Regional Competition and Regulatory Decentralization: The Case of China[1]

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Abstract

The Chinese regulatory decentralization has evolved since regulation was introduced in the transition process. The quota system is an important instrument in China's regulatory regimes. Stock issuance quota system for regulating public offerings in securities markets is a major example. We argue that under certain conditions quotas can generate proper incentives to induce regional governments to cooperate in implementing regulations nationwide. Four groups of evidence are provided that regulatory decentralization in China's financial market has created incentives for regional competition and decentralized information collection in stock issuance. Weaknesses and limitations of the Chinese regulatory decentralization are discussed.

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I. Introduction

It is evident from the growing literature that institutions of protecting property rights and regulation to ensure market orders are important determinants of long-term economic performance including financial development (e.g., Glaeser et al., 2001; Rodrik et al., 2004; and Acemoglu and Johnson, 2005). The prevailing view emphasizes that legal and regulatory institutions should play a primary role in maintaining a market economy, whereas the government should be separated from business. However, despite the fact that China has increased its reliance on market forces tremendously since economic reforms began almost thirty years ago it has retained considerable state control of the national economy (Allen et al., 2005).

Nevertheless, the mode of state control in the Chinese economy has actually changed dramatically. State ownership is dwindling steadily and state planning concedes to public regulations. Compared with the pre-reform central planning era, the state has been transforming itself from an omnipotent and omnipresent owner of the economy to a regulatory body that governs the economy through various regulations such as standard setting, permit issuance, supervision, and monitoring.

The path toward and the function of a regulatory state in China differ considerably from those in developed countries. In developed market economies, market discipline and private legal action through courts had been the fundamental instruments for the functioning of a market economy. The regulatory state emerged only when the court-based judiciary system was ineffective for various reasons (Glaeser and Shleifer, 2003). In contrast, public regulations emerge in China's transition toward a market economy when state ownership of the economy declines but market discipline and rule of law are yet to be established. This difference in genesis means that China's regulatory

state retains much more control of the economy than its counterparts in mature market economies. In China, a major task of public regulations is to enable markets to develop when rule of law is almost absent.

Built upon weak legal institutions and a decentralized economy, China introduced a regulatory decentralization in its public regulation system. The central regulatory authorities break down the regulatory tasks and delegate them to regional governments. This system has developed from the institutional base of regional decentralization and regional competition to help implement national regulatory goals. One important instrument of Chinese regulatory decentralization is the quota system. In this study, we provide evidence from the Chinese financial market regulation that the quota system creates a dynamic incentive scheme.

China had a very weak legal basis when it began to develop financial markets in the early 1990s. Courts were ineffectual and have in fact not played an important role in enforcing investor rights to this day. However, China has achieved a remarkable development of financial markets with poor formal legal institutions (Pistor and Xu, 2005). This seems to contradict the conventional wisdom of the law and finance literature which demonstrates that law and related governance mechanisms are important preconditions for financial market development (La Porta et al., 1998).

We argue that an administrative governance of Chinese equity markets has partially filled the void created by the lack of legal governance in China's financial sector. And the stock issuance quota system contributed to this administrative regime. The quota system enlisted the pre-existing institutions of administrative governance in the selection of companies for listing or raising additional equity on a stock exchange.

Based on the existing regional competition, it created further competition among regions for access to centrally controlled equity market. It tapped into the insider knowledge about firms of state bureaucrats.

We conduct a systematic empirical analysis to demonstrate that regulatory decentralization reflected in the stock issuance quota system generates a dynamic incentive scheme that encourages regional governments to participate in governing the stock markets. Four groups of evidences are provided. First, based on a panel dataset, our results suggest that regions with better corporate performance and/or better regional economic performance obtained more quotas in subsequent periods. Second, our firm-level panel data evidence suggests that every thing else being equal listed firms located in areas with better regional corporate performance and/or better regional economic performance in previous periods received more quota allocations later. This evidence mitigates the potential endogeneity problems. The third evidence is the most important. We demonstrate that listed firms from regions that disclosed information better were rewarded with more stock quotas in the ensuing periods. Moreover, quality of regional information disclosure was substantially more important than other factors, such as regional corporate/economic performances, in determining how quotas were allocated to regions. These findings suggest that stock issuance quota was exploited as an incentive device to induce regional governments to enforce disclosure rule and to select better performing firms for initial public offerings (IPOs) or seasoned equity offerings (SEOs). Finally, our evidence suggests that the majority of IPO firms selected by regional governments had been better performing state-owned enterprises before they went public.

This seems to imply that the Chinese regulatory decentralization is reasonably effective at the IPO stage.

However, we also point out that the quota system is not a long-term solution to financial market regulation. It does not work effectively for non-state-owned firms and cannot ensure adequate corporate governance of listed companies. Moreover, in some non-financial areas, such as environmental protection and land distribution etc., regulatory decentralization in general and the quota system in particular fail to be effective. This study also illustrates conditions that the Chinese regulatory decentralization works or does not work in general.

Based on some aggregate data, Pistor and Xu (2005) made an observation that administrative governance institutions deployed in Chinese financial markets might have helped the growth of Chinese securities markets when the Chinese legal institution was terribly weak. However, they did not establish systematic econometric evidence and did not address the general issue of regulatory decentralization.

At an abstract level our work is complementary to Glaeser et al. (2001), which argues that under certain conditions regulation is more effective in law enforcement than the court system. However, regulatory decentralization studied here is a very different institution. Furthermore, in addition to explaining financial regulation in China, our paper also makes general points on how the Chinese regulatory regimes work or do not work.

There is a small but growing literature on the impact of government intervention on bank and listed company performances in China. For instance, Fan et al. (2006) document that listed companies with politically-connected CEOs typically under-perform, and the appointment of politically-connected CEOs does not enhance

shareholder value. Boyreau-Debray and Wei (2004) find that China's state-dominated financial system causes regional segmentation of capital markets and misallocation of capital resulting from the government's reallocation of capital from more productive to less productive regions. Our findings are not necessarily in conflict with the above literature. We have no doubt that government intervention often incurs inefficiency and has a negative impact on the performance of banks and listed companies. This is particularly true if we compare the cases of state intervention with the first best scenario. Indeed, in our paper we point out inefficiencies associated with the quota-based regulatory decentralization. However, we argue that in the process of development or transition, when the support of legal institutions is too weak, an administrative governance system with proper structures could be helpful to preclude substantial disorders. In this sense, this system is a second-best solution under various institutional constraints.

The rest of the paper is organized as follows. Section II gives an overview of regulatory decentralization in China. Section III gives a detailed account of the stock issuance quota system as an administrative governance mechanism in China's stock markets. Sections IV and V provide evidence that the quota system operates as a dynamic incentive scheme to regional governments in screening IPOs and SEOs of listed companies at the province and firm levels, respectively. Section VI provides further evidence that quota allocation depends positively on the quality of regional market information. In Section VII, we provide evidence that regional governments tend to select better performing state-owned enterprises to be listed in the Shanghai and Shenzhen stock exchanges. Section VIII discusses problems of the quota-based regulatory regime.

Section IX provides some further robustness tests. Section X concludes the paper with some further discussions.

II. Regulatory Decentralization in China

Regulatory decentralization has been introduced into China in the process of transforming the Chinese economy from a centrally planned economy to a market one. The Chinese central regulatory agencies typically delegate substantial powers to regional governments to enforce regulations in their jurisdictions. It is noteworthy that regulatory decentralization or regulatory federalism has existed in countries with a strong rule of law for some periods in history. For instance, it dominated the US banking and securities markets regulation before 1933, and the current European Union securities market regulatory system also bears the features of regulatory federalism.[2] The existing literature has focused on regulatory decentralization under a strong rule of law and identified several advantages: it creates competition among jurisdictions (Tiebout, 1956); it deals better with regional heterogeneity than centralized regulation does as illustrated in cases such as fiscal federalism (Musgrave, 1959; Oates, 1972); and it generates self-enforcing balance rules between federal and regional governments (Weingast, 1997). In contrast, in

[2] Since the creation of the US Federal Reserve System in 1913, federalism was implemented in the central banking system and banking regulation. The regulation of US securities markets bore a more striking federalist structure before 1934. State laws and state enforcement dominated the US financial market regulations (Allen and Herring, 2001). Similarly, at present, the European Union (EU) implements a securities market regulatory system that is similar to regulatory decentralization. The EU Council issues directives setting standards for member state legislation and allows each member state to create its own laws in compliance with these directives.

China, regulatory decentralization serves primarily as a functional substitute for weak formal legal institutions.

China's economic reform has been characterized by regional decentralization. This provides incentives for regional governments to compete in reforms by linking regional government officials' career paths with regional economic performance (Maskin, Qian and Xu, 2000; Li and Zhou, 2005). It has also facilitated a regional experiment-based reform strategy in China's economic reform (Qian, Roland and Xu, 2006).[3] Although most of the Chinese regulations are enacted at the national level and often officially implemented by the central regulatory agency, regional governments are essential to the enforcement of regulations even in cases where there is no regional regulatory body.

Regulatory decentralization in China has evolved from the existing institutions inherited from the central planning economy. First, regional governments have been *de facto* owners of SOEs under their jurisdiction since the reform started in the late 1970s (Granick, 1991). As owners, regional governments have natural advantages in acquiring information from their firms. Second, regional governments have controlled most of the regional resources and have played primary roles in fulfilling or implementing government functions within their jurisdictions. As a result, the newly evolved regulatory regime relies essentially on regional governments' assistance and cooperation in enforcing regulations.

[3] Blanchard and Shleifer (2000) claim that one essential precondition for the success of regional decentralization in China is that the central government remains strong and is able to make political appointments of regional leadership.

The quota system is one of the major instruments being deployed by the Chinese regulatory decentralization regime. In China's pre-reform central planning system, the state planning authority issued detailed industrial production quotas to SOEs based on the material balancing system.[4] The following are some major examples of the quota system that have been deployed in China's regulatory regimes. As we explain briefly in the following, the quota system worked well in some areas but failed badly in others.

The bank credit quota system was utilized by the People's Bank of China (PBC) to control the aggregate money supply until 1998. The PBC formulated the national credit plan and allocated credit quotas to the headquarters of all major state banks, which in turn reallocated these to their regional branches and subsidiaries.[5] The regional allocation of bank credit quotas depends largely on the regional banking performance, such as the deposits taken by regional banks in the previous year, the regional economic performance,

[4] Compulsory quotas were also employed in agriculture. For instance, compulsory grain delivery quotas were implemented during 1954-55. The central authority set the absolute level of these quotas and their allocation among regions, while the local authority allocated local quotas to each individual peasant (Perkins, 1964).

[5] Based on the annual money supply target approved by the central government, the PBC decides the national credit plan and allocates credit quotas to all major state banks which reallocate them to their regional branches and subsidiaries. The credit quotas are mandatory targets by which banks must abide. They are not allowed to issue loans beyond the allotted quota regardless of the sufficiency of their fund resources. Thus, the bank credit quota system was a major instrument to contain inflation. On the other hand, competition for bank credit quotas has become extremely fierce. In the transition period, regional and local governments competed for a larger share of the national bank credit allocation, trying to outperform each other so as to be capable of promoting regional development and enlarging their revenue bases (Lu and Yu, 2000).

and the regional policies of the central government (e.g., policies to promote the development of certain regions). The bank credit quota system was a major instrument for implementing macroeconomic policies in general and monetary policy in particular when market-based credit allocation mechanisms were not yet ready to be deployed.

Another example of regulatory decentralization is land quota regime, which has been adopted to regulate land use. The major purpose of land regulation is to prevent excessively expropriating arable land for non-agricultural usage. To facilitate compliance with the land use quota system, regions violating the land use plan will face a deduction in future quota allocation together with other penalties. [6]

The quota system is also applied to pollutant emission control. The central government first sets the national target of pollutant emissions, and allocates pollutant emission quotas to different regions and industries which, in turn, further allocate quotas to pollutant-generating sources, which are usually factories. In order to provide incentives to regional officials to comply with pollutant emission quotas, the performance in fulfilling quotas is taken as part of the criteria for evaluating government officials' work, and regions pay penalties if their pollutant emission exceeds the emission quota (Tian, Zhang and Zou, 2004).

Other examples of quotas include foreign trade quotas, the bankruptcy quotas, and workplace safety quotas etc. In this study, we focus on stock issuance quotas in equity markets as a central instrument of regulatory decentralization in implementing the

[6] The land quota regime does not work effectively that there is rampant violation of land use quotas. It is because motivated by expanding regional development zones to attract foreign investment regional governments support unlawful occupation of much agricultural land (Ministry of Land and Resources, 2006).

administrative governance of financial markets. In addition to understanding Chinese financial market regulation, this study also illustrates conditions that the Chinese regulatory decentralization works or does not work in general.

III. Regulatory Decentralization in Chinese Financial Market Governance

The development of the Chinese financial regulation illustrates the evolution and operation of Chinese regulatory decentralization. In the 1980s and early 1990s, when China's securities markets initially emerged, there was no centralized national market regulation, and regulation was carried out by regional governments or regional branches of China's central bank – the People's Bank of China (PBC). The two stock exchanges established in Shanghai and Shenzhen in late 1990 were *de jure* self-regulatory organizations, with limited supervision from the corresponding municipal governments, and the central government had only a minimal role (Green, 2004). The regulation of securities markets in Shanghai was executed by the Shanghai municipal government and the PBC Shanghai branch. The PBC Shanghai branch was responsible for giving approval to public offerings. The registration of new companies was subject to the consent of the Shanghai municipal government (Fang, 1995). Similar arrangements also applied to the securities markets in Shenzhen in the early 1990s (Ma, 2003).

The quota system of equity share issuance was introduced to the Chinese equity market in 1993. Originally, it was designed by the central government to control the size of financial markets, to maintain balance among the regions and to preserve the dominant position of public ownership. The central government determines the total number of shares to be issued in the nation and then allocates stock issuance quotas to regions and

ministries. Regional governments in turn allocate quotas to selected SOEs for going public through IPOs or to listed companies seeking SEOs. The regional governments collect information on these firms and submit it to the China Securities Regulatory Commission (CSRC), the national regulatory agent. After reviewing the company information, the CSRC gives its approval to companies to issue shares in the public equity markets. In 1993, the first year when the quota system was in full operation, five billion shares were made available at the national level. Individual regions received quotas in the amount of 50 million to 500 million shares (Fang, 1995). The quota system was officially in place from 1993 to 2000. However, it actually governed financial markets up until around 2003.

It is well understood that financial markets in general and emerging markets in particular face severe information problems. In countries with rule of law the problem is mitigated by the law-based regulatory regime, of which the mandatory disclosure rule is the core, such as the Federal Securities and Exchange Act of the U.S.A. Preconditions for the efficacy of the mandatory disclosure rule, however, are absent in China (Pistor and Xu, 2005). We argue that the stock issuance quota system de facto served as a primary instrument of regulatory decentralization in the regulation of financial markets. Specifically, in addition to decomposing regulatory work into regional governments the stock issuance quota system also motivated regional governments to collect and corporate insiders to reveal firm-specific information. This served as a critical step in information disclosure.

There are three conditions for the quota system to function as an effective decentralized regulatory instrument. Firstly, regional governments must have substantial

control rights over the regulatory subjects; otherwise regional governments would not play a major regulatory role. Concerning financial market regulation, when IPOs were restricted to state firms and most listed firms in Chinese financial markets were regional SOEs, which were "owned" by regional governments, the first condition is most likely to be satisfied. As "owners" of SOEs under their jurisdiction, regional governments are better informed than others about "their" firms and thus, they are more capable of acquiring information about these firms. Secondly, regional governments must have strong self-interests on the regulatory subjects; otherwise regional governments would not be motivated to participate. When regional SOEs provided the bulk of financial resources for regional governments and when regional officials' promotion is linked to their performance in regional competition, probably the second condition is satisfied. Finally, the central government must have direct control over resources to be allocated by a quota system; otherwise quota allocation loses its significance in providing incentives. The share issuance quota allocation is about financial resources in national markets. Hence, this condition is satisfied.

If the operation of the quota system does provide incentives to regional governments to regulate, we expect the size of quota allocations to regions to be positively correlated with the past performances of listed companies from the corresponding regions. Summarizing the above discussions, we have the following hypotheses to be tested in the paper:

a) Everything else being equal, regions with a better aggregate corporate performance (measured for all listed companies in the region) should obtain more stock issuance quotas.

b) Everything else being equal, firms located in better-performing regions (measured by aggregate corporate performance of all listed firms in the region) should obtain more quotas.

c) Everything else being equal, regions that achieve better information disclosure should obtain more quotas.

IV. Data

The quota allocated to each region from the central government is the total number of shares allowed to be issued from the region. However, the data on quota allocation are not publicly available. The best proxy we can find for the size of a region's quota is the number of shares issued by firms from different provinces. We assume that quota allocation is binding so that the actual number of shares issued from a region accurately reflects the quota size that the region has obtained.[7] The data on the total number of shares issued come from the WISE Information System of the Shanghai WIND Company.

In the empirical analysis, we focus on the growth rate of quota, and the growth rate of the number of shares issued is used as a proxy for it. The reason of doing so is the following. First, the growth rate in stock issuance helps control for the variation in the size of regional economies. Second, to understand the dynamic incentive effects of the quota system, it is most appropriate to look at the changes of quota allocation in response

[7] It is well documented that there is excess demand in the corporate sector for the regulatory permission to get listed and issue stocks. We realize that in reality there is usually a time lag between quota-allocation and the listing or equity issuance of a firm.

to changes in regional economic and stock market performance. In order to account for the time lag between the allocation of the share issuance quota to a province and the actual public offerings, we used three years' moving average growth rates. Specifically, the quota measured as the growth rate in stock issuance for region *i* in period *t* is calculated as *[(total shares of region i in year t) – (total shares of region i in year t-3)]/(total shares of region i in year t-3)*, where *t* ranges from *1995* to *2003*.

We use two groups of indicators to gauge corporate performance. One category of indicators measures the market performance of listed companies, including the market capitalization of total shares of listed companies, the market capitalization of tradable shares, the P/E (price to earning) ratio, the P/B (price to book) ratio, and the turnover ratio. The other category of indicators hinges on the accounting book-based corporate performance measures such as net profits and earnings per share. The data on the market and accounting book-based performance indicators come from the WISE Information System of the Shanghai WIND Company.

In addition to the two groups of indicators, we also employ various regional economic performance measures as potential determinants of quota allocation. They include variables such as GDP per capita, total trade value, industrial output, foreign direct investment (FDI), tertiary industry output value, proportion of college graduates in the population, and investment in innovation activities. The data on these variables come from various issues of the *China Statistical Yearbook*.

Furthermore, in measuring regional market information quality, we utilized various types of data. As China's stocks trade on both the Shanghai and Shenzhen stock exchanges, we use the returns on the Shanghai Composite Index and the Shenzhen

Component Index as market indices, obtaining the weekly data from the website www.yahoo.com.cn. We also use the US and Hong Kong stock market returns adjusted by their respective exchange rates with the Chinese currency, RMB, to capture the impacts of external stock markets on the Chinese domestic markets. The data on US and Hong Kong weekly stock market returns and exchange rates against the RMB are derived from the Datastream dataset.

Summary statistics of some major variables are presented in Appendix Table 1.

V. Methodology and Estimation

To investigate whether quota allocation is used as a regulatory instrument, that is, whether quota allocation to a region is affected by the performances of that region, we conduct four types of statistical analysis.

5.1. Regional Corporate and Economic Performances vs. Regional Quota Allocation

If regional quota allocation is used by the national regulator as an incentive mechanism to induce regional governments to cooperate in regulating the stock issuance of regional listed companies, we expect to observe that regions with better performing listed firms obtain more quotas for future stock issuance. To test our hypothesis, we form a panel dataset consisting of a time series of nine years (1995-2003) of a cross-section of 31 Chinese provinces and province-level municipalities.[8] We then conduct panel data regressions to discover how regional corporate and economic performance affects the stock issuance quota allocation among regions. Regressions are estimated by controlling

[8] If we stretch the beginning year of the sample to 1994 or 1993, the calculation of quotas requires data on shares issued in 1991 or 1990. However, very few provinces were allowed to put firms onto stock exchanges at that time so we cannot conduct a meaningful statistical analysis for those years.

for both province fixed effects and random effects. The fixed effects regression model is specified as

$$y_{it} = \alpha_i + \gamma_t + \beta' X_{i,t-1} + \varepsilon_{it}, \qquad (1)$$

where y_{it} is the growth rate of quota allocation for province i in year t; α_i is province-specific fixed effects; γ_t is year fixed effects; $X_{i,t-1}$ is a vector of regional performance indicators that is lagged for one year behind the dependent variable; and ε_{it} is a random error. Our null hypothesis is that β is significantly larger than zero.

For the purpose of checking robustness, we also test our hypothesis by running a random effects regression model, which takes the form

$$y_{it} = \theta + u_i + \gamma_t + \beta' X_{i,t-1} + \varepsilon_{it}, \qquad (2)$$

where u_i is the random disturbance characterizing the i-th province and is constant through time (random effects). For brevity, we relegate all the random effects regression results to the Appendix that is available on request.

We construct four groups of performance indicators in the regressions. The first group is regional corporate market performance indicators. For each region we calculate regional aggregate market capitalization of total stock shares and that of tradable shares. We also calculate regional average values of the P/E ratio, the P/B ratio, and the turnover ratio of all listed companies in the region. Based on those, we construct three-year moving average growth rates as market performance indicators. The second group consists of regional corporate accounting performance indicators, which are growth rates of regional average net profits and earnings per share of all listed companies in each region. Moreover, to investigate the comprehensive impact of regional corporate performance on regional quota allocation, we construct three performance indices: the

overall performance index as the simple average of all the market and accounting performance indices; the corporate market performance index as the simple average of all the market performance indices; and the corporate accounting performance index as the simple average of all the accounting performance indices. The final category is regional economic performance indicators. This group of indicators includes growth rates of regional GDP, trade/GDP ratio, FDI/GDP ratio, and industrial value/GDP ratio. Among the four indicators, GDP growth and industrial value growth are the most direct measures of output growth. Because foreign trade and foreign direct investment are widely documented to be a powerful engine of economic growth in China, these two variables should accurately reflect regional economic growth performance.

Employing fixed effects estimation for our panel data helps us to mitigate the concern over the omitted-variable bias in regression analysis. It is possible that we have not explicitly recognized the effects of omitted variables that are correlated with the included explanatory variables. If the effects of these omitted variables remain constant for a given region through time or are the same for all regions in a given time period, our fixed effects regression specification controlling for region and year fixed effects can capture the effects of region-invariant and time-invariant variables (Hsiao, 2003).

5.2. Regional Corporate and Economic Performances vs. Firm-level Quota Allocation

The stock issuance quota for a region is finally realized by the number of shares each listed company in the region issued. If the quota system works as an incentive scheme for regional governments, individual companies located in regions with better regional performances would obtain more stock issuance quotas than similar companies

located in other regions. Furthermore, the firm-level quota analysis helps us to mitigate the endogeneity problem, Given that each province has a sufficiently large number of listed companies it is unlikely that the quota allocation to any individual company can affect the average performance of all listed companies in the whole region. It is even more unlikely that the quota allotment to any individual company is able to affect the regional economic performance such as GDP growth.

As with the regional quota measure, we use the growth rate of the number of outstanding shares for each firm over three years as the firm-level quota allocation. To incorporate the stock issuance from both IPOs and SEOs, we set the number of shares of each listed company in the year prior to the IPO year at zero. Correspondingly, we calculate the growth rate in the number of shares for firm j in region i in year t as (total shares of firm j in region i in year t – total shares of firm j in region i in year t-3)/total assets of firm j in region i in year t-3, where t ranges from 1995 to 2003.

We form a panel dataset consisting of a time series of nine years (1995-2003) of a cross-section of 1148 Chinese listed companies.[9] Regressions are estimated by controlling for firm fixed effects and firm random effects. The fixed effects regressions are specified as

$$y_{jit} = \alpha_j + \gamma_t + \beta' X_{i,t-1} + \varepsilon_{it}, \qquad (3)$$

where j is the firm, i is the province, t is the year, α_j is the firm-specific fixed effects, γ_t is year fixed effects, and ε_{it} is a random error. The random effects model was specified as $y_{jit} = \theta + u_j + v_i + \gamma_t + \beta' X_{i,t-1} + \varepsilon_{it}$, where u_i is the random disturbance characterizing the

[9] This is an unbalanced panel dataset, as many firms started IPO in a year later than 1995. We ended up with 5664 firm-year observations.

j-th firm and is constant through time (firm-specific random effects); v_i indicates the province-specific fixed effects; γ_t is the constant year effects; θ is a constant term; and ε_{it} is a random error. The major independent variable, $X_{i,t-1}$, is the same as that in equation (1), that is, it is a vector of regional performance indicators that are lagged by one year than the dependent variable.

5.3. Regional Market Information Quality vs. Regional Quota Allocation

Our main argument for the strength of the quota system is that it provides incentives to regional governments to tap into the companies under their jurisdiction and to improve the disclosure of firm-specific information. If this is true, we expect that those provinces which had a better quality of stock market information disclosure should be rewarded with larger stock issuance quota allocations in subsequent periods. Similarly, those companies from the regions with better stock market information disclosure should be rewarded with larger stock issuance quota allotments in subsequent periods.

To measure regional market information quality, we adopt the methodology of Morck, Yeung and Yu (2000) by measuring the synchronicity of stock price movements in each province or the average magnitude of firm-specific variation in stock returns in each region. A higher degree of synchronicity of stock price movement indicates a smaller amount of firm-specific variation in stock returns, and thus, a lower level of information content of stock prices. Since we are interested in investigating the effects of the average level of market information quality of listed companies in each region on the quota allocation to listed companies in that region, we need to calculate the regional average synchronicity of stock price movement. To do this, we begin by assessing the synchronicity of individual stock *i* in year *t*. We use the following model:

$$r_{jt} = \alpha_j + \beta_{1j}\, r_{mt}^{Shanghai} + \beta_{2j}\, r_{mt}^{Shenzhen} + \beta_{3j}[r_{US,t} + e_{US,t}] + \beta_{4j}[r_{HK,t} + e_{HK,t}] + \varepsilon_{jt,} \quad (4)$$

where r_{jt} is firm j's return in period t; $r_{m,t}^{Shanghai}$ and $r_{mt}^{Shenzhen}$ are Shanghai and Shenzhen stock market index returns in period t, respectively; $r_{US,t}$ and $r_{HK,t}$ are US and Hong Kong stock market returns, respectively, $e_{US,t}$ and $e_{HK,t}$ are the rates of changes in the exchange rates between RMB and the US dollar or Hong Kong dollar, respectively. $r_{US,t} + e_{US,t}$ and $r_{HK,t} + e_{HK,t}$ translate U.S. and Hong Kong stock market returns into RMB units respectively. ε_{jt} is the disturbance term. For each year, we use the weekly data on individual stock returns, stock market returns and exchange rate change to conduct regressions. From this regression for firm j in year t, we obtain R_j^2 and $\mathrm{SST_j}$. A higher value of R_j^2 means a higher degree of synchronicity of stock price movement for firm j, that is, a larger proportion of firm j's stock return movement is driven by the market factor rather than the firm-specific factor. Following this method, we derive R^2 and SST for all companies from one particular province i. First, we calculate regional R^2_i, which measures stock co-movements for listed firms of province i in year t,

$$R_i^2 = (\sum_j R_{ji}^2 * SST_{ji}) / (\sum_j SST_{ji}), \quad (5)$$

and national R^2_N, which measures stock co-movements for all listed firms in the nation in year t,

$$R_N^2 = (\sum_j R_j^2 * SST_j) / (\sum_j SST_j). \quad (6)$$

Next, we calculate the relative regional stock price co-movement indicator, which is the difference between regional R_i^2 and national average R_N^2. The larger the value of this indicator is, the lower the market information quality of that region.

To investigate how regional market information quality affects regional quota allocation, we conduct two types of regression analysis. First, we examine the effects of

the relative regional stock co-movement indicator on regional stock quota allocation by employing a panel dataset that consists of a time series of seven years (1997-2003) of 31 Chinese provinces and municipalities. As before, we carry out both fixed effects and random effects regressions. The regression specifications are similar to equation (1), except that the major independent variable, $X_{i,t-1}$, is the lagged three-year average of the relative regional stock price co-movement indicator. Second, we conduct regressions to examine the impacts of regional market information quality on individual firms' quota allocation in that region. The regression specifications are similar to equation (2), except that the major independent variable is the lagged three-year average of the relative regional stock price co-movement indicator.

VI. Results

6.1. Evidence on Regional Performance vs. Regional Quota Allocation

Table 1 presents the results of the fixed effects regression model (1).[10] The cross-region evidence suggests that quota allocation to all Chinese provincial regions was affected by the performance of listed firms in those regions and also by the macro performance of those regions. In all the regressions of Table 2, the dependent variable is the growth rate of the regional stock issuance quota.

Panel 1 of Table 1 presents the results of the corporate performance impact on quota allocation. The independent variables of the regressions are market-based and accounting book-based regional corporate performance indicators. We found that all

[10] Results of random effects regression are qualitatively the same as what we reported here. They are available upon request. The same is true for the results of Tables 3-5.

regional corporate performance indicators, such as the growth rates of market capitalization, of market turnover, and of net profits, produced positive and statistically significant effects on regional quota allocations. Take the result in column (2) as an example. A 10% increase in the growth rate of regional tradable market capitalization raised the growth rate of regional stock issuance by 1%. Qualitatively, the same is true for accounting indicators. For instance, column (6) suggests that a 10% increase in the growth rate of net profits for listed firms in a region increased the regional quota flow by 1.7%.

In Panel 2 of Table 1, we first look at the impact of the aggregate regional corporate performance indices on quota allocation. Consistent with our expectation and the panel 1 results, the performance indices, that is, the market performance index, the accounting performance index, and the overall performance index, all produced consistently positive and statistically significant effects on the region-level flow of quotas. For example, our results suggest that a 10% increase in the regional overall corporate performance index drove up the regional flow of quotas by 0.15%.

Finally, we examine the impact of provincial macro performance on quota allocation. We find that growth in regional GDP and FDI had strong positive impacts on regional stock quota allocation. For example, the results of column (4) suggest that a 10% increase in regional GDP growth rate raised the regional flow of quotas by 31.4%. Nonetheless, the growth in trade and industrial value did not produce statistically significant positive effects on quota allocation.

6.2. Evidence on Regional Performance vs. Firm-level Quota Allocation

Tables 2 and 3 present the results of the firm fixed effects regression model (3), which is the cross-region evidence based on firm-level data. The evidence suggests that the quota allocation to listed firms was affected by the performances of the region in which the firm is located.

Panel 1 of Table 2 presents results on how regional performance measured by market indicators and accounting indicators affects the firm-level quota allocation. Quite strong and consistent evidence is found that every thing else being equal listed firms from regions having stronger market and accounting performance indicators are rewarded with a larger quota of stock issuance in subsequent periods. For example, the estimation in column (4) of panel 1 suggests that a 10% growth in the regional P/B ratio raised the individual company stock issuance by 0.049% over three years. Similarly, according to column (7), a 10% growth in the regional average earnings per share raised the individual company stock quota by 0.044%. Evidence presented in columns (1)-(3) of panel 2 further confirms these findings. The results verify that firms from regions with stronger regional corporate performances were allocated larger quotas in stock issuance in subsequent periods.

Moreover, the regional macroeconomic performance also positively affects the quota allocation to individual companies from the region. Columns (4)-(7) of panel 2 present firm fixed effects regressions of firm-level quotas on regional economic growth variables. Clearly, companies from regions that had higher growth rates in GDP, trade, FDI, and industrial production were able to obtain larger quotas in stock issuance. Column (4) shows that a 10% increase in the regional GDP raised the firm-level flow of quotas by 1.6%; and according to column (7), a 10% growth in the regional industrial

value/GDP enhanced the quota allocation to individual companies from the region by 1.5%.

Conceivably, the firm-level stock issuance quota, especially in the post-listing stage, may also be affected by the firm's own performance. To further differentiate the impacts of regional corporate performance and firm-level corporate performance on firm-level quota allocation, we introduce in Table 3 both regional performance indicators and firm-level performance indicators. We use the growth rate of each firm's net profits as a representative indicator of the firm-level corporate performance in all the regressions.[11] Because some companies have not been listed for long enough to warrant a calculation of the three-year growth in net profits, the sample size for this study shrinks to 864.

Panel 1 of Table 3 presents regressions of firm-level quotas on regional corporate performance indicators and the firm-level corporate performance indicator by controlling for firm fixed effects. Apart from one regional corporate performance indicator, the growth in regional earnings per share in column (7), all other regional performance indicators produced statistically significant and positive impacts on firm-level quota allocation. The growth in a firm's net profits, as expected, also produced positive and statistically significant effects in almost all regressions.

In columns (1)-(3) of Table 3, panel 2, we present the firm fixed effects regressions of firm-level quotas on the regional corporate performance indices after controlling for the firm-level corporate performance. The regional corporate performance

[11] By using alternative firm level corporate performance indicators, such as the growth rate in total income and EBIT, etc., we obtained qualitatively similar results. Thus they are not reported but they are available on request.

indices produced consistently statistically significant positive effects on firm-level quotas, while the firm-level corporate performance measure also revealed a consistently positive and statistically significant impact. Finally, as shown in columns (4)-(7) of Table 3, panel 2, fixed effects regressions were conducted to examine the effects of regional macroeconomic performance on the firm-level quota allotment after controlling for firm-level corporate performance. Apart from the ratio of trade value to GDP, all of the macro performance indicators, that is, the three-year regional growth rates in GDP, FDI/GDP, and industrial value/GDP, exerted positive and statistically significant impacts on the firm-level stock issuance quotas. The magnitude of the estimated coefficient on GDP growth is clearly much larger than those on the other regional macro performance measures.[12]

Interestingly, as shown in both panels of Table 3, the magnitude of the effects of regional performance is consistently much greater than that of the firm-level performance indicator. This finding further confirms our suggestion that the regional economic performance is a major factor which determines quota allocation. Take column (1) in panel 2 as an example. A 10% growth in the overall regional performance index raised a firm's quota by 0.062%, while a 10% growth in the firm's own net profits increased the firm's stock quota by only 0.0021%. Similarly, according to column (4), a 10% growth in GDP added to the individual firm quota by 1.5%, whereas a 10% growth in the firm's own net profits raised the firm's stock quota by only 0.0037%. This suggests that in

[12] For example, based on column (4), a 10% growth in the regional GDP over three years caused individual companies in the region to obtain 1.5% more quota allocation, whereas according to column (6), a 10% growth in the regional FDI/GDP raised the quota allocation to regional companies by only 0.36%.

regulatory decentralization, regional performance is a primary determinant of firm-level stock issuance quota allocation. Most regions tend to allocate larger stock issuance quotas to better performing companies. However, only those regions with better regional corporate performances and better regional macro performances are able to obtain more stock issuance quotas from the central government and in turn allocate these to the listed companies under their jurisdiction.

6.3. Evidence on Market Information Quality vs. Quota Allocation

The key to financial regulation is information disclosure. Thus, the basic hypothesis that we want to test in this subsection is that, everything else being equal, those provinces with a better quality of stock market information disclosure are rewarded with a larger stock issuance quota allocation. Table 4 presents regression results on how regional stock market information quality affects stock quota allocation to regions and to individual firms. Here, information quality is measured by the relative regional stock price co-movement indicator, which is the difference between the regional R_i^2 (see equation (5)) and the national average R_N^2 (see equation (6)). The larger the value of this indicator is, the lower the market information quality of that region.

In panel 1, columns (1) and (2) look at the regional quota allocation. In column (1), we only control for year fixed effects, whereas in column (2) we control for both province fixed effects and year fixed effects. All regressions produce strong evidence that regions with higher relative regional stock price co-movements tend to receive a smaller quota allocation. Moreover, the impact is economically quite significant. For instance, based on column (2), if a region has a three-year average R^2 10% higher than the national

average, the stock issuance quota allocated to that region will be lowered by 79.4% in the subsequent three years.

Columns (3)-(5) present the firm-level regression results with different regression specifications. In column (3), we only control for the province and year fixed effects, whereas in column (4), we also control for industry fixed effects in addition to the province and year fixed effects.[13] In column (5), we conduct firm fixed effects regressions. The estimation results show consistently and strongly that listed companies in those regions with higher relative regional stock price synchronicity obtain smaller quota allocations in the subsequent periods. Everything else being equal, a company in a region with an R^2 10% higher than the national average, based on the estimates in column (5), would receive a stock quota allocation 4.9% less than a company in a region with a national average R^2.

Panel 2 shows the results of our investigation into whether the relative regional stock price co-movement indicator continues to significantly affect the firm-level quota allocation after controlling for regional corporate or economic performance indicators and firm-level corporate performance indicators. Some selected regressions are presented in which we employ the overall regional corporate performance index and the three-year provincial growth rate in GDP, trade/GDP, FDI/GDP, and industrial value/GDP to assess regional performance. We also adopt the three-year growth rate in a firm's net profits to gauge firm-level corporate performance. The regressions show that the relative regional stock price co-movement indicator produces consistent and statistically significant

[13] Owing to data restrictions the sample sizes for regressions in column (4) controlling for industry fixed effects are smaller.

negative effects on firm-level stock quota allocation, and its estimated coefficient remains stable, at around -0.18 to -0.21. The overall regional corporate performance index, the provincial GDP growth rate, and the provincial trade/GDP growth rate no longer exert statistically significant effects on firm-level quota allotment, but the regional growth rates in FDI and industrial value remain statistically significant. The firm-level operational performance indicator consistently produces statistically significant positive effects.

It is also striking that the impact of regional market information quality has a much greater magnitude than those of regional corporate or macro performance and that of firm-level corporate performance. Column (4) shows that an increase of 10% in FDI inflow raised the firm-level quota allotment by 0.2%, and a rise of 10% in a firm's net profits drove up the firm's quota by 0.0025%. However, a 10% reduction in the regional stock price co-movement indicator increased the stock issuance quota allocation to a firm in the region by 1.8%.

Overall, our statistical analysis demonstrates that those regional governments who are more effective in supervising listed companies under their jurisdiction to disclose better are rewarded with a larger number of stock issuance quotas. As a result, the listed companies in those regions also receive a larger firm-level stock issuance quota.

6.4. Evidence on Regional Governments' Selection of SOEs to Go Public

We argue that the quota system is a *de facto* incentive scheme which induces regional governments to enforce regulation within their jurisdictions. In the previous subsections we have tested the determinants of regional quota allocation that future quota allocation to a region is linked to the performance of the listed firms from that region. Given the scarcity of quotas, if the incentives provided by the quota system are effective the

regional government should select better-performing firms in the pre-listing stage to go public in order to obtain more quotas in later periods.

To investigate how regional governments selected companies to go public, we compare the pre-listing performance of listed companies with that of other firms. It is noteworthy that more than 80% of all listed firms were SOEs before they went public. Moreover, for the period of our study, most non-state firms were not eligible to go public. Therefore, in our comparison we focus on the SOEs.

Through an extensive search of provincial yearbooks, we have collected firm-level corporate performance data for fifteen provincial regions and qualitative firm-level corporate information for another eight, but we have failed to find data for the remaining nine provincial regions.[14] The quantitative corporate performance data include industrial output value per worker, total sales per worker for each enterprise, or the ranking of enterprises in terms of total sales, profits, and tax contributions, etc. For each of the fifteen provinces/municipalities, we conduct the following logistic cross-section regressions to see how SOE performance characteristics contribute to the likelihood of

[14] There is no information for the province of Guangdong as a whole; we only have information for Guangzhou and Shenzhen, the two major cities in Guangdong. These two cities presumably have the largest number of SOEs in Guangdong province. Chongqing had not become a province-level municipality until March, 1997; before 1997, Chongqing was a provincial city under the jurisdiction of Sichuan Province. Similarly, we can only obtain city-level information from Baotou of Inner Mongolia and Changchun of Jilin province. Baotou is the most important industrial city in Inner Mongolia, and Changchun, as the capital city of Jilin province, is also the largest industrial hub of the province. In this sense, examining the SOE selection in these two key cities can still provide a good picture of the two provinces.

being chosen to be listed, $Y_i = \alpha_0 + \beta_1 X_i + I' \beta_2 + \varepsilon_i$, where the dependent variable Y_i is a binary variable taking value one if the firm finally got listed and zero otherwise. X_i is the quantitative performance indicator of firm i. I is a vector of industry dummies. α_0 is constant term, and ε_i is random error term.

Panel 1 of Appendix Table 2 presents a summary of regression results for these fifteen provincial regions. The panel lists the firm-level performance variables and gives a qualitative summary of regression results.[15] For twelve out of the fifteen regions, the independent variables are pre-listing corporate performance indicators. All regression results are positive and significant, which suggests that better performing firms had a greater chance of being selected to go public. The independent variables for the remaining three regions are the pre-listing rankings of corporate performance. Consistently, all regression results for these are negative and significant, which implies that the higher ranked firms (with smaller ranking numbers) have a significantly higher chance of being chosen to go public. Panel 2 of Appendix Table 2 shows the logistic regressions for the case of Shanghai as an illustrative example, whereas we relegate the regression results of the remaining fourteen regions to the Appendix that is available upon request.

In panel 3, we give a summary of the evidence on the eight provincial regions for which we have qualitative information on pre-listing performances. The data show that

[15] The quota system requires latest three years' performance data for any IPO applicant. Given most firms in our dataset went public later than 1997 whereas the performance data we collected were published before the quota system was introduced (1993) most of our data are immune from potential 'repackaging' distortions during the IPO process.

the majority of the predecessors of listed firms from four out of eight regions, namely Hebei, Heilongjiang, Hainan, and Tianjin, had obtained awards such as "model enterprise" or "excellent enterprise" many years before they went public. In the remaining provinces it is found that there are more than a quarter of the predecessors of listed firms which obtained such awards. This suggests that these regional governments tended to select better performing firms under their jurisdiction to go public.

VII. Issues that the Quota-based Regulatory Decentralization Cannot Address

So far, we have demonstrated that the quota-based regulatory decentralization served as a reasonably effective governance device to solve the information disclosure problem. However, the quota system was taken because there was no better alternative regulatory regime when legal institution was very weak in China. Moreover, quota system does not always work automatically. Indeed, it has failed to address a variety of regulatory issues. First, the quota system would not work for the IPOs of non-state firms because of a violation of the first condition for the quota system to work (Section 3): regional governments have limited access to the corporate information of non-state firms since these firms are not "owned" or managed by the regional governments. In this situation, the quota system used as an incentive method for regional governments becomes redundant. Indeed even without purposely designed policy the quota system would lead to the dominance of formally state-owned firms in public offerings. This is because regional governments are naturally inclined to support SOEs under their jurisdiction and select them to go public, given that they have a greater interest in them and have better access to information about their performance.

Second, the dynamic incentive effect of the quota system does not work well in regulating firms at the post-listing stage. The incentives provided by the quota system are too weak to preclude financial frauds; and the likelihood and severity of punishment for violations are not high enough within a weak law enforcement environment. Moreover, after going public the regional governments are no longer the "owner" of the listed firms. As a result regional governments became less informed about the firms and were in a weaker position to intervene in the management of the firms. These consist of a combination of violations of conditions one and two. All of these factors led to the declining efficacy of the quota system in the post-listing stage. When the benefits of withholding or manipulating corporate information are sufficiently large to an individual listed company, the management of the company may take the risk of violating information disclosure rules. As a result the quota system is not able to ensure the continuous disclosure of corporate information or preclude market manipulation.

The detected violations of information disclosure rules by listed companies have become rampant in recent years. Summarizing data collected by the CSRC, Appendix Table 3 indicates that more than 90% of all detected violations by firms listed in the Shanghai and Shenzhen Stock Exchanges were related to the violation of post-listing disclosure. This illustrates that the quota-based regulatory system is weaker in regulating post-listing firms than pre-listing firms.

VIII. Robustness Tests

8.1. Alternative Measures of Quota

We have been using the three-year growth rates in the number of shares issued to measure the quota for the region and the firm. This captures the quota approval and stock issuance under the quota system. Because we use the actual number of stocks issued as a proxy for quota allocation, and because there is typically a time lag between quota allocation, listing approval, and the actual issuance of stocks, our quota measure, based on three-year growth rates, allows for enough time lag so as to reduce the discrepancy between quota approval and the actual stock issuance.

To discover whether our results are sensitive to the way we construct approximate measures of quota, we try alternative measures of quota by varying the length of the period in calculating the growth rate in stock issuance. For instance, we define a quota as the year-on-year growth rate or two-year growth rate in the number of shares issued. Our basic conclusions remain unchanged. In Appendix Table 4, we present several representative regression specifications defining the firm-level quota as the year-on-year growth rate in the shares issued. As is shown, the conclusions drawn from this alternative quota measure remain largely qualitatively equivalent to those derived from the three-year growth rate measure of quota. We have relegated a complete list of tables adopting this alternative quota measure to the Appendix, which is available upon request.

8.2. Dealing with the Potential Time Series Correlation

Quota allocation for a region or a firm may exhibit potential time series correlation within groups. To see whether this is truly a concern that we need to address, we first examine whether there is significant within-group (i.e., within-region or within-firm) time series correlation in the panel dataset for both region-level and firm-level regression analysis. We re-run the fixed effects and random effects panel data regressions with an AR(1)

disturbance term correction. Based on these regression results, we calculate the Bhargava et al. (1982) modified Durbin-Waston statistics. We find that the value is typically about 0.60 in our regressions, which is far below the critical values provided by Bhargava et al. (1982). So there is no way to reject the null hypothesis that the autoregressive coefficient is zero. We therefore rule out the necessity of using the AR(1) disturbance term in our fixed effects or random effects panel data regressions.

However, to further ensure that the potential within-group time series correlation will not affect our results, we adopt one standard econometric technique by correcting the standard errors in panel data regressions by clustering around region or firm groups. Most of the results remain intact. In Appendix Table 5, we present some selected estimation results with standard errors clustered around firm groups. Clearly, the results are qualitatively equivalent to the earlier ones, that is, the regional corporate, macro and information disclosure performance consistently produce positive and significant effects on the firm-level quota allocation. For a more complete list of tables, please refer to the Appendix that is available upon request.

8.3. Controlling for More Region-level Determinants of Stock Issuance Quotas

To further alleviate the concern over omitted variable bias, we control for some more potential regional determinants of stock issuance quota allocation. So far, we have focused on the most direct measures of regional corporate or macro performance. If the stock issuance quota allocation is efficient and rational so that better performing regions obtain more quotas, we expect to see that some more indirect but more fundamental determinants of quota allocation may be at work too. We consider three types of potential determinants: (1) the indicator of economic structure in a region; (2) the indicator of

human capital endowment in a region; and (3) the indicator of technology progress in a region. We use the three-year growth rate in the proportion of the output value of tertiary industry in GDP to measure the transformation of the economic structure in a region. A higher growth in the share of tertiary industry value in GDP means a more rapid upgrading in the regional economic structure. We employ the three-year growth rate in the proportion of college graduates in the population as an indicator of human capital endowment in a region. A higher growth in college graduates in the population indicates an accelerated accumulation of talent and human capital in a region. We utilize the three-year growth in investments in innovation activities as an indicator of industrial technology progress in a region. A higher growth in innovation investments suggests a more rapid progress in the technology capacity of a region. These types of variables are more remote or indirect indicators of regional economic performance than such variables as growth rates in GDP, trade value, and FDI. In the Appendix available upon request, we first enter these three potential determinants separately as the sole independent variable. Each of them exerts a positive and statistically significant impact on the firm-level quota allocation. When we put these three potential determinants together into a regression, we find that only the growth rate in the proportion of college graduates in the population produces a statistically significant positive effect. In Appendix Table 6, we add these three variables as additional determinants of the firm-level quota allocation into our earlier regressions in Tables 3 and 4, where those direct measures of regional corporate, macro, or information disclosure performance are major explanatory variables. The results show that the direct corporate, macro, or information disclosure performance measures keep producing positive and statistically significant estimated coefficients.

Growth in college graduates also produces statistically significant positive effects in many regressions. However, growth in the share of tertiary industry in GDP and growth in innovation investment often produce insignificant or negative estimated coefficients. These results suggest that the most direct measures of regional economic and corporate performance still exert the most salient impact on quota allocation.

8.4. Checking for the Influence of Outlier Observations

To discover whether our empirical results are affected by outlier observations, we employ various diagnostic tests of the sensitivity of our results to individual observations. We use methods such as the DFBETA influence statistics and Cook's D to identify potential outliers. Then we re-run our regressions by excluding those identified potential outlier observations. In unreported results, we find that our regression results remain qualitatively equivalent to the earlier ones, which suggests that our results are not driven by outlier observations.

IX. Concluding Remarks

Introducing regulations in an economy with weak law enforcement, which is common in most developing and transition economies, is a challenging task. This reform will fail if the government is too strong that markets are suppressed or if the government becomes too weak to enforce regulations.

Given that most government functions are allocated to regional governments, without substantial assistance from or participation of regional governments, it would be very hard to implement regulations in China. The quota system is an important instrument in China's decentralized regulatory regimes. Through this instrument control rights and regulatory functions of regional governments are linked together.

In this paper we examine a major example of the quota system, the share issuing quota system, and its role in financial market regulation. We argue that the quota-based regulatory regime is a way to provide incentives to induce regional governments to cooperate and assist in implementing regulations nationwide. Four groups of evidence are provided that regulatory decentralization in China's financial market has created incentives for regional competition and decentralized information collection in stock issuance. We find that a firm that comes from a region with a higher quality of information disclosure will obtain a significantly larger stock issuance quota than a firm that performs similarly but comes from a region with a poorer quality of information disclosure.

Our findings have some general policy implications. It is understood that reforms are often taking place in the second-best environment where an effective judiciary is absent. Under this circumstance, eradicating the existing state institutions may lead to disorder and disorganization (Rodrik, 2006). Our findings illustrate a relatively successful path-dependent reform strategy, which carries out institutional transformations based on the existing institutions. Another general policy implication is the role of decentralization in implementing reform policies. Making a reform incentive compatible for all reform participants is a critical condition for a reform to be successful. Decentralization may create conditions to solve incentive problems of economic reforms better.

However, we want to add a caveat on the above discussion that decentralization works only when it is carefully implemented together with other factors. That is, incentives associated with decentralization in general and a quota-based regulatory regime in particular might not ensure successful implementations of reform policies

automatically. As discussed in a previous section that a quota-based regulatory regime is not incentive compatible with regulating IPOs of non-state-owned firms; and it does not fit the enforcement of some important laws/rules, such as the post-IPO information disclosure etc. This may shed light on the phasing out of the quota-based regulatory regime when those problems have become critically important.

Furthermore, there are still some areas where quota-based regimes failed miserably to regulate. A major example is the land-use regulation in China (see Section 2). Different from stock issuance quota, which is about allocating national market resources, land-use quota is about allocating regional resources. Although the Chinese national government has ultimate *de jure* control right over land use all over the country, regional governments have *de facto* control power over land use due to severe informational problems the national government faces. When a quota-based regime is about regulating allocation of national resources the national government has more control over the resources and the incentives so that the quota system works more effectively. However, when a quota-based regime is about regulating allocation of regional resources the national government loses control over the recourses and the incentives. Thus, it is not surprising that the quota-based regime would not work smoothly.

To conclude our paper, we summarize some general implications from our findings. First, creating proper incentives for government officials to implement a reform determines the fate of the reform. Often this has to make use of some existing institutions, even though part of them will be ultimately replaced in the reform. Second, properly designed decentralization can solve the incentive problem quite well. Regulatory

decentralization is an example. Finally, the success of decentralization hinges on a host of other factors, in the absence of which decentralization alone will not work.

References

Acemoglu, Daron and Simon Johnson. 2005. Unbundling Institutions. *Journal of Political Economy*, 113(5): 949-995.

Allen, Franklin, and Richard Herring. 2001. Banking Regulation versus Securities Market Regulation. Working Paper, Wharton School, University of Pennsylvania.

Allen, Franklin, Jun Qian, and Meijun Qian. 2005. Law, Finance, and Economic Growth in China. *Journal of Financial Economics,* 77: 57-116.

Boyreau-Debray, Genevieve and Shang-Jin Wei (2004) "Pitfalls of a State-dominated Financial System: The Case of China". CEPR Discussion Paper.

Bhargava.A., L.Franzini and W.Narendranathan (1982) "Serial Correlation and the Fixed Effects Model". *Review of Economic Studies*, 1982, 49:533-549.

Blanchard, Olivier and Andrei Shleifer (2001) "Federalism With and Without Political Centralization: China versus Russia", IMF Staff Papers, International Monetary Fund, vol. 48(4).

Fan, Joseph P.H., T.J.Wong and Tianyu Zhang (2006) "Politically-Connected CEOs, Corporate Governance and Post-IPO Performance of China's Partially Privatized Firms", *Journal of Financial Economics*, forthcoming.

Fang, Liufang. 1995. China's Corporatization Experiment. *Duke Journal of Comparative and International Law* 5:149-269.

Glaeser, Edward, Simon Johnson, and Andrei Shleifer. 2001. Coase vs. Coasians. *Quarterly Journal of Econmics* 116 (3):853-899.

Glaeser, Edward and Andrei Shleifer, 2003. The Rise of the Regulatory State. Journal of Economic Literature 41:401-425.

Granick, David. 1990. *Chinese State Enterprises: A Regional Property Rights Analysis*. Chicago: Chicago University Press.

Green, Stephen. 2004. Equity Politics and Market Institutions: the Development of Stock Exchange Governance in China, 1984-2003. Asia Programme Working Paper, No. 12. The Royal Institute of International Affairs.

Hsiao, Cheng. 2003. *Analysis of Panel Data*. Cambridge University Press.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. Law and Finance. *Journal of Political Economy* 106 (6):1113-1155.

Li, Hongbin and Li-an Zhou (2005) Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China, *Journal of Public Economics*, 89:1743-1762.

Lu, Ding and Qiao Yu. 2000. Credit Quota as a Banking Risk Control in China: A Retrospect, in Baizhu Chen, J. Kimball Dietrich and Yi Fang ed. *Financial Market Reform in China: Progress, Problems, and Prospects.*

Ma, Qingquan. 2003. *A History of China's Securities*, CITIC publishing House.

Maskin, Eric, Yingyi Qian, and Chenggang Xu. 2000. Incentives, Scale Economies, and Organizational Form. *Review of Economic Studies* 67 (2):359078.
Ministry of Land and Resources. 2006. Urgent Notice Regarding the Strict Management of Land Resources. May 30. available from www.xinhuanet.com.
Morck, Randall, Bernard Yeung, and Wayne Yu. 2000. The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movements? *Journal of Financial Economics*, 58(1): 215-260.
Perkins, Dwight H. 1964. Centralization and Decentralization in Mainland China's Agriculture, 1949-1962.*Quarterly Journal of Economics* 208-37.
Pistor, Katharina and Chenggang Xu (2005), "Governing Stock Markets in Transition Economies Lessons from China**,"** *American Law and Economics Review,* 7(1).
Rodrik, Dani. 2006. Goodbye Washington Consensus, Hello Washington Confusion? Working Paper, *Journal of Economic Literature*, Vol. XLIV (4):973-987.
Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi (2004) "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development", *Journal of Economic Growth*, 9(2).
Tian, Rensheng, Zhizhong Zhang, and Shoumin Zou. 2004. Some Thoughts and Suggestions on the Control of Total Amount of Pollutant Emissions, in *China's Environmental Policy*, volume 1, China Environmental Science Publishing House.

Table 1 Regional Quota and Regional Corporate and Economic Performance

Panel 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Growth in market capitalization	0.11 [a]						
	(0.034)						
Growth in tradable market capitalization		0.10 [a]					
		(0.035)					
Growth in P/E ratio			0.015 [d]				
			(0.010)				
Growth in P/B ratio				0.049 [b]			
				(0.020)			
Growth in market turnover					0.0029 [a]		
					(0.0011)		
Growth in net profits						0.17 [b]	
						(0.085)	
Growth in earnings per share							0.036 [b]
							(0.020)
No. of observations	212	212	211	211	212	212	212
No. of provinces	31	31	31	31	31	31	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.53	0.53	0.49	0.50	0.46	0.50	0.31

Panel 2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance index	0.015 [c]						
	(0.0087)						
Market performance index		0.011 [c]					
		(0.0062)					
Accounting performance index			0.082 [c]				
			(0.045)				
Growth in GDP				3.14 [b]			
				(1.63)			
Growth in trade/GDP					-0.48 [d]		
					(0.33)		
Growth in FDI/GDP						0.79 [b]	
						(0.35)	
Growth in industrial value/ GDP							0.063
							(1.12)
No. of observations	212	212	212	232	227	220	232
No. of provinces	31	31	31	31	31	30	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.49	0.49	0.49	0.31	0.45	0.47	0.44

Note: Regressions are estimated using Fixed Effects (FE) model with robust standard errors estimations as given in parentheses. The dependent variable in the two panels is the regional stock issuance quotas. There are no data on FDI into Tibet. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. p-values for F-tests of fixed effects are reported. Year dummies and constant term are included in the regressions but not reported to save space.

Table 2 Firm-level Quota and Regional Corporate and Economic Performance

Panel 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Growth in market capitalization	0.0057 [a]						
	(0.0011)						
Growth in tradable market capitalization		0.0087 [a]					
		(0.0013)					
Growth in P/E ratio			0.00036				
			(0.00056)				
Growth in P/B ratio				0.0049 [a]			
				(0.00073)			
Growth in market turnover					0.00019 [a]		
					(0.000043)		
Growth in net profits						0.0057 [c]	
						(0.0033)	
Growth in earnings per share							0.0044 [b]
							(0.0021)
No. of observations	5664	5664	5658	5664	5664	5653	5664
No. of firms	1148	1148	1148	1148	1148	1148	1148
No. of provinces	31	31	31	31	31	31	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.21	0.21	0.20	0.21	0.20	0.20	0.21

Panel 2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance index	0.0020 [a]						
	(0.00044)						
Market performance index		0.0014 [a]					
		(0.00028)					
Accounting performance index			0.0089 [b]				
			(0.0037)				
Growth in GDP				0.16 [a]			
				(0.020)			
Growth in trade/GDP					0.012 [c]		
					(0.0066)		
Growth in FDI/GDP						0.0015 [a]	
						(0.00041)	
Growth in industrial value/ GDP							0.15 [a]
							(0.029)
No. of observations	5664	5664	5664	5913	5887	5846	5913
No. of firms	1148	1148	1148	1148	1148	1134	1148
No. of provinces	31	31	31	31	31	30	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.21	0.21	0.21	0.25	0.25	0.25	0.16

Note: Regressions are estimated using Fixed Effects (FE) model with robust standard errors estimations as given in parentheses. The dependent variable in the two panels is the firm-level stock issuance quotas. There are no data on FDI into Tibet. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. p-values for F-tests of fixed effects are reported. Year dummies and constant term are included in the regressions but not reported to save space.

Table 3 Regional and Firm-level Corporate Performance Indictors and Firm-level Quota

Panel 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Growth in market cap	0.0039 [b]						
	(0.0017)						
Growth in tradable market Cap		0.0044 [a]					
		(0.0017)					
Growth in P/E ratio			0.0011 [b]				
			(0.00045)				
Growth in P/B ratio				0.0012 [a]			
				(0.00043)			
Growth in Market turnover					0.011 [c]		
					(0.0061)		
Growth in net profits						0.0054 [c]	
						(0.0028)	
Growth in earnings per share							0.00096
							(0.00090)
Growth in firm's net profits	0.00017[d]	0.00018 [d]	0.00022 [c]	0.00023 [b]	0.00020 [c]	0.00016	0.00022 [c]
	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00011)
No. of obs.	3109	3109	3109	3109	3109	3109	3109
No. of firms	864	864	864	864	864	864	864
No. of provinces	31	31	31	31	31	31	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.048	0.048	0.042	0.062	0.042	0.035	0.083

Panel 2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance index	0.0062 [b]						
	(0.0025)						
Market performance index		0.0044 [b]					
		(0.0018)					
Accounting performance index			0.0070 [c]				
			(0.0024)				
Growth in GDP				0.15 [a]			
				(0.030)			
Growth in trade value/GDP					0.012		
					(0.023)		
Growth in FDI/ GDP						0.036[b]	
						(0.016)	
Growth in industrial value/GDP							0.046 [b]
							(0.020)
Growth in firm's net profits	0.00021 [c]	0.00021 [c]	0.00027 [b]	0.00037 [c]	0.00040 [c]	0.00050 [a]	0.00040 [c]
	(0.00012)	(0.00012)	(0.00012)	(0.00021)	(0.00021)	(0.00025)	(0.00021)
No. of observations	3109	3109	3109	3117	3117	3464	3117
No. of firms	864	864	864	864	864	895	864
No. of provinces	31	31	31	31	31	30	31
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.046	0.046	0.067	0.12	0.13	0.18	0.14

Note: Regressions are estimated using Fixed Effects (FE) model with robust standard errors estimations as given in parentheses. The dependent variable in the two panels is the firm-level stock issuance quotas. There are no data on FDI into Tibet. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. p-values for F-tests of fixed effects are reported. Year dummies and constant term are included in the regressions but not reported to save space.

Table 4 Regional Stock Market Informational Efficiency and Regional Stock Quota

Panel 1

	(1)	(2)	(3)	(4)	(5)
Three-year average relative regional stock price co-movement indicator	-4.97 [d]	-7.94 [b]	-0.36 [b]	-0.38 [b]	-0.49 [a]
	(3.10)	(3.21)	(0.14)	(0.17)	(0.14)
Firm fixed effects			No	No	Yes
Province fixed effects	No	Yes	Yes	Yes	Yes
Industry fixed effects			No	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
No. of firms			1148	1082	1148
No. of provinces	31	31	31	31	31
No. of observations	215	215	5775	4811	5775
p-value of F-test	0.00	0.00	0.00	0.00	0.00
R^2	0.40	0.52	0.12	0.17	0.20

Panel 2

	(1)	(2)	(3)	(4)	(5)
Three-year average relative regional stock price co-movement indicator	-0.21 [c]	-0.21 [c]	-0.21 [c]	-0.18 [d]	-0.21 [c]
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Overall regional performance index	-0.00033				
	(0.0022)				
Three-year GDP growth rate		0.020			
		(0.030)			
Three-year trade/ GDP growth rate			0.0027		
			(0.018)		
Three-year FDI/ GDP growth rate				0.020 [b]	
				(0.0085)	
Three-year industrial value/GDP growth					0.026 [d]
					(0.018)
Three-year growth rate in firm's net profits	0.00024 [b]	0.00024 [b]	0.00024 [b]	0.00025 [b]	0.00024 [b]
	(0.00012)	(0.00012)	(0.00011)	(0.00011)	(0.00011)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Province fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
No. of firms	864	864	864	856	864
No. of provinces	31	31	31	30	31
No. of observations	3109	3109	3109	3080	3109
p-value of F-test	0.00	0.00	0.00	0.00	0.00
R^2	0.075	0.075	0.075	0.076	0.076

Note: Regressions are estimated using Fixed Effects (FE) model with robust standard errors estimations as given in parentheses. The dependent variable in columns 1-2 of Panel 1 is the region-level stock issuance quota, and the dependent variable in columns 3-5 of Panel 1 and in Panel 2 is the firm-level stock issuance quota. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. p-values for F-tests of fixed effects are reported. Year dummies and constant term are included in the regressions but not reported to save space.

Appendix Table 1 Data Summary

Panel 1 Summary Statistics in Regional Level Data Analysis

Variable Name	# of Obs. (region-years)	Mean	Std. Dev.	Min	Max
Region-level quota	237	2.70	3.24	0.057	26.60
Regional overall performance index	212	4.91	16.54	-5.65	233.98
Regional market performance index	212	6.85	23.10	-8.08	327.80
Regional accounting performance index	212	0.0066	2.04	-16.60	12.64
Growth in regional market capitalization	212	5.37	7.23	-0.023	44.32
Growth in regional tradable market cap	212	5.64	7.25	0.15	43.18
Growth in regional P/E ratio	211	6.32	12.21	-80.80	114.66
Growth in regional P/B ratio	212	4.71	7.35	-6.75	45.60
Growth in regional turnover ratio	212	12.26	112.96	-0.78	1634.15
Growth in regional net profits	210	0.33	1.50	-2.81	10.62
Growth in regional earnings per share	212	-0.32	3.52	-34.73	20.80
Difference between regional R^2 and national average	246	-0.00088	0.049	-0.15	0.19
Growth in regional GDP	232	0.55	0.41	-0.12	2.11
Growth in regional trade/GDP	227	0.040	0.70	-0.57	7.88
Growth in regional industrial output/ GDP	232	-0.13	0.27	-0.66	0.55
Growth in regional FDI/GDP	220	0.14	1.12	-0.78	8.55

Panel 2 Summary Statistics in Firm-level Data Analysis

Variable Name	# of Obs. (firm-yeas)	Mean	Std. Dev.	Min	Max
Firm-level quota	5913	0.17	0.29	-5.43	3.39
Regional overall performance index	5664	2.24	8.77	-5.65	233.98
Regional market performance index	5664	3.27	12.19	-8.08	327.80
Regional accounting performance index	5664	-0.35	2.48	-16.60	12.64
Growth in regional market capitalization	5664	3.21	5.27	-0.023	44.32
Growth in regional tradable market cap	5664	3.37	4.77	0.15	43.18
Growth in regional P/E ratio	5658	3.63	9.13	-80.80	114.66
Growth in regional P/B ratio	5664	2.93	5.71	-6.75	45.60
Growth in regional turnover ratio	5664	3.23	57.78	-0.78	1634.15
Growth in regional net profits	5653	0.26	1.32	-2.81	10.62
Growth in regional earnings per share	5664	-0.96	4.81	-34.73	20.80
Difference between regional R^2 and national average	4995	0.011	0.026	-0.03	0.19
Growth in regional GDP	5913	0.47	0.38	-0.12	2.11
Growth in regional trade/GDP	5887	0.098	0.64	-0.84	8.43
Growth in regional industrial output/ GDP	5913	-0.10	0.26	-0.66	0.42
Growth in regional FDI/GDP	5846	0.57	8.08	-1	149.74
Growth in firms' net profits	3117	0.18	20.65	-438.99	505.99

Appendix Table 2 Regional Governments' Selection of State-owned Enterprises to be Listed in Stock Markets

Panel 1 Evidence on the group of provinces and cities with quantitative state-owned enterprise (SOE) performance information

The following table contains a summary of results about the evidence on different provincial governments' selection of SOEs for listing. The dependent variable for regressions for all provinces is the dummy variable that takes value one if the SOE finally becomes a listed company and zero otherwise.

Province Name	SOE performance measures	Year	# of SOEs	Sign of estimated coefficient, statistical significance
Anhui	Industrial value per worker, Total sales per worker	1991	192	+, significant
Beijing	Total sales ranking, profits and taxes ranking, capital profits ranking; (lower scores mean higher ranking)	1991	100	-, significant
Fujian	Industrial value per worker, total sales per worker	1991	198	+, significant
Guangzhou (Guangdong)	Enterprise ranking order (lower score means higher ranking)	1991	100	-, significant
Jiangsu	Industrial value per worker, total sales per worker	1991	85	+, significant
Hainan	Industrial value per worker, total sales per worker, profits and taxes per worker	1991	53	+, significant
Inner Mongolia/Baotou	Enterprise profits and taxes contribution per worker, net industrial value per worker	1991	33	+, significant
Jilin/Changchun	Profit growth rate from preceding year	1987	30	+, significant
Jiangxi	Industrial value per worker, total sales per worker, profits and taxes per worker	1991	352	+, significant
Shaanxi	Industrial value per worker, profits per worker	1993	49	+, significant
Shandong	Industrial value per worker, total sales per worker, profits and taxes per worker	1991	181	+, significant
Shanghai	Industrial value per worker, sales per worker	1991	915	+, significant
Shenzhen (Guangdong)	Labor productivity per worker	1991	90	+, significant
Sichuan (including Chongqing)	Profits and taxes contribution ranking (lower score means higher ranking)	1992	100	-, significant
Xinjiang	Industrial value per worker, value added per worker, total sales per worker, profits and taxes per worker	1995	166	+, significant

Panel 2 Case of Shanghai

Dependent variable is the dummy variable that takes value one if the SOE finally becomes a listed company and zero otherwise.

	(1)	(2)	(3)	(4)
Industrial value per Worker	2.67e-8 [a] (1.03e-08)		2.79e-8 [a] (1.05e-8)	
Sales per worker		2.93e-8 [a] (1.05e-8)		3.10e-8 [a] (1.07e-8)
Industry dummies included?	No	No	Yes	Yes
Log pseudo-likelihood	-171.22	-170.28	-165.41	-164.51
Pseudo R-squared	0.030	0.035	0.063	0.067
Number of obs.	915	914	915	914

Note: Regressions are estimated using logistic model with robust standard errors estimations as given in parentheses. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. Year dummies and constant term are included in the regressions but not reported to save space.

Panel 3 Evidence on the group of provinces with qualitative SOE performance information

Province name	Year	# of listed companies with manufacturing predecessors	# of listed companies with excellent or model manufacturing predecessors (%)
Guangxi	1995	3	1 (33.3%)
Hebei	1993	6	3 (50.0%)
Heilongjiang	1993	7	4 (57.1%)
Hubei	1995	11	3 (27.3%)
Hunan	1995	12	8 (75.0%)
Liaoning	1993	19	8 (42.1%)
Tianjin	1993	8	6 (75.0%)
Yunnan	1992	7	2 (28.6%)

Appendix Table 3 Violations on Shanghai and Shenzhen Stock Exchanges (1993-2001)

	Type of Information	Type of Disclosure Violation	# of violations	Share as % of Total	Share as % of Total
Violation of disclosure requirements at public offering	IPO	False Information Disclosure re listing	9	3.6	
	Stocks distributed to employees	False Information Disclosure re employee held shares	1	0.4	4
Violation of continuous disclosure requirements	Periodic Disclosure (Annual Report)	Non-disclosure in Annual Report	34	13.6	
		False Disclosure in Annual Report	14	5.6	
		Other Annual Report Disclosure Violations	24	9.6	28.80
	Periodic Disclosure (Midyear Report)	Non-disclosure in Midyear Report	3	1.2	
		False Disclosure in Midyear Report	7	2.8	4
	Interim Information Disclosure	M&A Information Disclosure	2	0.8	
		Non-disclosure of Major Investments	3	1.2	
		Non-disclosure of Guarantees	12	4.8	
		Non-disclosure of Major Transactions	13	5.2	
		Non-Disclosure of Major Litigations	15	6	
		Non-Disclosure of Connected (Related) Transactions	18	7.2	
		Non-disclosure of Predicted Losses	31	12.4	58.8
		Unapproved Interim Disclosures	3	1.2	
		False Interim Information Disclosure	1	0.4	
		Failure to Make Interim Disclosure	49	19.6	
Others	Other Reasons	Other Reasons	11	4.4	4.40
	Total		250	100	100

Source: HE Jia et al., *Chinese and Foreign Disclosure Systems Comparison and Their Effectiveness [Zhong-wai Xinxi Pilu Zhidu jiqi Shiji Xiaoguo Bijiao Yanjou], Table 3-5,* Shenzhen Stock Exchange Research Institute, 2002.

Appendix Table 4 Alternative Measures of Quota

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance index	0.0033 [a] (0.00036)					-0.0012 [a] (0.00040)	
Market performance index		0.00060 [b] (0.00024)					
Accounting performance index			0.0019 [c] (0.0010)				
Growth in GDP				0.063 [a] (0.023)			-0.039 (0.029)
Growth in FDI/ GDP					0.0021 (0.0035)		
Relative regional stock price co-movement indicator						-0.061 [b] (0.028)	-0.061 [b] (0.028)
Growth in firm's net profits	0.000025 (0.000023)	-0.000015 (0.000024)	3.14e-6 (.0000024)	-0.000014 (.000024)	-.000011 (.000023)	-7.72e-6 (.000023)	-9.43e-6 (.000023)
No. of obs.	5869	5869	5869	5836	5805	5861	5828
No. of firms	1254	1254	1254	1254	1245	1254	1254
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.071	0.19	0.20	0.19	0.23	0.23	0.23

Note: Regressions are estimated using Fixed Effects (FE) model with robust standard errors estimations as given in parentheses. The dependent variable, the firm-level stock issuance quota, is measured as the year-on-year growth rate in the number of shares issued by the firm. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. p-values for F-tests of fixed effects are reported. Year dummies and constant term are included in the regressions but not reported to save space.

Appendix Table 5 Dealing with Potential Time Series Correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance index	0.0062 [b] (0.0030)					-0.0025 (0.0027)	
Market performance index		0.0044 [b] (0.0021)					
Accounting performance index			0.0070 [a] (0.0025)				
Growth in GDP				0.15 [a] (0.034)			-0.00072 (0.034)
Growth in FDI/ GDP					0.035 [b] (0.016)		
Relative regional stock price co-movement indicator						-0.20 [d] (0.13)	-0.19 [d] (0.13)
Growth in firm's net profits	0.00021 (0.00015)	0.00021 (0.00015)	0.00027 [c] (0.00015)	0.00037 [d] (0.00024)	0.00044 [d] (0.00027)	0.00022 [d] (.00015)	0.00022[d] (.00015)
No. of obs.	3109	3109	3109	3117	3088	3109	3109
No. of firms	864	864	864	864	856	864	864
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.046	0.046	0.067	0.12	0.11	0.027	0.027

Note: Regressions are estimated using Fixed Effects (FE) model. Standard errors are estimated by clustering around firm groups and are given in parentheses. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. Year dummies and constant term are included in the regressions but not reported to save space.

Appendix Table 6 Controlling for More Region-level Determinants of Stock Quota Allocation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall performance Index	0.0096 [b]					0.013 [a]	
	(0.0044)					(0.0048)	
Market performance Index		0.0066 [c]					
		(0.0035)					
Accounting performance Index			0.0081 [b]				
			(0.0035)				
Growth in GDP				0.060 [d]			0.074 [d]
				(0.040)			(0.046)
Growth in FDI/ GDP					0.019 [d]		
					(0.012)		
Relative regional stock price co-movement indicator						-0.29 [c]	-0.24 [d]
						(0.15)	(0.15)
Growth in firm's net profits	0.00032 [b]	0.00032 [b]	0.00043 [a]	0.00031 [b]	0.00044 [a]	0.00033 [b]	0.00031 [b]
	(0.00014)	(0.00014)	(0.00015)	(0.00014)	(0.00015)	(0.00015)	(0.00015)
Growth in tertiary industry share in GDP	-0.087 [d]	-0.087 [d]	0.082	-0.13 [b]	0.083	-0.058	-0.12 [c]
	(0.060)	(0.060)	(0.060)	(0.064)	(0.061)	(0.069)	(0.073)
Growth in college graduates in population	0.018 [a]	0.018 [a]	0.012 [c]	0.017 [a]	0.010	0.018 [b]	0.017 [b]
	(0.0065)	(0.0065)	(0.0068)	(0.0066)	(0.0070)	(0.0073)	(0.0074)
Growth in innovation investment	0.0043	0.0054	0.059 [a]	0.0074	0.060 [a]	0.0038	0.0078
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.024)	(0.024)
No. of obs.	2169	2169	2169	2169	2145	1921	1921
No. of firms	902	902	902	902	894	848	848
p-value of F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.11	0.11	0.024	0.11	0.021	0.11	0.10

Note: Regressions are estimated using Fixed Effects (FE) model. Standard errors are estimated by clustering around firm groups and are given in parentheses. Superscripts a, b, c and d indicate statistical significance at the 1%, 5%, 10%, and 15% levels respectively. Year dummies and constant term are included in the regressions but not reported to save space.