

Comparing China's Financial System^{*}

Franklin Allen

Finance Department
The Wharton School
University of Pennsylvania
Philadelphia, PA 19104
allenf@wharton.upenn.edu

Jun Qian[†]

Finance Department
Carroll School of Management
Boston College
Chestnut Hill, MA 02467
qianju@bc.edu

Meijun Qian

Finance Department
Carroll School of Management
Boston College
Chestnut Hill, MA 02467
qianme@bc.edu

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[†] Corresponding author: Finance Department, Boston College, Chestnut Hill, MA 02467. Phone: 617-552-3145, fax: 617-552-0431, E-mail: qianju@bc.edu. English version of the paper can be downloaded from [Http://www2.bc.edu/~qianju/research.html](http://www2.bc.edu/~qianju/research.html)

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Abstract

We compare China's financial system to those of the developed countries, in particular, the US system dominated by financial markets, and the German system dominated by the banking sector. We examine financial systems' properties, including risk sharing, information provision, funding new and mature industries, financial crisis, corporate governance, and the relation between the financial and legal systems and economic growth. We find that there are many fundamental differences between China's financial system and the US system, and simply adopting the US system is not optimal. Understanding the German system and reform China's banking system should be as important as developing US-style financial markets. Our findings also suggest that China differs from most countries studied in the law, finance, and growth and comparative financial systems literature: Despite its poor legal and financial systems, it has the largest, and one of the fastest growing economies in the world. We find that there are effective, informal financing channels and governance mechanisms to support the growth of various firms in the economy. Therefore, it may be best for China to develop its existing financial system, and to ensure that the informal financing channels and governance mechanisms continue to work along with the development of the legal and financial systems.

JEL Classifications: G0, P5, O5, K0.

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I. Introduction

Since 1979 when China first opened its door to the outside world, fundamental changes have taken place within the “Middle Kingdom.” Most notably, China has gone from a closed economy dominated by agriculture and a central planning system, to a fast-growing, market-oriented, open economy. Much can be said on this latest Asian miracle, in particular how China achieved its economic growth and transition. In this paper we examine the role of China’s financial system in supporting the growth of its economy, and explore the directions of future growth of the financial system, as well as the growth of the overall economy.

In order to make our main points clear, we compare China’s existing financial system to those of two other countries: the US system, dominated by large and advanced financial markets, as well as the German system, characterized by a large and efficient banking sector. The comparison between the US and German financial systems illustrates the trade offs between these two different financial systems, and leads to the conclusion that the US system is not the only successful model for building a financial system that supports and stimulates a country’s growth. The comparison between China and the other two countries’ financial systems also demonstrates that it may be best for China to develop its existing system rather than simply adopting one of many successful models from developed countries.

Insert Tables 1-A and 1-B here.

Tables 1-A and 1-B illustrate China’s status as one of the most important countries in the world. Its GNP ranked seventh in the world as of 1999 in terms of US\$, while the average annual growth rate of 8.35% is much higher than the weighted average annual growth rates of the groups of countries studied by the law and finance literature (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, LLSV hereafter, 1997, 1998, 2000). Given this growth rate and assuming other

countries also grow at their respective current rates and using the nominal exchange rates, it will only take 10 years before China surpasses France, 14 years to surpass Germany, and 21 years to surpass Japan. However, if we use the Purchasing Power Parity (PPP) formula to recalculate the GNPs, China's economy is already the second largest behind only the U.S. as of 1999. Moreover, with the same PPP formula and assuming that the US economy continues to grow at 3.63% per year, as Summers (1992) points out, it will only take 15 more years before China overtakes the US to be the largest economy in the world.¹ With the recent entrance into the WTO and the large potential market it can provide, China will play an increasingly significant role in the world economy, possibly leading all other developing countries.

The fundamental role of a successful financial system in an economy with uncertainty is through its various channels and mechanisms to allocate resources and wealth among investors and firms to achieve the maximum social welfare. Ideally, if the financial markets within a financial system allow perfect risk sharing among economic agents, there exists an active market for corporate control to ensure effective corporate governance, and there is full transparency in the information transmission process so that investment of capital, inputs, and technology is allocated efficiently, then the financial system will function perfectly. Arguments based on the Arrow-Debreu model fit into this ideal situation, as it assumes complete markets, symmetric information, and no transaction costs. However, in practice markets are incomplete, transaction costs exist and they can be quite high, and there is often asymmetric information between insiders and outsiders of a firm's investment or production projects. How does a successful financial system overcome these problems? Conventional wisdom states that a U.S. style market-based system is the best, as advanced and active financial markets are the best to ensure good resource allocation. However,

¹ Maddison (1998) provides details of the PPP calculations for China. The growth rate of the US is calculated using the period of 1990-1998 periods.

this argument ignores the fact that there are other countries that have distinctly different but successful financial systems. A very good example is Germany.

The German-style financial system is characterized by a large, dominant banking system, over much smaller financial markets. The US and German systems are thus distinctly different, but both countries are prosperous and wealthy, suggesting that both systems have by and large been supporting the growth of their respective economies. Allen and Gale (2000a) lay out the theoretical foundations for comparing these two types (and other types) of financial systems. One of the most fundamental and important conclusions that they point out is, in contrast to conventional wisdom, that both systems have advantages and disadvantages. Following Allen and Gale (2000a, 2001), we compare financial system properties for these two systems, including risk sharing, information provision, funding new and mature industries, financial crisis, corporate governance, and the relation between the financial and legal systems and economic growth. We also examine China's financial system along the same lines. We find that there are many fundamental differences between China's financial system and the US system, and simply adopting the US system is not optimal. Understanding the German system and reform China's banking system should be as important as developing US-style financial markets.

Our most important finding is perhaps that China's financial system is unique in its own right. In a companion paper (Allen, Qian, and Qian, 2002), we use existing measures and compare China's financial system to those of other countries studied in the law, finance, and economic growth literature, and find that the Chinese system is, by most accounts, underdeveloped. Its corporate governance, accounting standards, and shareholder and creditor protection are poor at best, while its banking system is not well developed and is to a large degree inefficient. Its newly established Shanghai Stock Exchange (SHSE) and ShenZhen Stock Exchange (SZSE), and the

Hong Kong Stock Exchange (HKSE) with newly listed firms from mainland China, are growing in size and volume, but their scale and importance are still not comparable to other channels of financing in particular the banking sector. We also find that China's legal system is significantly under-developed compared to other countries. By the standard results established in the law, finance, and economic growth literature, China should do terribly in terms of the growth of its economy, due to the poor investor protection and property rights, and limited and inefficient financial system. How then, can we reconcile the poor status of China's legal and financial systems, with its spectacular success in economic growth since 1979?

Moreover, Allen, Qian, and Qian (2002) compare the *formal sector* in China, which includes firms that are ultimately owned by the government (state-owned enterprises, or SOEs), or firms that are listed on an exchange and publicly traded, to the *informal sector*, which includes all other types of firms,² and we find that growth in these sectors is quite unbalanced. During the period of 1995 to 1999, the informal sector grew an average of 19% per year, compared to the average growth rate of 4.65% in the formal sector, and the growth in the informal sector contributes to most of the overall growth of the economy. If one wonders how China's existing legal and financial systems sustain the large and fast growing economy, then the growth patterns within the formal and informal sectors must be even more surprising, because the available legal and financial mechanisms are much poorer in the informal sector than those in the formal sector, yet it is the informal sector that has enjoyed much faster growth.

Our conclusion for the above puzzle is that there exist very effective, non-standard mechanisms within the legal and financial boundaries to support the growth of the economy.

² Specifically, the informal sector includes: 1) "quasi-state-owned" companies, namely, collectively- and jointly-owned companies, where joint ownership between the government and local communities or institutions is forged; 2) privately owned companies (excluding publicly traded companies that were privately owned): controlling owners of

These mechanisms are based on relationship and reputation, and are influenced by the cultural beliefs and historical evolution of China's institutions and organizations.

Given the characteristics of China's financial system, it may be best for China to develop its existing financial system, instead of simply adopting a system based on one country or a group of developed countries. We do not intend to belittle the importance of developing formal legal and financial systems and develop them based on successful models from developed countries such as Germany and the US, but the development of these formal systems should not hinder the growth in the informal sector. Given the success of the informal sector and the deficiency in the formal sector, we believe that much more research is required, in order to better understand how informal, alternative mechanisms work where formal mechanisms are not available or not suitable. Better understanding of how these non-standard mechanisms work to promote growth in China can also shed light on alternative development paths different from established theories that can benefit other countries.

The rest of the paper is organized as follows. In Section II we present aggregate evidence on China's financial system, and compare to those of LLSV countries. We then examine the six components of a successful financial system in details, and for each of these categories we compare China to the US and Germany: Section III compares risk sharing in financial markets and institutions, Section IV studies the information gathering and dissemination process, Section V considers financial crises, Section VI examines corporate governance mechanisms, Section VII studies the funding of new industries, and finally Section VIII examine the law, finance, and growth connection. We conclude in Section IX. The Appendix contains explanations of all the variables we use in the paper.

these firms can be Chinese citizens, investors (or companies) from Taiwan or Hong Kong, or foreign investors (or companies). See Appendix A.1 for detailed definitions for various types of firms.

II. Overview of China's Financial System

In this section we briefly examine China's financial system, including both of its banking system and financial markets, as well as firms' financing sources at the aggregate level. Given its developing country status, it is more productive for our purposes if we compare China's financial system to other developing countries, as well as additional developed countries other than the US and Germany. For comparing countries, we follow the law and finance literature and in particular the sample of countries studied in LLSV (1997, 1998, 2000). Their sample includes 49 countries, but China is excluded. In Table 2-A below we compare China's financial system to those of LLSV sample countries, with some measures for financial systems taken from Levine (2000), and Demirguc-Kunt and Levine (2002). In Table 2-B we present the trend of China's financial system development.

Insert Tables 2-A and 2-B here.

In Table 2-A we first compare the size of a country's equity markets and banks relative to that country's GDP. One can see that China's stock markets are smaller than most of the countries, both in terms of market capitalization and the total value of equity traded in the market. Note that total value traded is a better measure than market capitalization because when calculating market capitalization non-tradable shares are also included. The status on China's stock markets is not surprising given that both stock markets in Mainland China (SHSE and SZSE) were recent additions to the economy, and that they are still in an early stage of growth both in terms of size and efficiency. In contrast, China's banking system is much more important in terms of size relative to its stock markets: total bank credit to GDP ratio is 1.13, higher than even the German-origin countries (with an average of 1), which are known for having bank-dominated financial

systems. However, when we consider bank credit (or loans made) issued to *private* sectors only (e.g., individually owned companies), China's ratio dropped sharply from 1.13 to 0.242, suggesting that most of the bank credit is issued to companies in the *public* sector (e.g., state-owned companies and other collective-owned companies). Moreover, China's banking system is not efficient: its overhead cost to total assets is 12.2%, compared to 5.4% for the French-origin countries, the next highest group of countries.

Secondly, we compare the relative importance of financial markets vs. intermediaries or banks ("Structure indices"). "Structure activity" and "Structure size" are relative size measures, which are equal to $\text{Log}(\text{market size}/\text{bank size})$, with a smaller value indicating that the country's financial markets are smaller than its banking system. China has the lowest scores for both categories, suggesting that China's banking sector is much larger than its markets, and this dominance by the banks over markets is stronger than the average of all LLSV sample countries.³

Finally, we compare the entire financial system development, including both banks and markets ("Financial Development") in Table 2-A.⁴ If we use all bank credit (including to public sectors) then China's overall financial market size ("Finance Activity" and "Finance Size") lies in the middle of the pack among those LLSV countries. However, given that all other countries' measures were based on private bank credit only, if we re-calculate China's financial system the same way, we find that it is not as large (relative to the entire economy) as the LLSV sample average level, and is only better than the French-origin countries' average, which is the lowest group of countries of the entire sample. In terms of efficiency of the financial system, China's

³ We also compare, across countries, the "structure efficiency," which denotes the relative efficiency of markets vs. banks, with overhead cost of banks measuring efficiency of banking system. The larger the figure, the more efficient are markets relative to banks. Since China has the highest score (-2.653), it indicates that China's stock markets are actually more relatively efficient than banks, compared to other countries. Caution is in place when interpreting this measure because banks are much more important in the economy than markets, thus even if the small stock markets are more efficient, they cannot replace the status and role of banks in the entire financial system.

measure is below all sub-samples of LLSV countries, suggesting China's financial system is under-developed than most other countries.

In Table 2-B we present the trend of financial system development in China. It is clear that: 1) the overall size of both markets and banks is growing; 2) banks dominate the markets even though markets are becoming more important relative to banks; 3) efficiency (both in terms of banks and overall system) remains low.

Insert Tables 3 here.

Next, we compare how firms raise funds in China and in LLSV sample countries. We first examine the external capital markets (LLSV 1997). The evidence is presented in Table 3. We can see that financing via the external markets in China is different from the LLSV sample countries, in that both the scale and relative importance (compared with other channels of financing) of the external markets is small. For example, for the ratio of External Capital and GNP, the LLSV sample average is 40%, compared to China's 10% (in 1998); for the ratio of Debt (issued in the private sectors) over GNP, the LLSV sample average is 59%, compared to China's 22%, but if we include debt issued to all sectors (e.g., to central and local government) this ratio increases to 79%, suggesting that the majority of "debt" does not go through the capital markets but rather through a sometimes centralized system. As above, Allen, Qian, and Qian (2002) show that China has an underdeveloped legal system compared to LLSV sample countries. The overall evidence on the comparison of China and other countries' external markets is then consistent with the LLSV (1997) prediction in that countries with poor legal systems tend to have small and inefficient external markets and financial system in general. What is surprising is the fact that the small scale of funds raised from capital markets in China does not match its large scale of production and

⁴ These measures are equal to $\text{Log}(\text{market ratio} \times \text{bank ratio})$, and a higher figure indicates that the country (group of countries) has a more developed financial system.

rapid growth shown in Tables 1-A and 1-B above. It is worthwhile then to study what other channels of financing are playing the role of substituting external capital markets and standard, textbook financing channels.

To answer this question, we present evidence on Chinese firms' financing sources at the *aggregate* level, in Tables 4-A and 4-B. By far the two most important sources of financing channels are self-fundraising and bank loans. Consistent with previous evidence on China's banking sector, bank loans provide a large amount of funds to firms, and constitute a large fraction of firms' total financing needs. For example, almost 30% of publicly traded companies' funding comes from bank loans, and this ratio has been very stable through the 1990s, despite the fast growth of the stock markets. A similar pattern holds for state- and jointly-owned companies.

Insert Tables 4-A and 4-B here.

Self-fundraising includes proceeds from capital raised from the local government and communities, and internal financing channels such as retained earnings. This broad category is the most important financing source for most firms.⁵ The size of total fundraising of all firms has been growing very fast over the period of 1994-1999, with 1999's figure reaching close to US\$200 billion. It is important to point out that equity and bond issuance, which are included in fundraising, apply only to publicly traded firms, and account for only a small fraction of the aggregate financing sources as shown in Table 4-A.

Next we briefly examine two other important sources of financing: state budget and foreign investment. As did all socialist countries, China used to rely on a central planning system to allocate the state budget to most of the companies in the country. The fact that the state-budget now only contributes 10% of *state-owned* companies' total funding in China should remove

⁵ Our current data source, the China Statistical Yearbook (2000), does not provide the breakdowns of "fundraising." We are in progress to obtain alternative sources for more detailed information on this category.

anyone's doubt of the impact of the ongoing economic reform on the country. Two other facts are worth mentioning here: 1) the size of state budget has been growing, which is not surprising given the overall growth of the economy and increase in government's tax and other incomes; 2) publicly traded companies also receive funds from the state budget, because some of the firms in this category used to be state-owned, and the funding relationship has not been completely severed. Finally we look at foreign direct investment. This source is comparable to the state budget, both in terms of aggregate size and in terms of the relative importance in firms' financing, which is another sign that the country has evolved from a central planning, closed economy toward an open-market economy. As of 1997, this source accounts for 9.5% (7.5%) of publicly traded firms' (collectively-owned firms') total financing. This ratio dropped following that year, in part due to the Asian financial crisis. However, with China finally joining the WTO, one might expect the size and relative importance of foreign investment to increase to higher levels soon.

Having presented how the four most important sources contribute to firms' financing, we now switch gear to focus on different types of firms' financing decisions. We first present how firms in the formal sector raise funds. The growth of publicly traded firms has been accompanied by a downward trend for state-owned firms, as privatization of these firms is still in progress. Consistent with previous evidence, the two most important financing sources for both types of firms are fundraising and bank loans. From the information on equity and bond sales reported in Table 4-A, we know that these sources of fundraising that rely on the use of external markets only constitute a small fraction of fundraising, compared to internal financing and other forms of financing. Combined with the fact fundraising (without the use of external capital markets) is also the most important source of financing for state-owned firms, we can conclude that informal channels of financing are important even for the formal sector.

Next, we consider how firms in the informal sector raise funds. Table 4-B illustrates the total size of “investment in fixed assets,” which we used to proxy for total financing needs, and the sources of these funds, for all types of firms in the sector. We can clearly see that self-fundraising is by far the most important source of financing, with close to 60% of total funds raised coming from this channel. Not surprisingly, individually owned companies, not surprisingly, rely mostly on self-fundraising (about 90% of total financing). Another type of private ownership firm, the publicly traded companies, have around 45% of their total funding coming from fundraising. Interestingly, even for state- or quasi-state-owned companies, self-fundraising is also important in that it captures somewhere between 45% and 65% of total financing. Figure 2 summarizes these findings.

Insert Figure 1 here.

To summarize, China’s financial system is dominated by a large but inefficient *banking sector*. In what follows we examine six properties of financial system, and the advantages and disadvantages of bank-based and market-based systems. We also relate these properties along with the comparison between bank-based and market-based systems to China’s financial system, whenever they apply.

III. Risk Sharing Through Financial Markets and Institutions

In this section we compare how risk is shared among agents in an economy through trading in financial markets and through the financial institutions, e.g., the banking system. We then draw some inferences on how this comparison applies to China’s current financial system.

The standard argument on risk sharing is that financial markets allow good risk sharing among agents so that more risk tolerant agents end up bearing greater risk than more risk-averse

agents. Provided that markets are complete, and there are no transaction costs and information is symmetric, cross-sectional risk sharing can allocate risk among agents efficiently. However, this is only one type of risk sharing, namely, cross-sectional risk sharing, while another type of risk-sharing, inter-temporal risk sharing or risk sharing among different generations of agents, is just as important. We argue that in this respect, financial institutions can do better than markets. To see this consider the following simple example to illustrate the idea of intertemporal smoothing introduced in Allen and Gale (1997).

Consider an economy that lasts for an infinite number of periods, $t = 0, 1, 2, \dots$. There is a storage technology that converts one unit of the single consumption good into exactly one unit one period later. There is also an asset (stock) with fixed supply of one unit and has the following (net) payoff structure: it pays 0.9 in even periods ($t = 0, 2, 4, \dots$) and 0.1 in odd periods ($t = 1, 3, 5, \dots$). There are consumers in the economy that live for two periods. They only consume in the final period of their lives. In the period they are born, Period t , each of them is endowed with one unit of the consumption good, and which they can invest so that they can have something available to consume in Period $t+1$. We denote their Period $t+1$ consumption to be c_{t+1} , and their utility is $u = \ln c_{t+1}$. We compare two institutional arrangements: financial markets (for trading stock) and banks (for deposit service).

It can be easily shown that in the *stationary* equilibrium with financial markets the equilibrium price of the fixed asset is one unit. In a stationary equilibrium, the price of the stock is the same each period. This means that the stock dominates the storage technology since agents can buy and sell it for the same price and in addition it pays a positive dividend. Since the stock dominates everybody will use all of their endowment to buy it and so the price will be one unit. Nothing will be invested in the storage technology. Equilibrium consumption varies for agents

who become old in even or odd periods: for those who become old in even periods they consume $c_{\text{even}} = 1 + 0.9 = 1.9$, and $u_{\text{even}} = 0.64$, while for those who become old in odd periods they consume $c_{\text{odd}} = 1 + 0.1 = 1.1$, and $u_{\text{odd}} = 0.10$. Overall agents in the economy earn an average utility of $u_{\text{Market}} = 0.37$.

On the other hand, banks, which exist for more than two periods (for simplicity assume that they live for ever), can take the long-run view and maximize average utility across agents from different generations, i.e., they engage in inter-temporal risk smoothing. It is easy to verify that with the help of the storage technology, a “smooth” consumption pattern across periods and generations is the best solution. This can be achieved by the banks taking deposits (endowment) from agents, storing 0.4 units in even periods when payoff is high, and taking out the 0.4 units in odd periods when payoff on the asset is low, so that consumption is perfectly smoothed and equals $c_{\text{bank}} = 1.5$, with $u_{\text{Bank}} = 0.41 > u_{\text{Market}} = 0.37$.

From the above example we can see that the reason the average utility of agents in the economy with banks is higher than that in the economy with markets is due to banks’ intertemporal smoothing. Similar results hold in much more complex situations with uncertain returns for the fixed assets. In fact it can be shown that in this case not only is average utility higher with smoothing but also the banking equilibrium is Pareto superior to the market equilibrium. Therefore, a financial system with an efficient banking system can dominate a system with financial markets because banks can better allocate risk and smooth consumption inter-temporally. This requires markets are not complete otherwise agents will use the markets when returns are high which will prevent smoothing. Thus long-lived financial institutions, such as banks, can achieve intertemporal smoothing, as long as they are not subject to substantial competition from financial markets.

Combining the above analysis to the evidence on China's banking system, we believe that it is important for China to reform and improve the efficiency of the banking system, in order to support the overall growth of the economy. This is of particular interests at the moment given that China's stock markets are still in the early stage of growth, with incomplete markets, asymmetric information, and imperfect government regulations. On the other hand, China's overall economic growth is still in the stage of high but volatile growth rates, so risk sharing is not only important for a stable growth path, but also important for social stability. In this environment, the banks' role of providing intertemporal risk sharing is that much more desirable.

IV. Information Provision

One of the most important functions of a financial system is the acquisition and use of information to facilitate efficient allocation of resources. In market-based systems such as the US, the fact that a large number of firms are publicly listed and traded, along with extensive disclosure requirements, implies that there is a great deal of information disclosure. In addition to the publicly available information, there are many financial analysts working for financial institutions, who gather information from all sources including private information, and their earnings forecasts and stock recommendations also contribute to the information provision process. Ample empirical evidence on efficient markets suggests that much of the information is quickly reflected in stock prices (e.g., Fama 1970, 1991). On the other hand, in bank-based systems such as Germany and other continental European countries, the reverse is true so relatively very little information (public and private) is available from financial markets. While financial markets provide more information to investors in market-based systems like the US than in bank-based systems like Germany, the reverse is true for intermediaries in these countries. With more

prevalent and better long-term relationships in bank-based systems, financial intermediaries in these countries are able to acquire considerable amounts of information about their borrowers, more than what is released to the markets. This can be used to allocate resources more efficiently in these bank-based systems.

Conventional wisdom is that better information improves allocative efficiency, thus the more information, the better. The implication for this result is that better accounting standards and related disclosure measures aimed at improving transparency improves welfare. This call for higher accounting standards and better information disclosure is receiving a lot of support at the moment in the US, after the Enron debacle and other accounting scandals. However, *informational* efficiency, which can be achieved in efficient financial markets, does not necessarily imply *welfare* efficiency. In some cases, in order to reveal information, prices for securities have to fluctuate with any changes in underlying information; but price fluctuations themselves are costly to the extent that they may impose risk of uninsured changes in wealth on investors. Therefore, improved information disclosure increases stock price volatility, which can lead to a welfare decrease, in particular in a financial system with active financial markets. People who are forced to sell based on newly released information will bear unnecessary risk. In this regard, welfare can be improved by having opaqueness in the information disclosure process.⁶

The trade-off between allocative efficiency and risk sharing is important for the structure of financial systems. Although there may be allocative advantages, the mere existence of more price data from stock markets in the US is not a critical point in favor of a market-oriented system over a bank-oriented system. In financial systems like Germany's, few companies are publicly quoted and little information is revealed by those listed companies. The lack of information, which

⁶ See for example, Hirshleifer (1971), Grossman and Stiglitz (1980), Dow and Gorton (1997), and Allen and Gale (2000a, Chapter 7).

may be bad from the point of view of efficient decision-making in investment, may actually be a good thing from the point of view of risk sharing. There is no theoretical presumption that more information leads to a better outcome, even if that information is useful for allocative efficiency. Allocative efficiency is offset by the fact that investors bear a lot of risk.

China is in the process of improving its accounting and related disclosure standards and in particular, for publicly listed and traded companies. This is important and should be done with due diligence, and lessons can be drawn from various countries' experience. However, the importance of improving accounting standards should not understate the importance of an efficient banking system, in particular, an efficient banking system that provides funding and monitoring to firms. This is true also because the status of China's accounting profession makes it difficult to improve the transparency of the markets. The accounting reform started with the enactment of regulations governing the enterprises with foreign investment, which provided the necessary accounting infrastructure to assist companies in attracting foreign direct investment. The ASBE (Accounting Standards for Business Enterprises) of China, together with the 13-industry regulation board, have been trying to move China's accounting practice of SOEs toward the IAS (International Accounting Standards). However, the most glaring problem in China's accounting system is the lack of independent, professional auditors, similar to the situation of legal professionals. This implies that the proposed IAS-based standards may be counterproductive within China's infrastructure. The added problem on the reform of the accounting system stems from the lack of an effective judicial system to protect companies' assets from embezzlement and other frauds. Based on our arguments above, it should be clear that improving the efficiency of China's banking system is as important, if not more so, as improving the transparency of the financial markets at the current time.

V. Financial Crises

Financial crises often accompany the development of a financial system. Conventional wisdom says that financial crises are bad. Often they are very bad, as they disrupt production and lower social welfare as in the Great Depression in the US. Crises can occur even in developed financial systems: for example, Japan in the 1990s.

Prior to the 20th Century, banking crises, currency crises, and stock market crashes occurred frequently in Europe and the US. Among these crises banking panics, caused by the fact that banks do not have sufficient liquid assets to meet total withdrawal demands (anticipated and unanticipated), were often particularly disruptive. Over time one of the most important roles of central banks came to be to eliminate banking panics and ensure financial stability. In the US, the foundation of the Federal Reserve System in 1913 was a result of a debate triggered by the severe banking crisis of 1907. To a large degree central banks in different countries have performed well in this regard. For example, the Bank of England became particularly adept at solving this during the 19th century and the last true financial crisis in the United Kingdom was in 1866.

However, a new breed of financial crises emerged after the collapse of the Bretton Woods system in early 1970s. Lindgren, Garcia, and Saal (1996) find that about three quarters of the IMF's member countries suffered some form of banking crises between 1980 and 1996, and their study did not include the subsequent Asian financial crisis in 1997. In many of these crises, banking panics in the traditional sense were avoided either by central bank intervention or by explicit or implicit government guarantees. But as Kaminsky and Reinhart (1999) find, the advent of financial liberalization in many economies in the 1980s, in which free capital in- and out-flows and the entrance and competition from foreign investors and financial institutions follow in the home country, has led to the "twin" banking and currency crises.

Since China's recent entrance into the WTO will undoubtedly lead to more internal and external pressure to make its currency convertible and to open its capital and product markets, it is important to understand the causes of financial crises resulting from financial liberalization. First note that financial liberalization-led crises not only occur in emerging markets, such as the 1997 Asian crisis and the 1994 Mexico crisis, they can also emerge in developed countries. Examples include the Scandinavian crisis in early 1990s, and the dramatic rise in real estate and stock prices that occurred in Japan in late 1980s and their subsequent collapse in 1990s. As Kaminsky and Reinhart (1999) point out, a common precursor to all the crises considered was financial liberalization and significant credit expansion. These were followed by a sharp rise in stock prices and/or real estate prices much higher than during normal times. At some point the bubble burst and assets markets collapse. In many cases banks and other intermediaries were overexposed to the equity and real estate markets, and following the collapse of assets markets banking crises ensue. In emerging markets this is often then accompanied by an exchange rate crisis as government choose between lowering interest rates to ease the banking crises or raising them to defend the home currency. Finally, a significant fall in output occurs and the economies enter recessions.

Allen and Gale (2000c) provide a theory of bubbles and crises based on the existence of an agency problem. Many investors in real estate and stock markets obtain their investment funds from external sources. If the providers of the funds are unable to observe the characteristics of the investment, and because of limited liability on the investors, there is a classic risk-shifting problem (Jensen and Meckling 1976). Risk shifting increases the return to risky assets and causes investors to bid up asset prices above their fundamental values. A crucial determinant for asset prices is the amount of credit that is provided for speculative investment. Financial liberalization,

by expanding the volume of credit, can interact with the agency problem and lead to a bubble in asset prices. What then triggers the twin crises in banking system and currency? Chang and Velasco (2000, 2001) develop a model of twin crises based on the Diamond and Dybvig (1983) model of bank runs. As in Diamond and Dybvig (1983) model, crises are “sunspot” phenomena rather than due to aggregate uncertainty.⁷ On the other hand, money enters agents’ utility function, and the central bank controls the ratio of currency to consumption. As a result, different exchange rate regimes correspond to different rules for regulating the currency-consumption ratio. In some regimes, there exist both a “good” equilibrium in which early (late) consumers receive the proceeds from short-term (long-term) assets, and a “bad” equilibrium in which everybody believes a crisis will occur and these beliefs are self-fulfilling. If the bad equilibrium occurs, there is a twin crisis.

Another phenomenon that has been important in many recent crises (e.g., the 1997 Asian crisis) is that financial crises are contagious. A small shock that initially affects only a particular region or sector can spread by contagion within the banking system or financial markets to the rest of the financial sector, then to the entire economy, then to other economies via for instance, currencies. Allen and Gale (2000d) focus on a channel of contagion that arises from the overlapping claims that different regions or sectors of the banking system have on one another through interbank markets. When one region suffers a banking crisis, the other regions suffer a loss because their claims on the troubled region fall in value. If this spillover effect is strong enough, it can cause a crisis in the adjacent regions, and a contagion of crisis can occur.

⁷ Consistent with currency crises that took place in Latin American countries in 1970s, Krugman (1979) argues that crises occur because the government had inconsistent and unsustainable fiscal and currency policies. While during the recent Asian crisis, by contrast, many of the counties that experienced problems had pursued proper macroeconomic policies.

Knowing that financial liberalization can lead to bubbles and crises in the financial system, when and to what extent should a country open its capital account and financial markets? The prevailing view, expressed by McKinnon (1991) and Dornbusch (1998), is that success or failure of this policy hinges on the efficiency of domestic financial institutions, while Fischer (1998) and Calvo (1998) have promoted reforming the financial sector as a pre-condition to liberalizing. This latter view assumes that financial liberalization does not alter the efficiency of domestic financial institutions. But this policy change affects both the supply and price of capital, two important determinants of financial contracts. With a model of endogenous financial intermediation, Alessandria and Qian (2002) demonstrate that an efficient financial sector prior to liberalization is neither necessary nor sufficient for a successful financial liberalization. This is because the liberalization of the capital account and ensuring free capital flow and competition from foreign financial institutions may change domestic intermediaries' incentive to monitor firms. If domestic banks have a weaker (stronger) incentive to monitor the firms that they lend to, there will be an aggregate shift in the economy toward risky, and negative-NPV (safe and positive-NPV) projects. The decision to access world capital markets then should be done with careful consideration of the underlying monitoring technology of financial intermediaries as well as conditions in the world markets, rather than just the efficiency of the financial sector in the closed economy.

So far we have said that the conventional wisdom is that financial crises are disruptive for an economy so we should try to prevent them. However, financial crises can be welfare improving for an economy. Allen and Gale (1998) show that bank runs caused by business cycles can actually allow better risk sharing and hence be welfare enhancing. This risk sharing leads to an optimal allocation of resources. It involves imposing some risk on agents who must withdraw

their deposits from banks early because of liquidity needs, as well as those who leave their money in the bank. This sharing of risk is optimal in situations where the returns on bank assets are low.

In the long run improved risk sharing will allow greater investment in risky assets with higher expected returns. With more investment in projects with higher expected returns, economic growth is higher. In this case, central banks and other government policies that eliminate runs would actually lower social welfare. For example, in the late nineteenth century, the US experienced many crises but the economy's long run growth rate was high at the same time.

VI. Corporate Governance

Conventional wisdom, based on how firms in the US are managed, says that strong corporate governance helps to resolve the agency problem resulting from the separation of ownership and control in publicly owned and traded firms (e.g., Jensen and Meckling 1976, Fama and Jensen 1983), and thus improves firm's performance and increases the overall allocative efficiency of the economy. The set of corporate governance mechanisms, including active markets for corporate control, effective Board of Directors and CEO compensation, and the use of debt in capital structure, ensure that managers of the firm act in shareholders' interests. It is widely believed that the most effective corporate governance mechanism is markets for corporate control, where hostile takeovers are possible and provides the strongest form of discipline for managers (e.g., Jensen 1986). However, there are many problems with this mechanism. The first is the Grossman and Hart (1980) free-rider problem among minority shareholders of the target firm, which forces the bidding firm to offer a high premium over the current target price in order to gain control. There are ways around this problem but they are not perfect. There is also a free-rider problem among bidders. Once a takeover bid is announced other bidders will realize it is an

attractive target and will join the corporate control contest. This implies it is not worthwhile for the initial potential bidder to recoup any fixed costs from identifying the target in the first place. The third problem in the operation of the market for corporate control is that target managers, who may be incompetent but still want to preserve their control and private benefits, can entrench themselves and launch defensive measures against potential takeovers, so that it is much more difficult to remove them from targets. Similarly, we can show that there are problems with each of the corporate governance mechanisms.

However, there seem to be many examples of companies, particularly in Asia, where the argument linking standard corporate governance mechanism to firm performance fail. In fact, none of the above mechanisms are particularly effective in Asian countries. For example, there is virtually no hostile takeover market in Japan, the most developed country in Asia. It has not been an important mechanism for corporate governance at all. Executive compensation is much lower in Japan than in the US and the use of stocks and stock options for this purpose is much less; hence it is difficult to believe that there are not equally good substitute mechanisms that provide incentives for good corporate governance. Boards of directors are even more ineffective and clumsy in Japan than in the US and tend to be dominated by the President of the company. To present a concrete example, let us look at Toyota and GM, both well-known companies and industry leaders in the automobile industry. As above, Toyota scores very poorly in terms of corporate governance, but as Figure 2 illustrates, it has been one of the most successful companies in the world during the past 25 years.

Insert Figure 2 here.

What, then are the corporate governance mechanisms that allowed Asian firms to do so well for so long? The mechanisms that are usually argued to be the most important are first,

concentrated holdings and monitoring by financial institutions. In Japan, monitoring of firms' executives is done through the main bank system. The characteristics of this system are the long-term relationship between a bank and its client firm, the holding of both debt and equity by the bank, and the active intervention of the bank should its client firm becomes financially distressed. It has been widely argued that this main bank relationship ensures that the bank acts like the delegated monitor and helps to overcome the agency problem between managers and the firm (e.g., Hoshi, Kashap, and Scharfstein 1990). While the main bank system seems to be important in times of financial distress, it is not clear about how important their role is when the firm is doing well.

Standard theory suggests that corporate governance in Asia is inferior to the US. But if this is true how can the East Asian Miracle have occurred? How were these countries so successful for so long with these ineffective corporate governance mechanisms? Is it that corporate governance is not that important or is that the standard theories miss something? We argue that standard theories are too narrowly focused. For example, Burkart, Panunzi, and Shleifer (2002) link the degree of separation of ownership and control to different legal environments, and show that family-run firms will emerge as the dominant form of ownership structure in countries with weak minority shareholder protections, whereas professionally managed firms must be the optimal form in countries with strong investor protection. Evidence in Claessens, Djankov and Lang (2000) and Claessens et al. (2002) suggests that family-owned firms with a very high concentration of ownership is the norm in many Asian countries outside China and these firms have performed well. Family firms may well be superior at some stage of development to effective legal systems.

More importantly, there are other alternative mechanisms that ensure strong corporate governance that have not been studied enough. One very important factor is competition in

product and input markets (Allen and Gale, 2000b). If the managers of a firm waste or consume large amounts of resources, the firm will be unable to compete and will go bankrupt eventually. Rather than taking over a firm if it is inefficiently run it is possible for a well-run competing company to capture the inefficient firm's market share. The more efficient firm can then purchase the inefficient firm's assets and other inputs. Competition in particular international competition is a mechanism that can potentially work in all countries. It seems that it is particularly important in Asia where so many countries have based their success on export led growth.

Allen and Gale (2000a) show that if cooperation among different workers and other suppliers of inputs is necessary and all suppliers benefit from the firm doing well then a good equilibrium with no external governance is possible. They suggest that this is one way to think about corporate governance in Japan. Gomes (2000) demonstrates that managerial reputation effect can replace governance in an IPO firm.

The finding on alternative corporate governance mechanisms in Asia is important for China. Allen, Qian and Qian (2002) show that while China's formal system of corporate governance is poor, there exist effective, alternative mechanisms, some of which are not well understood, to ensure that many firms operate in the informal sector to grow and to earn profits for their owners and other stakeholders. We do not doubt the importance of developing formal legal rules and investor protections, it is important not to ignore how these informal mechanisms have worked so well in environment where virtually no formal mechanisms were available.

VII. Funding New Industries

Allen (1993) has suggested that stock market-based economies, such as the UK in the 19th century and the US in the 20th century, have been more successful in developing new industries

than intermediary-based economies such Germany and Japan. For example, railways were first developed in the UK in the 19th century and were financed largely through the London Stock Exchange. In the 20th century, the US has been the most successful country at developing and financing new industries: at the turn of the century, the US successfully developed the automobile industry even though the automobile was invented in Germany. After World War I, the commercial aircraft industry was mainly developed in the US. It also had a similar success with the computer industry after World War II and more recently with the biotechnology and (to some degree) the Internet industries.⁸ On the other hand, Germany and Japan, two countries that are both intermediation-based, are very good at traditional or mature industries. Recent examples in this context would be automobiles in both countries and electronics in Japan.

Allen and Gale (1999) provide theoretical arguments to explain the above observations. Markets are associated with costly information acquisition by investors who then decide whether or not to invest. With banks the costly information acquisition is delegated to managers. Allen and Gale argue that markets are better than banks for funding new industries. In such circumstances, evidence based on experience is sparse, and there is wide diversity of opinion. As we have argued in above in Section IV, stock market-based economies such as the US and UK also tend to have well-developed systems for the acquisition and distribution of information, so the cost of information to investors is low. Markets then work well because investors can gather information at low cost and those that anticipate high profits can provide the finance to the new firms. In contrast, the delegation employed by intermediaries does not work well when there is

⁸ There are counterexamples to the conclusion, such as the development of the chemical industry on a large scale in 19th century Germany, but it is interesting to note that chemical industry had existed on a small scale before, so the degree of diversity of opinion that is crucial to market financing might be expected to be less than for entirely new industries.

diversity of opinion. Investors rationally anticipate that they may well disagree with the manager and are less willing to provide funds without acquiring information on their own.

Allen and Gale (1999) then argue that banks are better than financial markets for funding mature industries because there is wide agreement on how they should be managed so the delegation of the investment decision to a bank works well. As a result, individual investors feel that there is no need for them to acquire costly information regarding firms operating in these industries. This, and the economies of scale in information acquisition through delegation, makes bank-based systems more efficient in terms of financing the growth in these industries.

It is often argued that one of the reasons the US has been so successful in recent years in developing new industries is the existence of a strong venture capital sector. For example, Kortum and Lerner (2000) have documented a strong relationship in the US between the extent to which venture capital is used in an industry and the rate of patenting. Venture capital should be thought of as being market finance rather than intermediated finance, because venture capitalists can easily cash out by selling firms in IPOs in the market that makes them willing to provide seed capital initially. The high price that can be obtained in the market is consistent with the theory that it is only people with favorable beliefs that are providing the funding.

Following the successful experience of other countries, China has its own plans to develop its industries. With the goal being establishing its own top-notch, blue-chip companies in all “vital” industries, and catching up with the most advanced technologies worldwide and become a major player in selected industries in the shortest period of time possible. Successful paths have involved first introducing advanced (relative to domestic companies) but not the most advanced technologies from developed countries (e.g., the automobile industry) and “nationalize” these technologies within designated companies, before moving toward the more advanced

technologies. Given this adoption strategy and our above arguments, the banking system can contribute more in supporting the growth and development of these industries than markets. On the other hand, China also wants to be front-runner worldwide in a few “new” industries, and to this end developing advanced financial markets and a venture capital industry is important to finance the growth of these advanced industries.

VIII. Law, Finance, and Economic Growth

Three strands of related literature on law, finance and growth have emerged in financial economics in recent years, and their impact on other areas of finance research is significant. First, the literature on law and finance links the legal origins of countries’ legal systems to differences in their corporate governance, investor protection, and external markets. For example, LLSV (1997, 1998, 2000) differentiate countries with a common-law system from those with a French civil-law system by showing that the former (latter) group of countries offer the strongest (weakest) legal protection of investors, have dispersed (concentrated) ownership of publicly traded companies, and have stronger and broader (weaker and more narrow) capital markets. They also find that firms in countries that offer investors strong protection tend to use external capital markets to raise funds. The second literature champions the view that the development of the financial system that includes stock market and intermediation, contributes to a country’s overall economic growth (e.g., McKinnon 1973). Recently, researchers have strengthened this view by presenting empirical evidence at the country-level: King and Levine (1993) and Levine and Zervos (1998) find that measures of the level of financial development in both developed and developing countries are robustly correlated with measures of current and future economic growth. Finally, the third literature examines whether there is a link between law, finance, *and* economic growth. Based on

similar measures of legal systems used in LLSV studies, Levine (1999) finds that the legal environment contributes to the growth of financial intermediation, which in turn stimulates the overall economic growth. At the firm level, Demirguc-Kunt and Maksimovic (1998) find that in countries with more efficient legal systems, a greater proportion of firms rely more on external markets for long-term financing, which contributes to higher firm growth relative to the growth rate calculated based on internal financing and short-term credit only.

Tadesse (2001) provides evidence for the argument that optimal financial architecture should suit the supporting legal and institutional environments. Using industry-level data in 36 countries, he finds that firms in bank-based (market-based) financial system outperform those in market-based (bank-based) system among countries with *under-developed* (developed) financial and legal sectors. This again reinforces our view that a country's path of developing legal and financial systems should not be uniform.

However, all the above studies treat each country in their sample on an equal-weight basis. For example, among the 49 countries in the LLSV sample, countries such as Japan and India receive the same weight as countries like Jordan and Ecuador. Moreover, they all exclude perhaps the most important developing country in the world, China. Allen, Qian, and Qian (2002) consider China's financial system and the questions it raises for the law, finance, growth, and comparative financial system literature. We show that China is a significant counterexample to the findings of the existing literature on law, finance and growth.

Using measures from the existing literature, including credit and shareholder rights, law enforcement, and legal and accounting professionals, Allen, Qian, and Qian (2002) find that China's legal system is significantly under-developed compared to the countries in the LLSV and Levine samples. We also find that corporate governance in the formal sector, in particular, among

publicly listed companies, is poor at best, judging by existing standards in the literature.⁹ From Section II above, we also know its financial system is not well developed and is to a large degree inefficient. Perhaps more surprisingly, we find that the informal sector, with much poorer applicable legal and financial mechanisms, has been growing much faster than the formal sector, and the growth in the informal sector contributes to most of the overall growth of the economy. Table 5 compares industrial output in the formal and informal sectors from 1995-1999. The informal sector grew at an annual rate of 19% between 1995 and 1999, while the formal sector grew at only 4.65% during the same period. Moreover, the growth rates for investment in fixed assets of these two sectors are comparable (see Panel b of Table 5), which imply that the informal sector is actually more productive than the formal sector. Table 5 also compares growth rates for firms with different types of ownership structure between 1998 and 1999. Firms in “other types of ownership,” which includes firms owned by investors from Taiwan, Hong Kong, and other countries, and Township Village Enterprises (TVEs), and firms that are individually owned (by Chinese citizens) grew at the fastest pace (27.6% and 14.35% annually). In contrast, the SOEs and publicly traded companies in which the government has controlling shares only grew at 8.8%.

Insert Figure 5 here.

Our conclusion for these seemingly contradictory findings is that there exist very effective, non-standard mechanisms within the legal and financial boundaries to support the financing and growth of the economy. These mechanisms are based on relationship and reputation, and are influenced by the cultural beliefs and historical evolution of China’s institutions and organizations.

We also examine separately the financing channels of firms in each of the two sectors at a disaggregated level. For the formal sector, we use data on listed companies in both the SHSE and

⁹ For a careful description of China’s corporate governance and legal systems, also see Orts (2001), Schipani and Liu (2002), and Tenev, Zhang and Brefort (2002).

SZSE to empirically examine whether these companies' financing and investment decisions are consistent with standard theory and evidence that are based on listed firms in developed countries. Although the unique ownership structure of publicly traded firms, which include different classes of stocks that are owned by the government, legal entities, and private investors, affects how firms raise funds, we find no fundamental differences between China's listed firms and their counterparts in developed countries. We also find that Chinese firms are moving toward the direction defined as the "standard" form in developed countries.

More interesting results are found in the informal sector.¹⁰ Our preliminary evidence suggests that there exist effective informal financing channels and governance mechanisms, which can substitute for the standard channels and mechanisms in firms from developed countries such as the US. These informal financing channels and governance mechanisms belong to a unique system of institutions that has been evolving from a mixture of factors including relationship and reputation, culture and history, as well as selected sets of ideology and practice from developed countries. For example, many of the successful firms did not use any channel of formal financing during various stages of development. Start-up firms often rely on their friends and family and other private sources of funding. While more mature firms often have cross-listed accounts of credits and debits with their business partners and other companies. These informal accounts resemble "trade credits" in that they replace cash transactions and they are cleared periodically. They differ from trade credits as there are sometimes no formal written contracts and the clearing dates and methods are often subject to renegotiation. Foreign investors, in particular investors from Hong Kong and Taiwan, anticipating the possible loss of their investment due to the failure

¹⁰ Due to data limitations, we provide anecdotal evidence on the various informal financing channels as well as growth patterns for typical firms in the sector. We are in the process of collecting firm-level data based on surveying entrepreneurs and executives of firms in the informal sector, regarding their financing channels in early and mature stages of their growth, as well as governance mechanisms that have worked.

of the firm, frauds or political risks, also provided much needed funding and in turn were rewarded with high returns. On the other hand, one of the most important mechanisms that drive good management and corporate governance is competition. Given the environment of low survivorship during early stages of firms' development, gaining comparative advantage in the region and the industry provides a strong incentive for all firms. Moreover, despite almost non-existent formal investor protection rules and sometimes-prevalent corruption of local officials, the common goal of sharing prospective profits ties local and foreign investors with entrepreneurs and managers to overcome numerous obstacles to achieve just that. Under this common goal in a multi-period setting, implicit contractual agreements and reputation can act as enforcement mechanisms to ensure that each party fulfills his role to help the firm grow and generates profits. Profit sharing also makes it incentive compatible for officials at various levels not to disturb the operation of the firm.

How can these informal financing and governance mechanisms be understood? First, Greif (1989, 1993) argues that certain traders' organizations in the 11th century were able to overcome problems of asymmetric information and lack of legal and contract enforcement mechanisms, because they had developed institutions based on reputation, implicit contractual relations and coalitions. Certain aspects of the growth of these institutions resemble what works in China today. Second, as shown in Section VI, there are alternative corporate governance mechanisms that have worked well both in developed and developing countries. As above, competition among firms may be more effective than either the US and UK system based on the threat of takeover, or the Japanese, French, and Germany system based on monitoring. They point out that the success and growth of the non-profit organizations in these countries is a good example of how alternative corporate governance systems can work well. What we see from the

success and life cycles of informal sector firms in WenZhou and other areas of China suggest that it is only those firms that have the strongest comparative advantage in an industry (of the area) that survived and thrived. Finally, there is a growing literature studying China's unique transition from a socialist economy to a market-oriented economy.¹¹ For instance, Lau, Qian, and Roland (2000) argue that the continued enforcement of the existing planning system and liberalizing and developing financial markets is equivalent to lump-sum transfers from the market sector to the planning sector to achieve a Pareto improvement of the entire society. While Qian (1999, 2001) argues that China's non-standard institutions and suit this transition period in which standard mechanisms are not available, because they provide incentives for economic agents to innovate and to compete and provide enough benefits to those in power so that they do not preclude the reform process, and thus they are the "second best." Che and Qian (1998a, 1998b) and Jin and Qian (1998) demonstrate that properly empowered and constrained local and community governments can substitute for corporate governance in TVEs. Bai et al. (1999) argue that information decentralization through anonymous banking can limit government's predation of private assets. Allen, Qian, and Qian (2002) contribute to this literature by focusing on the law and finance aspect (at both the aggregate and firm levels) that has not been studied before.

IX. Summary and Concluding Remarks

In this paper we examine and compare China's financial system to the US system dominated by advanced financial markets, and the German system dominated by the banking system. We find that understanding the German system and reforming China's banking system should be as important as developing US-style financial markets in China. Our findings also suggest that China differs from most countries studied in the related strands of literature on

¹¹ Qian and Wu (2000) and Qian (2001) provide survey of this literature.

comparative financial systems, and on law, finance, and economic growth. Despite its poor legal and financial systems measured by existing standards, it has the largest, and one of the fastest growing economies in the world. Moreover, the growth in the formal sector, which includes state-owned and publicly traded firms, is much slower than in the informal sector, which includes all other types of firms. We conclude that there are effective, informal financing channels and governance mechanisms, which are not well understood, to support the growth of the informal sector. Better understanding of how these non-standard mechanisms work to promote growth in China can also shed light on alternative development paths different from established theories that can benefit other countries.

Going forward, our findings suggest that it may be best for China to develop its existing financial system, instead of simply adopting a financial system based on one or a group of developed countries. Moreover, the development of a formal legal system and the continuing growth and improvement of the financial system must support the continuing growth of the informal sector.

Appendix A Brief Introduction of Variables and Sources

A.1. Definitions on different types of firms in China (used in Tables 4-B and 5, and Figure 1)

1. State-owned Enterprises: Non-corporation economic units where the entire assets are owned by the state and which have registered in accordance with the "regulation of the People's Republic of China on the Management of Registration of Corporate Enterprises." Excluded from this category are the sole state funded corporations in the limited liability corporation.
Note: The government is the de facto owner, and they choose managers to run the firm. Even though these firms do enter the credit plan, but this process is constructed and enforced by state banks, which are also under the control of the government.
2. Collective-Owned Enterprises: Economic units where the assets are owned collectively and which have registered in accordance with the "Regulation of the People's Republic of China on the management of registration of corporate Enterprise."
Note: Local government can be regarded as the agent of central government. Therefore, any firm owned by local government is also owned by central government. Collective ownership here means the community in the city or rural area joins the ownership.
3. Jointly-owned firms: Economic Units established by two or more corporate enterprises or institutions of the same or different ownership, through joint investment on the basis of equality, voluntary participation and mutual benefits. They include state joint ownership enterprises, collective joint ownership enterprises, joint state-collective enterprise, and other joint ownership.
Note: Enterprise involved with foreign investment/ownership is not in this category. They are in the Category of "Enterprise with Foreign investment, which has 3 different types.)
4. Share-holding Corporations Ltd: Economic units registered in accordance with the "Regulation of the People's Republic of China on the management of Corporations", with total registered capitals divided into equal shares and raised through issuing stocks. Each investor bears limited liability to the corporation depending on the holding of shares, and the corporation bears liability to its debt to the maximum of its total assets.
Note: The above is essentially the same definition of US public companies, but these Chinese companies have non-tradable shares that are the by-product during the reforming process.

References:

1. Alessandria, George, and Jun Qian, 2002. "Endogenous Financial Intermediation and Real Effects of Capital Account Liberalization," working paper, Boston College.
2. Allen, Franklin, 1993. "Stock Market and Resource Allocation," in C. Mayer and X. Vives (eds.), *Capital Markets and Financial Intermediation*, Cambridge: Cambridge University Press.
3. _____, and Douglas Gale, 1997. "Financial Markets, Intermediaries, and Intertemporal Smoothing," *Journal of Political Economy*, Vol. 105, 523-546.
4. _____, and _____, 1998. "Optimal Financial Crises," *Journal of Finance*, Vol. 53, 1245-1287.
5. _____, and _____, 1999. "Diversity of Opinion and the Financing of New Technologies," *Journal of Financial Intermediation*, Vol. 8, 68-89.
6. _____, and _____, 2000a. *Comparing Financial Systems*, MIT Press, Cambridge, MA.
7. _____, and _____, 2000b. "Corporate Governance and Competition," in *Corporate Governance: Theoretical and Empirical Perspectives*, edited by X. Vives, Cambridge University Press, London, 23-94.
8. _____, and _____, 2000c. "Bubbles and Crises," *Economic Journal*, Vol. 110, 236-255.
9. _____, and _____, 2000d. "Financial Contagion," *Journal of Political Economy*, Vol. 108, 1-33.
10. _____, and _____, 2001. "Comparative Financial Systems: A Survey," in *Financial Intermediation*, edited by A. Boot, S. Bhattacharya and A. Thakor, Oxford University Press, forthcoming.
11. _____, Jun Qian, and Meijun Qian, 2002. "Law, Finance, and Economic Growth in China," working paper, University of Pennsylvania.
12. Bai, Chong-En, David Li, Yingyi Qian, and Yijiang Wang, 1999. "Limiting government predation through anonymous banking: A theory with evidence from China," working paper, University of Maryland.
13. Booth, Laurence, Varouj Aivazian, Asli Demirguc-kunt, and Vojislav Maksimovic, 2001. Capital Structure in Developing Countries, *Journal of Finance*, Vol. 56 (1), 87-130.

14. Burkart, Mike, F. Panunzi, and Andrei Shleifer, 2002. "Family Firms," NBER working paper 8776.
15. Calvo, Guillermo, 1998. "The Simple Economics of Sudden Stops," *Journal of Applied Economics*, Vol. 1, 35-54.
16. Chang, R., and A. Velasco, 2000. "Financial Fragility and the Exchange Rate Regime," *Journal of Economic Theory*, Vol. 92, 1-34.
17. _____, and _____, 2001. "A Model of Financial Crises in Emerging Markets," *Quarterly Journal of Economics*, Vol. 116(2), 489-518.
18. Che, Jiahua, and Yingyi Qian, 1998a. "Insecure property rights and government ownership of firms," *Quarterly Journal of Economics*, Vol. 113 (2), pp. 467-496.
19. _____, and _____, 1998b. Institutional Environment, Community Government, and Corporate Governance: Understanding China's Township-Village Enterprises, *Journal of Law, Economics, and Organization*, vol. 14 (1), 1-23.
20. Claessens, Stijn, Simeon Djankov, and Larry Lang, 2000. "The Separation of Ownership and Control in East Asian Corporations," *Journal of Financial Economics*, 58, 81-112.
21. _____, _____, Joseph Fanand, and Larry Lang, 2002. "Expropriation of Minority Shareholders in East Asia," *Journal of Finance*, forthcoming.
22. Demirguc-Kunt, Asli, and Vojislav Maksimovic, 1998. "Law, finance, and firm growth," *Journal of Finance*, vol. 53 (6), 2107-37.
23. _____, and Ross Levine, 2002. *Financial Structure and Economic Growth: Cross-country Comparisons of Banks, Markets, and Development*, MIT Press, Cambridge, Massachusetts.
24. Diamond, Douglas, and Philip Dybvig, 1983. "Bank Runs, Liquidity, and Deposit Insurance," *Journal of Political Economy*, Vol. 91, 401-419.
25. Dornbusch, Rudiger, 1998. "Capital Controls: An Idea Whose Time is Past," *Princeton Essays on International Finance*, No. 207.
26. Dow, J., and Gary Gorton, 1997. "Stock Market Efficiency and Economic Efficiency: Is there a Connection?" *Journal of Finance*, Vol. 52, 1087-1129.
27. Fama, Eugene, 1970. "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, Vol. 35, 383-417.
28. _____, 1991. "Efficient Capital Markets II," *Journal of Finance*, Vol. 46, 1575-1617.

29. _____, and Michael Jensen, 1983. "The Separation of Ownership and Control," *Journal of Law and Economics*, Vol. 26, 301-325.
30. Fischer, Stanley, 1998. "Capital Account Liberalization and the Role of the IMF," *Princeton Essays on International Finance*, No. 207.
31. Gomes, Armando, 2000. "Going public without governance: managerial reputation effects," *Journal of Finance*, vol. 55, 615-646.
32. Greif, Avner, 1989. "Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders," *Journal of Economic History*, Vol. 49, 857-882.
33. _____, 1993. "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition," *American Economic Review*, Vol. 83 (3), 525-548.
34. Grossman, Sanford, and Oliver Hart, 1980. "Takeover Bids, the Free-rider Problem, and the Theory of Corporation," *Bell Journal of Economics*, Vol. 11, 42-64.
35. Grossman, Sanford, and Joseph Stiglitz, 1980. "On the Impossibility of Informationally Efficient Markets," *American Economic Review*, Vol. 70, 393-408.
36. Hirshleifer, J. 1971. "The Private and Social Value of Information and the Reward to Inventive Activity," *American Economic Review*, Vol. 61, 561-574.
37. Hoshi, T., A. Kashyap, and D. Scharfstein, 1990. "The Role of Banks in Reducing the Costs of Financial Distress in Japan," *Journal of Financial Economics*, Vol. 27, 67-98.
38. Jensen, Michael, 1986. "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review*, Vol. 76, 323-329.
39. _____, and William Meckling, 1976. "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics*, Vol. 3, 305-360.
40. Jin, Hehui, and Yingyi Qian, 1998. "Public vs. private ownership of firms: evidence from rural China," *Quarterly Journal of Economics*, Vol. 113 (3), pp. 773-808.
41. Kaminsky, G., and C. Reinhart, 1999. "The Twin Crises: The Causes of Banking and Balance-of-payments Problems," *American Economic Review*, Vol. 89, 473-500.
42. King, Robert, and Ross Levine, 1993. "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics*, Vol. 108 (3), 717-738.
43. Kortum, Samuel, and Josh Lerner, 2000. "Assessing the Contribution of Venture Capital on Innovation," *RAND Journal of Economics*, Vol. 31 (4), pp??

44. Krugman, Paul, 1979. "A Model of Balance of Payments Crises," *Journal of Money, Credit, and Banking*, 311-325.
45. La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 1997. "Legal determinants of external finance," *Journal of Finance*, vol. 52, 1131-1150.
46. _____, 1998, "Law and Finance," *Journal of Political Economy*, vol. 106, 1113-1155.
47. _____, 2000, "Investor protection and corporate governance," *Journal of Financial Economics*, vol. 58 (1-2).
48. Lau, Lawrence, Yingyi Qian, and Gerard Roland, 2000. "Reform without Losers: An Interpretation of China's Dual-Track Approach to Transition," *Journal of Political Economy*, Vol. 108 (1), pp.120-143.
49. Levine, Ross, 1999. "Law, finance, and economic growth," *Journal of Financial Intermediation*, vol. 8 (1-2), 36-67.
50. _____, 2000. "Bank-based or Market-based Financial Systems: Which is Better?" working paper, University of Minnesota.
51. _____, and Sara Zervos, 1998. "Stock Market, Banks, and Economic Growth," *American Economic Review*, Vol. 88 (3), 537-558.
52. Lindgren, C., G. Garcia, and M. Saal, 1996. *Bank Soundness and Macroeconomic Policy*, Washington, D.C.: International Monetary Fund.
53. Maddison, Angus, 1998. *Chinese Economic Performance in the Long Run*. Paris, OECD Development Center.
54. McKinnon, Ronald, 1973. "Money and Capital in Economic Development," The Brookings Institution.
55. _____, 1991. *The Order of Economic Liberalization*, Johns Hopkins University Press.
56. Orts, Eric, 2001. "The Rule of Law in China," *Vanderbilt Journal of Transitional Law*, Vol. 34 (1), 43-115.
57. Qian, Yingyi, 1999. "The Institutional Foundations of China's Market Transition," working paper, Stanford University.
58. _____, 2001. "How Reform Worked in China," working paper, University of California, Berkeley.
59. _____, and Jinglian Wu, 2000. "China's transition to a market economy: How far across the river?" working paper, University of Maryland.

60. Schipani, Cindy, and Junhai Liu, 2002. "Corporate Governance in China: Then and Now," *Columbia Business Law Review*, Vol. 2002, 1-69.
61. Stiglitz, Joseph, 1985. "Credit Market and the Control of Capital," *Journal of Money, Credit, and Banking*, Vol. 17, 133-152.
62. Summers, Lawrence, 1992. "The Rise of China," *Transition Newsletter*, Vol. 3 (6), p.7, The World Bank.
63. Tadesse, Solomon, 2001. "Financial Architecture and Economic Performance: International Evidence," working paper, University of South Carolina.
64. Tenev, Stoyan, Chunlin Zhang, and Loup Brefort, 2002. *Corporate Governance and Enterprise Reform in China, Building the institutions of Modern Market*, World Bank, IFC.

Table 1-A China at a Glance

Year	GNP (\$ Billion)	Growth Rate of GDP	GDP (\$ Billion)	Population (10,000 persons)	Per Capita GDP (\$)
1989	204.32				
1990	224.62	9.93%	224.01	114333	197.34
1991	261.62	16.48%	261.08	115823	229.11
1992	321.88	23.03%	321.72	117171	276.21
1993	417.40	29.67%	418.29	118517	354.95
1994	563.65	35.04%	564.73	119850	473.79
1995	694.38	23.19%	706.26	121121	586.23
1996	807.37	16.27%	819.86	122389	673.43
1997	883.37	9.41%	899.31	123626	731.04
1998	929.55	5.23%	946.20	124810	761.71
1999	971.29	4.49%	989.26	125909	789.13

Note: the exchange rate used is US\$1 = RMB 8.28
Source: China Statistical Yearbook (2000)

Table 1-B Comparison of China and LLSV Countries: GNP and Growth

China vs. LLSV Sample Countries*						
Rank	GNP in 1999		GNP in 1999 using PPP**		Average Annual Growth Rate of GNP (1990-1998)	
	Country	GNP (US \$ billion)	Country	GNP (Int'l \$ billion)	Country	Weighted Ave. (%)
1	US (E) ^a	8879	US (E)	8879	China	8.35
2	Japan (G) ^a	4055	China	4518	English Origin ^b	3.56
3	Germany (G)	2104	Japan (G)	2642	French Origin ^b	3.68
4	France (F) ^a	1453	India (E)	2215	German Origin ^b	1.99
5	UK (E)	1404	Russia	1927	Scandinavian Origin ^b	3.42
6	Italy (F)	1163	Germany (G)	1893		
7	China	980	Brazil (F)	1642		
8	Brazil (F)	730	France (F)	1364		
9	Canada (E)	614	Italy (F)	1269		
10	Spain (F)	583	UK (E)	1203		

Notes: *: LLSV figures are from 1999 data; ^a: E, F, G denotes the English-, French-, and German-origin of the country's legal system; ^b: size-weighted average for countries in LLSV sample. Direct Source for all countries GNP: Statistical Abstract of United States (2000, also from World Bank, US Census Bureau)

** : The GNP of each country in 1999 is converted from local currency to international Dollars, use Purchasing Power Parity (PPP) conversion factor. **The PPP conversion factor is obtained from The World Bank Development Indicator (Table 5.6, World Bank. For details on how to calculate the indicator, see "Handbook of the International Program," United Nation, New York 1992.**

Table 2-A A Comparison of Financial Systems: Bank- vs. Market-based Measures

	Measures	English Origin	French Origin	German Origin	Scandinavian origin	Sample average	China
Bank and Market size	Bank credit/GDP	0.408	0.341	1	0.502	0.461	1.113 (0.242)^a
	Overhead Cost/Bank Total Assets	0.03	0.054	0.026	0.028	0.039	0.122
	Total value traded/GDP	0.144	0.045	0.618	0.075	0.154	0.1
	Market Capitalization/GDP	0.428	0.154	0.438	0.232	0.296	0.323
Structure Indices: Markets vs. banks**	Structure Activity	-1.57	-2.143	-1.072	-1.957	-1.785	-2.407 (-0.878)^a
	Structure Size	-0.159	-0.785	-1.116	-0.802	-0.598	-1.237 (-0.291)^a
	Structure Efficiency	-6.27	-6.57	-4.814	-6.317	-6.22	-2.653 (-4.404)^a
	Structure aggregate	0.41	-0.14	0.64	-0.005	0.171	N/A
Financial Development (banking and market sectors)	Structure regulatory	8.78	9.06	8	7.66	8.69	16
	Finance activity	-3.27	-4.57	-0.94	-2.99	-3.49	-2.193 (-3.721)^a
	Finance size	4.422	3.845	5.038	4.56	4.271	-1.023 (-2.55)^a
	Finance efficiency	1.11	-0.37	2.62	0.99	0.66	-1.947 (-0.196)^a
	Finance aggregate	0.342	-0.44	1.326	0.43	0.145	N/A

Notes: All the measures for countries other than China are taken from Levine (2000); measures on China (in Tables 3a and 3b) are calculated using definitions from Levine (2000) (see Appendix for list of definitions)

** : measuring whether a country's financial system is market- or bank-dominated, the higher the measure, the more the system is dominated by markets; ^a : numbers in bracket indicate bank credit issued to only private sectors (instead of total bank credit)

Sources: Almanac of China's Finance and Banking (2000); China Statistical Yearbook (2000)

Table 2-B China's Financial System: Bank- vs. Market-based Measures

Bank, Market, regulatory Indicators				
	Bank Credit	Total value traded	Market capitalization	Overhead cost
1997	0.949 (0.210) ^a	0.07	0.235	N/A
1998	1.040 (0.217) ^a	0.073	0.249	0.117
1999	1.113 (0.242) ^a	0.100	0.323	0.122
Structure Indicators				
	Structure Activity	Structure Size	Structure Efficiency	Structure regulation
1997	-2.609 (-1.099) ^a	-1.394 (0.115) ^a	NA	14
1998	-2.652 (-1.082) ^a	-1.429 (0.139) ^a	-3.236 (-4.756) ^a	16
1999	-2.407 (-0.878) ^a	-1.237 (0.291) ^a	-2.653 (-4.404) ^a	16
Financial Development				
	Finance Activity	Finance size	Finance efficiency	
1997	-2.713 (-4.222) ^a	-1.498(-3.008) ^a	NA	
1998	-2.573 (-4.143) ^a	-1.351(-2.92) ^a	-1.989 (-0.470) ^a	
1999	-2.193 (-3.721) ^a	-1.023(-2.55) ^a	-1.947 (-0.196) ^a	

Note: The indicators are computed as the same as in Levine (2000); ^a: numbers in bracket used only private sector bank credit (instead of total bank credit)

Sources: Almanac of China's Finance and Banking (2000); China Statistical Yearbook (2000)

Table 3 External Capital market of LLSV(1997) Sample Countries (Mean)

Country	English-origin average	French-origin average	German-origin average	Scandinavian-origin average	LLSV sample average	China (1998) average
External capital/GNP	0.6	0.21	0.46	0.3	0.4	0.1
Domestic Firms/Pop	35.45	10	16.79	27.26	21.59	0.68
IPOs/Population	2.23	0.19	0.12	2.14	1.02	0.08
Debt/GNP	0.68	0.45	0.97	0.57	0.59	0.22
GDP growth (one-year)	4.3	3.18	5.29	2.42	3.79	5.23
Rule of Law	6.46	6.05	8.68	10	6.85	5
Anti-director Rights	3.39	1.76	2	2.5	2.44	3
One share = one vote	0.22	0.24	0.33	0	0.22	1
Creditor rights	3.11	1.58	2.33	2	2.3	2

Source: LLSV Journal of Finance 1997 paper; Almanac of China's Finance and Banking (2000).

Table 4-A Total Investment (of all firms) in Fixed Assets by source of Finance

Percentage	State Budgetary Appropriation	Domestic Loan	Foreign Investment	Fundraising and others	IPO&SEO*	Corporate Bond*
1991	6.9	23.9	5.8	65.0	0.1	4.5
1992	4.4	28.2	6.0	61.4	1.2	8.7
1993	3.9	24.7	7.7	68.7	3.0	1.9
1994	3.2	24.4	10.8	61.5	2.0	1
1995	3.1	21.0	11.5	64.5	0.8	1.5
1996	2.7	19.9	12.0	67.1	1.9	1.2
1997	2.8	19.2	10.8	68.5	5.2	1
1998	4.2	19.5	9.2	68.2	3.0	0.5
1999	6.2	19.2	6.7	67.6	3.2	0.5

Note: * - these two sources only apply to publicly listed and traded companies;

Sources: SHSE, China Securities and Futures Statistical Yearbook (2001), and China Statistical Yearbook (2000).

Table 4-B Total investment in Fixed Asset by Ownership and Sources (1999)

Sources/ownership in percentage	State appropriation	Domestic loan	Foreign investment	Fundraising	Others	Ownership type/Total
1. State-owned units	9.8	23.4	3.8	46.7	14.0	53.4
2. Collective-owned units (rural)	5.6	13.4	04.5	64.3	13.5	14.5
	7.1	12.0	5.2	68.2	7.5	11.2
3. Individual (Rural)	0.0	4.0	0.1	90.5	6.5	14.1
	0.0	2.7	0.0	95.2	2.1	9.3
4. Joint-owned Economic units	3.2	28.1	1.4	54.6	25.6	0.3
5. Shareholding economic units	18.1	27.3	4.8	43.4	26.12	8.3
6. Foreign funded economic units	0.1	15.6	45.8	23.4	9.1	4.8
7. Units funded by entrepreneurs from Hong Kong, Macao, and Taiwan	1.7	23.9	34.2	26.3	28.1	4.1
8. Other types of ownership	8.4	13.9	2.95	49.9	27.4	0.5
9. Sources/total	62.0	19.2	6.72	53.2	14.4	1.0

Sources: China Statistical Yearbook (2000).

Table 5 Growth Rates of the Formal Sector and Informal Sector

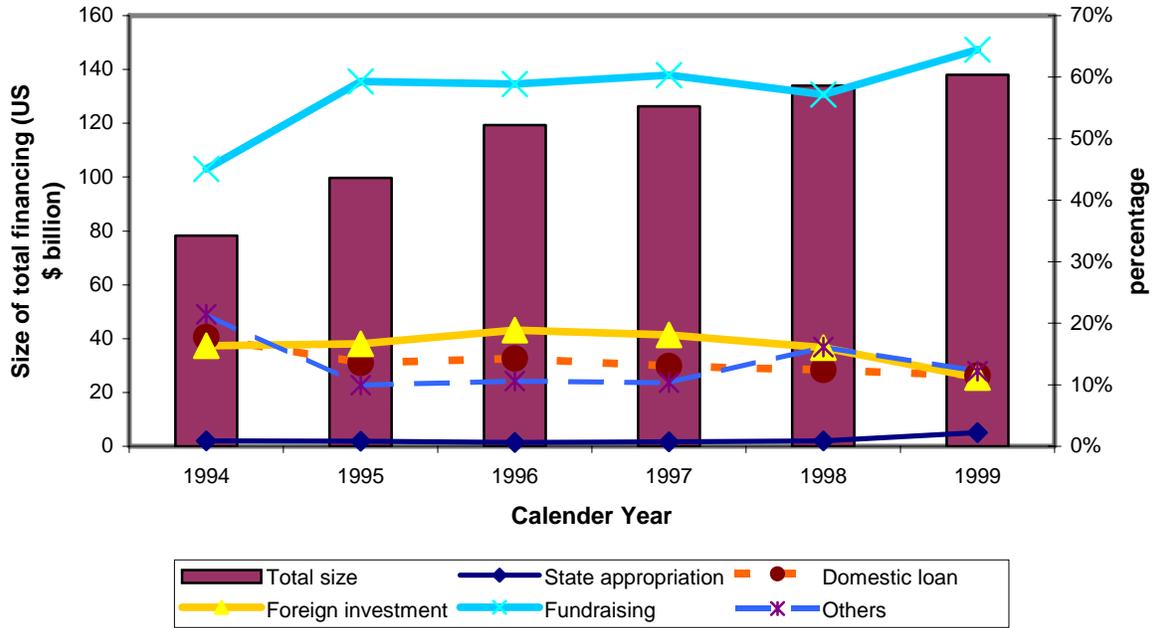
In this table, panel a displays the growth rate of “industrial output” for the two sectors in China. The formal sector includes state-owned and publicly traded companies where the government holds controlling shares. The informal sector consists of firms with all other types of ownership structures. Data source for this table is the Chinese Statistical Yearbook 2000. For each sector, we also calculated the weighted average growth rate across the selected ownership types. Panel b displays the average growth rate of “investment in fixed assets” for the two sectors.

Growth rate (%)	Formal Sector	Informal Sector	By ownership type	Growth rate of output	Growth rate of investment
Year	Panel a: Industrial output			Year 1998-1999	
1995	8.20	27.79	Other types of ownership*	27.6	12.1
1996	5.13	21.36	Individual-owned	14.35	--
1997	1.03	16.40	State-owned and listed firms**	8.8	3.8
1998	0.10	15.05			
1999	8.80	14.99	Collectively-owned	6	3.5
Average annual rate	Panel b: Investment in fixed assets				
1995-1999	9.98	9.9			

Notes: * - includes foreign-owned companies, companies owned by investors from Taiwan and Hong Kong, and TVEs; ** - listed firms that have state-owned shares

Sources: China Statistic Yearbook 2000.

**Figure 1 Firms' Financing in the Informal Sector:
Size and Sources**



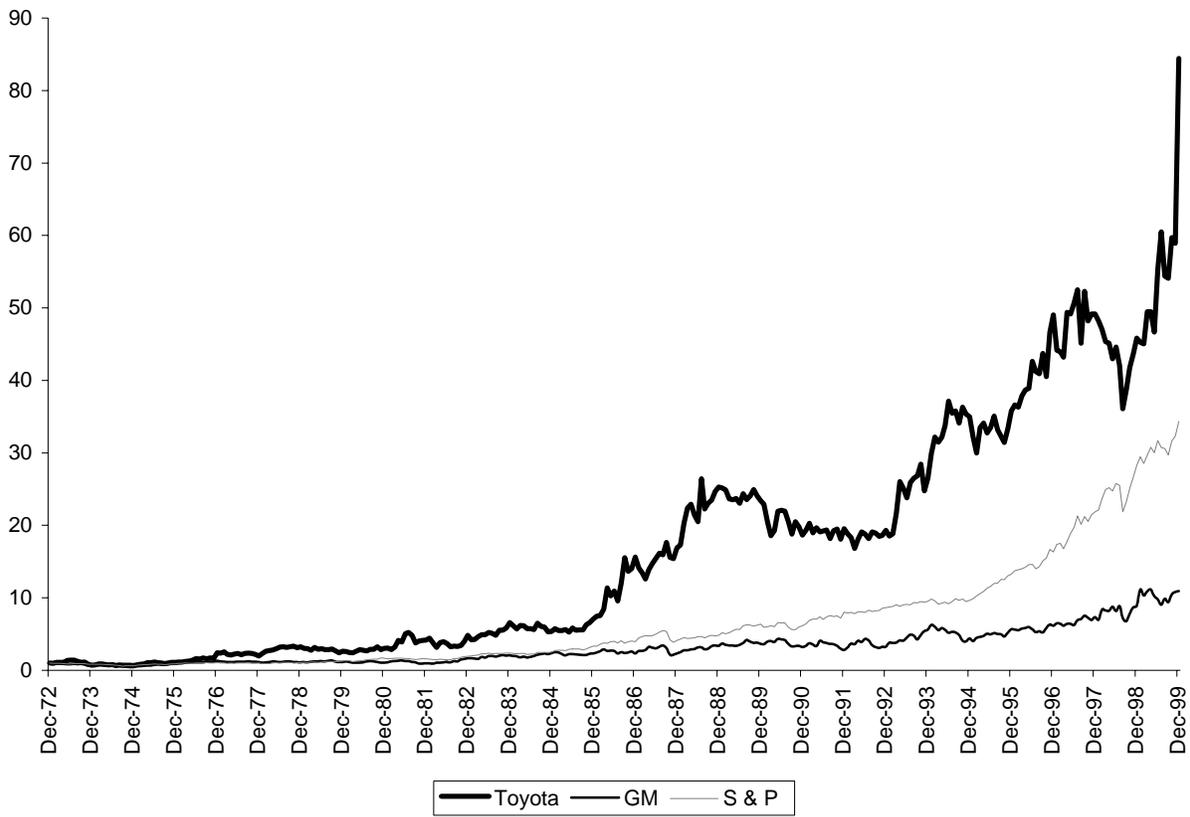


Figure 2 A Comparison of GM, Toyota, and S&P 500 Index Returns (1972-1999)