chinese consistently report a higher level of financing constraints as compared with the Indians in the WBES. Without going into the issue of whether Indians and Chinese do in fact differ along this line (or if they do, whether the postulated direction of the difference is plausible[17]), it is clear from the WBES that this bias is clearly absent. For one thing, the Chinese do not consistently complain more than the Indians. In fact, as pointed out earlier, on the measures of the banks' operating procedures the Chinese complained far less. On the other hand, Chinese complain much more than Indians do about labor regulations, tax rates, and infrastructures in WBES. There is no evidence that Chinese consistently complain more than Indians across the board. The other piece of evidence is that the Chinese perceptions of the GFC are in fact closer to those of firms based in *European* transitional economies, whereas the Indian perceptions are closer to those of firms based in Southeast Asia. A cultural explanation would not predict this pattern.

The other potential complication is that the Chinese and Indian responses may be a function of the operating history of their own firms. Here, two opposite hypotheses can be postulated. One is the idea that Chinese firms may have more investment opportunities—because the Chinese economy has grown faster—and thus they can be easily frustrated by their financing environment as compared with less robust Indian firms. If so, the difference in the reported level of financing constraints can be attributed to the difference in the macroeconomic environment between China and India, not to an objective difference in financing constraints. However, there is an opposite hypothesis known as the "kvetch factor" in survey research. The kvetch factor refers to a propensity to either exaggerate or discount the objectively-extant financing obstacles. For example, a firm that is doing very well may systematically discount the regulatory obstacles it faces and conversely a firm that does poorly may tend to do the opposite.[18]

One reason why this potential complication should not affect our results too much is these biases may cancel out each other. Nevertheless, one way to minimize the effect of these biases requires detailed performance data. The WBES is rich in perception data but relatively poor in performance data. The WBES asked firms to supply qualitative data on changes in sales, investment and labor (decrease, no change and change). But the problem is that these data are very incomplete. Of 311 Chinese and Indian firms, only about one third of them supplied this information. In regressions including these

performance variables, the results are not affected, but in order to increase the sample size the regressions reported in this article will not include these performance variables.

A firm's financing constraints are determined by a number of factors, in addition to bank policies. For example, industry characteristics may have an impact on access to bank credit through several channels. The WBES breaks down firms by five industries, manufacturing, service, agriculture, construction, and an unknown category labeled as "others." The differences in the economic characteristics of these five industries may have differential effects on a firm's ability to obtain credit. For example, a firm engaged in manufacturing production may have collateral assets in a way a service firm does not. Or a firm in manufacturing production may be located in a city which has a denser bank branch network as compared with a firm located in a rural area. In all the regression runs, we include a dummy variable denoting manufacturing industries.

Firm size may affect a firm's ability to obtain credit. A larger firm may pose a smaller risk as compared with a smaller firm. Or banks may know more about the operations of a large firm as compared with a smaller firm. In all the regression runs, we include a dummy variable denoting a small firm category (abbreviated as SMF). The WBES asks the respondent firms to classify themselves as small, medium-sized, or large based on their employment size. Firms employing 50 or fewer workers are classified as small firms. We will include other firm-level variables in order to better demonstrate the effect of bank policies, as opposed to the effect of the characteristics of the firms themselves. Ideally, one would like to include a variable denoting the "creditworthiness" of the firm in order to isolate the effect from the policy-induced bank treatment of a firm. No detailed financial information about the sampled firms is provided in the WBES. Instead, we use Question 32 in the WBES, which asks whether a firm's financial performance has been reviewed by an external auditor. This variable is abbreviated as EXTAUD. This is a proxy variable to denote whether or not a firm has followed transparent accounting procedures. In some of the regression runs, we also include a variable measuring the perception on the part of a sampled firm as to whether or not banks have adequate credit/financial information about their customer firms, abbreviated as CRD. This is meant to capture, albeit imperfectly, the availability of information to the banks.

In various regressions, we also include dummy variables that denote the external orientation of the sampled firm. Two variables are available for this purpose. One records whether or not a firm produces for export (EXP); the other records whether or not a firm has foreign ownership (FOR). Finally, we also include a dummy variable denoting whether or not a firm has government ownership (GOV). Table 2 presents the summary statistics of the variables used in the regression analysis and explains the definitions and the abbreviations of these variables.

Table 3 presents findings from both ordered probit and probit estimations of the joint China-India sub-sample of the WBES data. In all these regressions a dummy variable, CHINA, is included to denote the China-specific effect in the financing constraints as compared with the India-specific effect. Positive coefficients are associated with greater reported financing constraints in the WBES. Thus, a positive CHINA coefficient means that Chinese firms report greater financing constraints than Indian

Table 2
Summary statistics

Variable explanations	*Mean value*	*Standard deviation values*	*Maximum values*	*Minimum values*	*Number of observations*
General financing constraints (GFC)	2.83	1.15	4	1	289
Binary general financing constraints (GFC_34)	0.62	0.49	1	0	289
Binary general financing constraints (GFC_4)	0.40	0.49	1	0	289
China dummy (CHINA)	0.33	0.47	1	0	311
Availability of credit information to banks (CRD)	2.13	1.03	1	0	311
External auditor dummy (EXTAUD)	0.76	0.43	1	0	311
Small firm dummy (SMF)	0.24	0.43	1	0	311
Year firm was founded (YEAR)	1977	21.6	1999	1840	282
Manufacturing dummy (MFN)	0.71	0.45	1	0	310
Listed firm dummy (LST)	0.29	0.45	1	0	311
Dummy for firms with government ownership (GOV)	0.16	0.36	1	0	307
Dummy for firms with foreign ownership (FOR)	0.30	0.46	1	0	308
Export status dummy (EXP)	0.52	0.50	1	0	299

firms after controlling for a variety of firm- and industry-level characteristics. Because we lack strong priors about our findings, we apply two-tailed tests to assess the statistical-significance levels of the coefficients. All the standard errors refer to robust standard errors.

Throughout all the specifications, from (1a) to (2b), CHINA is consistently positive and statistically significant at the 1 percent level. The coefficient ranges from 0.73 (1b) to 0.92 (2b). This finding holds regardless of what alternative firm-level controls are imposed and regardless of how the dependent variable is formulated. While the magnitude of the CHINA coefficient varies a bit across the different specifications, that of the standard errors remains remarkably constant. This is an impressive result considering the fact that the sample size—therefore the composition of the included firms—varies quite a bit, from 165 in (1b) to 264 in (1d).

Column (1a) reports the findings from the basic specification of the model. In this version, a variable denoting credit information (CRD), a dummy whether a firm is audited externally (EXTAUD), a small firm dummy (SMF), the year in which the firm was founded (YEAR), and a dummy for manufacturing industries (MFN) are included. The dependent variable is the GFC, i.e., the original response values for Question 38a, ranging from 1 (=No obstacle) to 4 (=Major obstacle). The coefficient for CHINA is 0.78 and it is statistically significant at the 1 percent level.

This basic specification is then modified in a number of ways, from (1b) through (1g). As pointed out earlier, the India sub-sample of the WBES contains far more publicly listed firms as compared with the China sub-sample. Lest that the CHINA coefficient

Table 3
Ordered probit and probit estimates: Testing the China-India difference in financing constraints

Dependent variables	*General financing constraints (GFC) based on Question 38a in the WBES: "Please judge on a four-point scale how problematic are the following factors for the operation and growth of your business:" 1=No obstacle, 2=Minor obstacle, 3=Moderate obstacle, 4=Major obstacle*								
	(1) Ordered probit estimates: GFC = Original response values ranging from 1 to 4							*(2) Probit estimates: (2a) GFC_34=0 when GFC takes on either 1 or 2; = 1 when GFC takes on either 3 or 4 and (2b) GFC_4=0 when GFC takes on the values of 1, 2 or 3; = 1 when GFC takes on the value of 4.*	
Various specifications	*(1a) Basic specification*	*(1b) Omitting listed firms from the sample*	*(1c) Including listed firms as a dummy variable*	*(1d) Omitting CRD variable*	*(1e Adding) government ownership dummy variable*	*(1f) Adding foreign ownership dummy variable*	*(1g) Adding export status dummy variable*	*(2a) GFC_34*	*(2b) GFC_4*
China dummy (CHINA)	0.78***	0.73***	0.75***	0.84***	0.74***	0.89***	0.89***	0.75***	0.92***
	(0.21)	(0.22)	(0.21)	(0.20)	(0.22)	(0.23)	(0.23)	(0.24)	(0.23)
Availability of credit information to banks (CRD)	0.20**	0.11	0.19**		0.21**	0.18**	0.17**	0.18**	0.14
	(0.08)	(0.10)	(0.08)		(0.08)	(0.08)	(0.09)	(0.09)	(0.09)
External auditor dummy (EXTAUD)	-0.10	-0.10	-0.09	-0.17	-0.09	0.02	0.01	-0.06	-0.16
	(0.23)	(0.24)	(0.23)	(0.22)	(0.23)	(0.23)	(0.24)	(0.26)	(0.23)
Small firm dummy (SMF)	0.30	0.28	0.28	0.14	0.28	0.29	0.28	0.23	0.31
	(0.22)	(0.23)	(0.22)	(0.20)	(0.22)	(0.22)	(0.22)	(0.24)	(0.22)
Year firm was founded (YEAR)	-0.005	-0.004	-0.006*	-0.005	-0.006	-0.007*	-0.008*	-0.01**	-0.001
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)
Manufacturing dummy (MFN)	0.07	0.19	0.09	0.04	0.08	0.13	0.15	0.07	0.20
	(0.17)	(0.19)	(0.17)	(0.015)	(0.17)	(0.17)	(0.16)	(0.20)	(0.21)
Listed firm dummy (LST)			-0.12		-0.12	-0.12	-0.04	-0.13	-0.06
			(0.18)		(0.17)	(0.18)	(0.19)	(0.23)	(0.24)
Dummy for firms with government ownership (GOV)					0.12	0.11	0.13		
					(0.18)	(0.18)	(0.18)		
Dummy for firms with foreign ownership (FOR)						-0.41**	-0.43**		
						(0.18)	(0.18)		
Export status dummy (EXP)							-0.22		
							(0.16)		
No. of observations	231	165	231	264	228	227	221	231	231

Notes: Two-tailed significance tests. ***=Significant at 1%; **=Significant at 5%; *=Significant at 10%. Robust standard errors are in parentheses.

reflect this difference, if, for example, the listed firms are less constrained than the unlisted firms (due, for example, to their access to the capital market), in (1b) we take out all the listed firms from our sample. The sample size is reduced substantially, from 231 to 165 but the CHINA coefficient remains positive and statistically significant at the 1 percent level. The size of the CHINA coefficient hardly changes and it is 0.73 in (1b). Thus we can rule out the possibility that the difference in the listed firms between China and India explains the positive coefficient of CHINA. In fact, under (1c), which includes a dummy variable denoting those listed firms (LST), LST itself is not statistically significant. None of the LST coefficients are statistically significant in any of the other specifications.

The credit information variable (CRD) is included with the idea that there is a difference between policy-imposed financing constraints and financing constraints due to information constraints. Banks in developing countries often have poor information about their potential clients and are reluctant to lend to those firms about which they know little.This is rational behavior. We include the CRD to make sure that the GFC would then mostly pick up the policy-imposed constraints. But because the CRD can be highly correlated with the GFC—the simple two-way correlation is about 0.30—and if Chinese banks are less developed than Indian banks in developing information about their potential clients, it is possible that the CHINA coefficient may simply reflect this difference. Specification (1d) tests this hypothesis. Comparing (1d) with (1a), it is clear that while CHINA incorporates some of the effect attributed to the CRD, CHINA is still positive and statistically significant regardless of whether the CRD is included. Thus CHINA and the CRD affect financing constraints separately and independently, as indicated by the fact that both CHINA and the CRD are positive and statistically significant.

Specifications (1e), (1f), and (1g) test the hypothesis that the differences in government ownership, foreign ownership, and the export status of our sampled firms in China and India may affect the findings on CHINA. Including these variables sequentially has no effect on the statistical significance of the CHINA coefficient, although including the foreign ownership dummy (FOR)—but not the export status dummy (EXP)—does substantially increase the size of the CHINA coefficient. This suggests that the correlations between CHINA and FOR are high and that the failure to include FOR or EXP in the previous specifications forces the CHINA effect to incorporate the effects from FOR. This is confirmed by the fact that FOR is negative and statistically significant, suggesting that one of the effects of having foreign ownership is an alleviation of the financing constraints, a topic that I will return to in the next section.

Specifications (2a) and (2b) present the probit estimates. In (2a), we use a binary dependent variable, GFC_34, which is equal to 0 when the GFC is 1 or 2 (i.e., when the GFC is rated as no obstacle or as a minor obstacle) and is equal to 1 when the GFC is 3 or 4 (i.e., when the GFC is rated as a moderate or major obstacle). In (2b), we use a binary dependent variable, GFC_4, which is set to 0 when the GFC is 1, 2, or 3 and is set to 1 when the GFC is 4. In both specifications, again, the CHINA coefficient is positive and is statistically significant, after controlling for a variety of firm- and industry-level influences. What is worth noting is the sharp jump in the size of the CHINA coefficient from (2a) to (2b), from 0.75 to 0.92. This suggests that a huge proportion of the Chinese

firms gave 4 (=a major obstacle) when answering Question 38a in the WBES as compared with the Indian firms. This is further evidence that the reported financing constraints in China are extreme as compared with the reported financing constraints in India.

Single-country Regressions

Next we turn to a group of single-country regressions in order to nail down more precisely the drivers of the financing constraints within each country. We rely on ordered probit estimates, although the probit estimates—not shown in this paper—are similar. For illustrative ease, for each identical specification, we put the findings for China and India side by side to enable direct comparisons.

Table 4
Ordered probit estimates: Single-country regressions

	General financing constraints (GFC) based on Question 38a in the WBES: "Please judge on a four-point scale how problematic are the following factors for the operation and growth of your business:" 1=No obstacle, 2=Minor obstacle, 3=Moderate obstacle, 4=Major obstacle					
Dependent variables:	*Ordered probit estimates: GFC=Original response values ranging from 1 to 4*					
Various specifications	*(1) Basic specification*		*(2) Taking out CRD*		*(3) Taking out SMF*	
	China	*India*	*China*	*India*	*China*	*India*
Availability of credit information to banks (CRD)	0.07	0.30**			0.11	0.30**
	(0.13)	(0.11)			(0.13)	(0.11)
External auditor dummy (EXTAUD)	0.10	-0.37	0.07	-0.50	0.05	-0.21
	(0.32)	(0.46)	(0.32)	(0.46)	(0.32)	(0.42)
Small firm dummy (SMF)	0.72**	-0.30	0.74**	-0.63*		
	(0.27)	(0.36)	(0.26)	(0.33)		
Year firm was founded (YEAR)	-0.009	-0.006	-0.01	-0.006	0.001	-0.006
	(0.01)	(0.004)	(0.01)	(0.004)	(0.01)	(0.004)
Manufacturing dummy (MFN)	0.33	0.07	0.32	0.04	0.29	0.07
	(0.29)	(0.20)	(0.28)	(0.19)	(0.29)	(0.21)
Listed firm dummy (LST)	0.14	-0.05	0.18	-0.16	0.04	0.03
	(0.62)	(0.21)	(0.63)	(0.20)	(0.62)	(0.21)
Dummy for firms with government ownership (GOV)	0.38	-0.13	0.39	-0.002	0.40	-0.12
	(0.36)	(0.24)	(0.34)	(0.22)	(0.36)	(0.25)
Dummy for firms with foreign ownership (FOR)	-0.67*	-0.24	-0.67*	-0.35	0.68**	-0.23
	(0.33)	(0.22)	(0.32)	(0.19)	(0.32)	(0.22)
Export status dummy (EXP)	-0.22	-0.28	-0.18	-0.26	0.25	-0.26
	(0.33)	(0.20)	(0.33)	(0.18)	(0.34)	(0.19)
No. of observations	91	130	93	160	91	130

Notes: Two-tailed significance tests. ***=Significant at 1%; **=Significant at 5%; *=Significant at 10%. Robust standard errors are in parentheses.

Table 4 presents ordered probit estimates from two separate regressions—of the Chinese firms and of the Indian firms. Specification (1) has CRD, EXTAUD, SMF, YEAR, MFN, LST, GOV, FOR, and EXP as independent variables and the GFC as the dependent variable. This specification produces very interesting differences between the China regression and the India regression. For the China regression, two variables are

statistically significant, SMF and FOR; for the India regression, only CRD is statistically significant. More interesting is the direction of the statistically significant coefficients. For the China regression, SMF is positive, suggesting, everything else being equal, a small firm in China reports to be more financially constrained as compared with a medium or large firm. Also for the China regression FOR is negative, suggesting that firms with foreign ownership report to be less financially constrained as compared with firms without any foreign ownership.

For the India regression, SMF is not statistically significant at all. Thus in contrast to China, small firms in India are not financially constrained as compared with larger firms. In India, however, the constraining factor is CRD, i.e., those firms that report greater problems in credit information tend to be the firms that are financially constrained. FOR, in contrast to China, has no effect on financing constraints in India.

The finding on the SMF is extremely interesting and worth elaborating upon further. One question is whether or not the SMF in the China sample and the CRD in the India sample have an independent effect on the GFC or whether they constrain the firms via another mechanism. One reasonable mechanism is the interaction between the SMF and the CRD. For the China sample, it is worth exploring whether the CRD is insignificant because most of its effect is incorporated in the SMF. For the India sample, it is worth exploring whether the SMF effect is incorporated in the CRD. Specifications in (2) and (3) test this idea.

Specifications (2) and (3) take out the CRD and the SMF from the regressions respectively. Comparing the results from (2) and (3) with those from (1), it is clear that the SMF effect for the China regression and the CRD effect for the India regression are independent of the alternate inclusions of these two variables. The SMF is still statistically significant and positive for the China regression under (2) and the size of its coefficient hardly changes from that under (1). The CRD for the India regression under (3) is the same as the CRD for the India regression under (1). Thus it seems that the small Chinese firms are financially constrained because they are small, rather than, for example, because the banks have poor credit information about them. For the India regression, firms about which banks have poor credit information are financially constrained regardless of their size. One interesting finding is that for the India regression when the CRD is excluded, the coefficient for the SMF doubles in size to reach a 10 percent statistical significance and its sign is negative. This suggests, in sharp contrast to the China sample, small Indian firms, regardless of their credit information availability, are in fact *less* financially constrained as compared with medium or larger firms. With better data, this finding should be further explored.[19]

IV. CONCLUSION

Let me summarize the main findings and offer some broad conjectures. One major finding is that domestic private firms based in China report substantially more severe financing constraints than their counterparts in India even after a number of firm- and industry-level characteristics are controlled for. The second major finding is that firms in China and in India both face financing constraints but they do so for different reasons. For the Chinese firms, the most important constraining factor is the size of the firm. Smaller firms report greater financing constraints as compared with medium- and large firms.

Also for the Chinese firms, one alleviating factor seems to be foreign ownership, even if this foreign ownership does not involve operating control by the foreign firms. For the Indian firms, the dynamics are quite different. Here the constraining factor seems to be the underdevelopment of the financial institutions to gather credit information about their potential clients.

Putting these two findings together, it is possible that one reason why CHINA appears consistently positive in the pooled regressions is that the China subsample contains more small firms. Indeed, this is the case. About half of the China subsample, 45 percent, consists of small firms, but only 14.3 percent of the India subsample is made up of small firms. So the CHINA effect captures some of the SMF effect but not all of it. When the SMF is removed from the pooled regressions, the coefficient of the CHINA variable increases substantially but, as this paper has shown, including the SMF does not make the CHINA effect disappear. This suggests that CHINA captures a dynamic other than the effect of firm size.

These findings are suggestive, not definitive. One issue has to do with the nature of the survey research. Although we can establish that Chinese firms report greater financing constraints, we do not have data to show that they are actually more financially constrained than Indian firms. One hypothesis is that because the Chinese economy has grown faster, the Chinese firms may have greater needs for finance than the Indian firms. And relative to this greater need for capital Chinese firms may be more financially constrained. This reasoning would lead to the conclusion that Chinese financial institutions may still function better than Indian financial institutions in an absolute sense but they may have failed in a fast-growing economy. What may temper this hypothesis is the fact that at least in our descriptive analysis there is evidence that China's GFC profile bears broad similarities with the GFC profile in slow-growing transitional economies. We need objective loan data to resolve this question definitively.

The other hypothesis is that we may have postulated the wrong causal direction. For example, one may wish to argue that the reason why the SMF is associated with greater financing constraints in the China sub-sample may have to do with the fact that firms that failed to obtain finance in the past have failed to grow big, not because Chinese financial institutions discriminate against smaller firms. Although we do not have data to test this hypothesis directly, it is quite plausible to argue that the causal direction runs from the SMF to the GFC, rather than the other way around. The reason is that this "growth" story should just as well apply to the Indian firms as to the Chinese firms. Firms that are financially constrained should grow more slowly anywhere in the world, not just in China. But, as we have seen, this constraining SMF effect is only found in the China-specific regressions. Thus the SMF seems to be country-specific and this is reason to believe that it is related more to policies rather than to dynamics involving a normal business growth process.

There are some larger, albeit tentative, policy implications from our findings. If it is true that the CRD does constrain access to credit in India, then this seems to be typical of a backward banking system of a developing country. The banks possess poor risk-assessment capabilities and lack information about their potential customers. To play it safe, they often require a lot of collateral, they impose onerous bureaucratic

requirements, and they resort to exorbitant interest rates in order to price out the risks. A sophisticated banking system obviates these blunt instruments; for example, in the WBES, the scores for American firms on these dimensions of financing constraints are considerably lower than the Indian scores. Thus, Indian firms are credit-constrained for technical reasons. Their list of complaints will ring a bell with many entrepreneurs located in developing countries endowed with under-developed banking sectors. This is a development story *par excellence*.

On the other hand, if it is true that the SMF is truly associated with greater credit constraints in China, even after the informational constraints are controlled for, this finding suggests that bank policies in China systematically discriminate against smaller firms. This finding is consistent with descriptive and narrative research on this topic. Thus banks in China have failed to provide capital to domestic private firms not for technical reasons but for policy reasons. Although many do not bother to do so, it is analytically useful to make a distinction between an under-developed banking sector and a *biased* banking sector.

Our finding supports the view that banks in India seem to do a better job of providing finance to small domestic private firms than banks in China. One could attribute this result to deeper financial reforms in India as compared with China. As surmised from a number of studies, the Indian banking system is more diversified in terms of ownership between private and public institutions and between foreign and domestic institutions. It is also true that the Indian government began to liberalize its financial system much earlier in the early 1990s. China, despite the fact it began to reform in the late 1970s, is still grappling even today with what Nicholas Lardy (1998) calls "an unfinished economic revolution." The regressions based on the WBES data are entirely consistent with these portrayals of the Chinese and Indian banking systems.

NOTES

1. The author thanks Professor Penelope B. Prime and an anonymous reviewer for comments on an earlier draft. The usual caveats apply.

2. See King and Levine (1993) and Levine (1997).

3. The WBES dataset is contained in Batra, Kaufmann and Stone (2003).

4. Two articles in The Economist in 2003 and 2005, although inconsistent in their animal allegory—the tiger in the 2003 piece refers to India whereas the tiger in the 2005 piece refers to China—are nevertheless consistent in their conclusion that China has substantially outperformed India. See The Economist (2003; 2005). That said, business analysts have recently recognized that India has also performed well in an absolute sense, but still not as impressively as China. Martin Wolf, a respected economic columnist for the Financial Times, summarizes this new "consensus" most succinctly when he writes, "it will remain more China than India for some time." See Wolf (2005).

5. The dataset is available at www.worldbank/wbi/governance/govdata2002/

6. These indicators are compiled on the basis of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks. The KKZ indicators range from -2.5 to +2.5, with higher values corresponding to a better governance outcome. For government effectiveness and political stability, the KKZ indicators are positive for China but negative for India. For the remaining two areas, regulatory quality and control of corruption, the KKZ indicators are negative for both countries. Transparency International, another major international rating agency, consistently ranks India worse than China in terms of corruption.

7. See Brandt and Li (2002) and Tsai (2002).
8. In a detailed study, Woo (2005) shows how inefficient rural financial institutions have contributed to the demise of once-vibrant rural enterprises. Others believe that the formal financial sector has not affected growth because of the existence a competitive informal financial sector. FDI has also played a role in substituting for the functions normally performed by the formal financial sector. FDI has been a source of capital to credit-constrained entrepreneurs in China, rather than, as often alleged, a source of technology and management know-how (Huang 2003).
9. Three papers are briefly summarized here. They are Bhattacharya and Patel (2003), Banerjee, Cole and Duflo (2005), and Banerjee, Cole and Duflo (2004).
10. The WBES dataset does contain more objective indicators. The survey asked for information on the amount of full- and part-time employment and more detailed industry breakdowns (garment, agro-processing, heavy industry, etc.). The World Bank has declined a request by this author to obtain these data on confidentiality grounds.
11. I thank an anonymous reviewer for raising this question.
12. The firms that provided the responses to the location question were all in European countries. Of the 3,400 firms that provided locational information, over 90 percent of the respondent firms were located in a capital city.
13. We have also formulated the dependent variable by setting to 1 for firms choosing 3 or 4 in their responses (and as 0 otherwise). The results, some reported in the paper, do not differ.
14. It should be pointed out that in the same study China fares much better when it comes to labor and licensing regulations as compared with India.
15. Due to space constraints, Table 1 does not include the Latin American countries or African countries. Their inclusion would not change the substance of the conclusions. The level of the GFC in those countries does not come close to the level prevailing in China and in the other transitional economies.
16. An anonymous reviewer raised this issue.
17. In fact, the opposite postulation is more plausible. India is a democracy and thus managers can speak out without fearing reprisals from the government.
18. See Kaufmann and Wei (1999).
19. One possibility is that this finding may reflect Indian government policy to support small-scale industries.

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