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**Reconciling the Chinese Financial Development**  
**with its Economic Growth:**  
**A Discursive Essay**

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**Abstract**

China's strong economic performance and its financial development outcomes are extremely difficult to reconcile with the dominant verdict that its financial system is seriously inefficient. Using an evolutionary perspective as a metaphor, this essay offered suggestions that adaptive efficiency criteria may help solve the apparent puzzle. An adaptive efficiency criterion offers conceptual as well as methodological approaches to resolving this puzzle and contradiction. The essay's discussions reveal that much of what critics cite as intermediation inefficiencies –non performing loans, directed credit allocation– are, in fact, a dissipative energy generating required spillovers fuelling the entire system. From this perspective, the essay argues that the relevant evaluation criterion for the Chinese financial system would be “adaptive efficiency”, instead of the conventional allocative one. This arises since China is an emerging economic system characterized primarily by state-owned financial institutions and whose goals are developmental.

Keywords: Financial Development, China, Adaptive Efficiency, Co-evolutionary Perspective

**Note:** The paper should be considered in progress and is made public to stimulate further discussion and critical comments. Comments are highly appreciated and should be addressed directly to the author (Maswana[\*]econ.kyoto-u.ac.jp), [\*]=@.

## 1. Introduction

The endogenous growth literature provides ample evidence that financial development is a major determinant of economic growth. Theory links these two factors based on the argument that by reducing information, transaction, and monitoring costs, a well-developed financial system performs several critical functions to enhance intermediation efficiency. Ultimately, enhanced financial intermediation efficiency causes economic growth (for further see Pagano, 1993). It thus follows that economic growth rarely (if ever) occurs without a well-functioning financial system (see McKinnon, 1973; Shaw, 1973; King & Levine, 1993; Levine et al. 2000). In other words, if the financial system distorts the allocation of funds in the presence of financial repression, economic growth cannot be sustained and financial depth (as defined by Shaw, 1973) remains deficient.

However, the above theoretical prediction does not match the empirical facts about the finance–growth nexus in transition economies, especially those undergoing tremendous structural change, such as China. In the latter case, several scholars (i.e. Lardy, 1998) have drawn attention to the inefficiencies of China’s banking system, including directed credit allocation and nonperforming loans among others. Whereas this inference contains a kernel of truth, the strong economic performance occurring over the last two decades in China (its real GDP growth averaged nine percent) is extremely difficult to reconcile with the standard view that its financial system grossly distorts the optimal allocation of loanable funds and its financial sector is seriously inefficient. Confronted with such inconsistency, which seemingly contradicts conventional wisdom, it must be asked how sense can be made of an inefficient financial system successfully supporting sustained economic growth. That is, are efficiency criteria truly relevant in a transitional economic system?

The key to answer this question and begin reconciling the financial system efficiency with economic growth performance in China is the changing perspective into a co-evolutionary frame on the one hand and the recognition that much of what critics cite as intermediation inefficiencies –non performing loans, directed credit allocation– are, in fact, a dissipative energy generating the required spillovers that fuel the entire system, in the other hand. From this perspective, the essay argues that applying the market criterion of allocative efficiency to a transition economy like China seems misleading; rather, the most relevant criterion for judging China’s financial system would be “adaptive efficiency.”

Resorting to adaptive efficiency criterion helps in achieving the essay’s ultimate goal of providing a consistent conceptual interpretation of theoretical and empirical studies on Chinese financial development, which goal is necessarily speculative. Although a comprehensive review of the efficiency of China’s financial system is beyond the scope of this essay, it does however contribute to the hotly debated on the reliability of the Chinese financial system. Given the growing global status of China as a net creditor, the present debate is of considerable interest for

analytical reasons as well as for understanding the implications of China's ongoing financial reforms on the safeguard of the global financial stability.

To provide background for the discussion, the next section presents selected institutional facts about Chinese financial development and the progress accomplished after 1978. The third section then provides alternative interpretations and angles for assessing the Chinese financial system's performance. At the close, the essay discusses the practical implications of adaptive efficiency view for future research.

## **2. Overview of the Chinese financial development**

To understand the Chinese financial system, it is important first to review Chinese financial development in terms of institutions and development performance. This review focuses on the banking sector because it accounts for most financial activities in China.

### **2.1. Institutional setting**

From its origins as a fiscal agent for domestic resource allocation in the central planning context, China's financial structure has been experiencing tremendous changes. Since adoption of the reform and opening-up policy in 1978, the Chinese financial system has not only accommodated banking institutions but has also introduced stock and market institutions as regulatory bodies, which has played an important role in its subsequent development.

#### **A. The banking sector**

China's financial system is largely dominated by the banking industry. According to the China Banking Regulatory Commission (CBRC), at the end of 2006, the total assets of China's banking industry rose 17.3 percent to 43.9 trillion yuan (5.48 trillion U.S. dollars). Besides nonbank financial institutions, there are four types of banks in China: state-owned banks (hereafter SOBs), commercial banks, credit cooperatives, and foreign banks.

**A.1. State-owned banks:** These comprise both state-owned commercial banks and policy banks. The banking sector is heavily concentrated around the Big Four state-owned banks, which represent 60–70 percent of the domestic banking business measured in terms of total assets:

- The Bank of China (traditionally responsible for foreign exchange activity and the financing of imports and exports);
- The Industrial and Commercial Bank of China (ICBC, originally specialized in lending to the industrial sector);
- The China Construction Bank (CCB, traditionally focused on financing infrastructure development); and
- The Agricultural Bank of China (ABC, traditionally focused on agricultural lending and rural development).

At the end of 2001, these banks had a 62 percent share of the savings and lending business and an 80 percent share of the payments business; and by the end of 2006, they had approximately 80,000 branches nationwide.

In 1994, during banking reform, Chinese authorities established three policy banks to relieve the Big Four of their state-directed lending role (Hansakul, 2004):

- The Agricultural Development Bank of China, which primarily took over the policy lending role from the ABC.
- The China Development Bank, which primarily took over the policy lending role from the CCB and to a certain extent from the ICBC.
- The Export-Import Bank of China, which primarily took over the policy lending role from the BOC, particularly the trade financing function.

**A.2. Commercial banks:** Currently, 120 commercial banks, whose equity ownership is distributed among both state and private investors, account for 18 percent of the banking sector's assets (Hansakul, 2004). These commercial banks are divided into two subgroups:

- Shareholding or joint-stock commercial banks, which are incorporated as joint-stock limited companies under the People's Republic of China's Company Law; and
- City commercial banks, constructed on the basis of the traditional urban credit cooperative, which have become commercial banks with stock-holding features. In 2004, there were 114 city commercial banks, representing approximately four percent of the domestic banking business.

**A.3. Credit cooperatives:** The cooperatives typically provide credit to small and medium-sized enterprises and individuals. Urban credit cooperatives (about 3,200) have approximately five percent of the domestic banking business (Hansakul, 2004), while numerous (about 41,500) rural credit cooperatives and other small institutions have approximately nine percent (Ligang, 2001).

**A.4. Foreign banks:** In 2006, these accounted for only around two percent of total banking-sector assets in contrast to the total assets of foreign banks in China, which, according to the Banking Regulatory Commission (CBRC), hit \$153.9 billion by the end of October 2007, up 41 percent from the same month the previous year.

**A.5. Nonbank financial institutions:** There are three main types of nonbank financial institutions—trust and investment companies (TICs), finance companies, and leasing companies. Together they account for around 1 percent of the banking sector's total assets.

**A.6. Other entities:** This category includes securities companies, asset management companies, and insurance companies. The insurance industry has been established for a longer period but is still dominated by the state-owned People's Insurance Company of China (PICC) Group.

## **B. Stock, bond, and other markets**

Besides its large banking sector, China has seen the development of stock and bond markets, as well as futures markets (Hansakul, 2004).

**B.1. Stock market:** In Mainland China, two stock exchanges—one in Shanghai (SHSE), the other in Shenzhen (SZSE)—provide firms with additional fund-raising sources. In 2007, the combined market capitalization of the Shanghai and Shenzhen stock markets stood at 21.147

trillion RMB, passing the 2006 GDP level of 21.087 trillion RMB (Zhixin, 2007). In 2005, stock markets provided about five percent of official corporate financing. One distinctive feature of the Chinese equity market is its division into two segments, one restricted to domestic Chinese investors, the other open to foreigners. The first segment consists of A shares, launched in 1990, which are common stock issued by mainland PRC companies, subscribed and traded in RMB, listed on mainland stock exchanges, and reserved for trading by PRC citizens. The second segment is partly made up of *B shares*, launched in 1992, which are issued by mainland PRC companies, traded in foreign currencies, listed on mainland stock exchanges, and prior to February 19, 2001, were restricted to foreign investors. This segment also includes *H shares*, shares of mainland PRC companies listed on the Hong Kong Stock Exchange.

**B.2. Bond market:** China's bond market is actually composed of three markets: the interbank bond market, the exchange market, and the bank over-the-counter market. It is the second largest domestic bond market in non-Japan Asia after South Korea's, with total outstanding issuance at around 34 percent of the GDP (2002).

### **C. Regulatory bodies**

Numerous regulatory bodies oversee these financial institutions, and China's economic and financial policies are currently made by separate agencies. Monetary policy and the payment system is the responsibility of the PBOC, which sets deposit and lending rate bands, as well as reserve requirement ratios. Likewise, the China Securities Regulatory Commission (CSRC) oversees the securities and futures market; the CIRC regulates the insurance industry; the CBRC (China Banking Regulatory Commission) regulates the banking institutions, the asset-management firms, trust and investment companies, and other depositary financial institutions; and the National Development and Reform Commission (NDRC) sets macroeconomic policies for the country, including the annual quota of corporate bond issues (Ji, 2006).

In sum, alongside China's economic growth, its financial sector, in its entire configuration, has made substantial progress over the last three decades.

### **2.2. Financial Progress since 1978**

Financial development is broadly defined here to include improvements in the level of financial activity, the stability of the banking sector, and the quality of resource allocation as reflected in real sector performance (i.e., growth). Since the early 1980s, financial depth in China has been impressive, with the real monetary balance expanding at a rate faster than the real economy. For instance, the ratio of money (broadly defined, M2) as a ratio of GDP increased from 24 percent in 1978 to 182 percent in 2004. Compared to those of a similar transition economy like Russia, changes in China's financial system have been remarkable. Whereas Russia shrank from a 1990 M2/GDP ratio of 70 percent to 21 percent in 1995 and a 2004 rate of 29 percent that equals the Chinese level in 1980 (IMF, 2004), China moved from a

1990 M2/GDP ratio of 71 percent to 103 percent in 1995 and 182 percent in 2004. Such a high level of financial depth places China among the most advanced economies.

This striking financial deepening is primarily due to two factors: the monetization of the economy and the expansion of household financial savings. In 2001, household deposits accounted for 77.9 percent of quasi-money and 47.2 percent of broad money (Chen, 2003). Indeed, according to Bernstam and Rabushka (2004), the ratio of nontransaction deposits (savings and time deposits) increased sharply from 38 percent in 1985 to 52 percent in 1991 and 58 percent in 2003. The pooled savings have been primarily channeled into bank loans which represent the major financing mechanism of economic activities in China. Bank loans accounted for over 85% of total funds raised by the real sector in 2006 (PBC, 2006). Meanwhile, the share of corporate bonds accounted for six percent in 2006.

Although bank loans remain the dominant source of funding for Chinese companies, loan structures have moved away from heavy reliance on bank loan and state budget. Increasingly, domestic loans, taking the place of state budget appropriations, have become the primary external source for financing capital investments. Whereas in 1981, state budgetary appropriation financed 28.1 percent of total fixed asset investment (Chen, 2003), by the mid-2000s, the state budget had lost its importance, contributing only about ten percent of state-owned companies' total funding (Allen et al., 2007). Together with this change in the means of external finance, the growth in loan size has also shifted from short-term to long-term loans (Allen et al., 2005).

At the same time, the previously nonexistent insurance market has been growing, although it still remains small in comparison to other Asian economies (South Korea, Taiwan, and Singapore), especially in terms of the ratio of total assets managed by insurance companies to GDP. At the end of 2006, the total assets managed were still less than ten percent of GDP compared to over 30 percent for the above Asian economies (Allen et al., 2005). Moreover, despite the fast growth of insurance coverage and premium income, by the end of 2005, only 15 percent of the total population was covered by the pension and insurance system.

Nevertheless, despite the undeniable effectiveness of the growth process, the capitalization and profitability of banks have been a source of some concern. For example, the ratio of capital to assets of China's four largest banks fell from 12.1 percent in 1985 to 2.2 percent in 1996, with profitability relatively stable at about 1.4 percent in 1985–1987 but falling sharply since. Although the reported profitability of Chinese banks during the 1990s compared reasonably well with that of major international banks in the mid-1980s, by the mid-1990s, their returns were well below those of banks of comparable size in market economies (Lardy, 1998). This context opened the door successive monetary and financial reforms since the mid-1990s.

In recent years, the Chinese government has taken active measures while treading a fine line between strengthening the effectiveness of the banking sector and not damaging the government's economic growth targets. According to Xinghai (2001), its many financial

sector reforms since 1995 include centralizing government control of insurance companies and stock exchanges, setting up policy banks, forcing the collectivization of urban credit unions, abolishing loan quotas, and establishing asset management companies (AMCs) to deal with nonperforming loans. Additionally, to redress some of the financial damage done to the banks during their days of policy-driven lending, in 1999 it set up an AMC for each of the Big Four banks to reduce its NPL level. After initially taking on NPLs worth RMB 1.4 trillion (\$169 billion), these AMCs have since slowly sold or auctioned off some of these distressed assets (Thomas and Ji, 2007). In 2003, the government established the Central Huijin Investment Co., Ltd. (Huijin), a wholly owned government investment company that funnels foreign exchange instead of the RMB bonds used in previous recapitalizations. By 2005, government capital spending on both NPL reduction and capital infusion into the Big Four banks reached roughly \$250 billion, although at the end of 2005, the NPLs of all Chinese commercial banks still amounted to about eight percent of China's 2005 GDP.

Following the 1995 Commercial Banking Law (CBL), which emphasized the need for financial institutions to incorporate commercial criteria into their lending practices and allowed the remaining SOBs to concentrate on more commercially oriented lending, the banking system overall improved in asset quality, capital adequacy, and capacity to withstand risk (Li, 2004). The late 1990s also saw the emergence of institutional investors. In addition, since 1996, when foreign institutional investors were allowed to invest in Chinese banks, 35 overseas banks have acquired stakes in 23 Chinese banks, with investments worth \$21 billion (Xinhua, 2007).

The most significant event for China's financial system in the 1990s was the inception and fast growth of the Chinese stock market after the establishment of the two domestic stock exchanges (SHSE and SZSE) in 1990. In 1995, the total market capitalization of the stock market as a percentage of GDP was about 6 percent, which rose rapidly to 19 percent in 2005. By the end of 2005, 1,381 companies were listed on the Shanghai and Shenzhen stock exchanges (Bai, 2006). The Hong Kong Stock Exchange has also contributed much of the inward equity portfolio investment via the *H shares*, and since 2002, foreign investors have also been allowed to invest in *A shares*, albeit subject to many restrictions.

In addition, since the establishment of the first mutual fund in 1998, participation by foreign investors in China's stock market has increased significantly, with inward equity portfolio investment increasing from US\$849 million in 2001 to US\$20.3 billion in 2005 (Allen et al. 2005). In June 2004, a fully electronically operated or "second-tier" market similar to the NASDAQ was begun for small and medium enterprises (SMEs), on which 119 firms were listed by the end of February 2007. A "third-tier market" was also established to deal primarily with de-listing firms and other over-the-counter (OTC) products (Allen et al. 2005). Nevertheless, compared with developed economies, the Chinese financial market is still lacking in product variety and sophistication.

Since 1998, China's bond market has also been growing at an annual compound rate of over 30 percent, but most of this growth is a result of the expansionary fiscal policy before 2004 and large bill issuance by the central bank for monetary sterilization purpose. Most Chinese bonds are issued by the government and government-owned policy banks, while the corporate bond market remains very small, especially relative to the large amount of bank credit to private firms. As of November 2005, the shares of government bonds, PBOC bills, and the financial bonds of the three policy banks were 37 percent, 32 percent, and 27 percent, respectively, but corporate bonds and commercial papers (regulated by the PBOC) only accounted for about two percent each (Ji, 2006).

Besides the bond market, new types of markets have also emerged, including futures markets whose development has led to improvement in price discoveries for a wide range of commodities, including industrial raw materials and farm produce. This development has contributed to stabilization of the spot market and minimization of the possible impact on consumers of sharp price swings. In December 2006, as part of its WTO commitments, the government also granted foreign financial institutions full operations in the domestic market, effective from April 2007, although the CBRC reserves the right to "moderately" adjust its limitations on foreign investment in Chinese financial institutions "at the right time" and give preference to overseas banks that want to set up branches in central and western China. By the end of October, more than 90 overseas banks had operations on the Chinese mainland, running about 230 branches (Xinhua, 2007). Since then, foreign banks have seen their business steadily increase, with overseas banks posting outstanding loans of \$88.8 billion, up 57.8 percent, and deposits rising 38.4 percent to \$50.9 billion.

Although the above reforms and financial system development have taken place amid sustained economic growth and without macroeconomic disturbance, the performance of the Chinese financial system has been constantly questioned; most particularly, because the definition, measurement, and evaluation of performance varies according to the yardstick used. Consequently, evaluations of the Chinese financial system's performance range from an extremely favorable assessment by those emphasizing rates of GDP growth, rising financial depth, and the rapid growth of new private institutions to a very unfavorable evaluation by those whose ideology of market fundamentalism tends to favor short-term profitability (Angresano, 2005) to the exclusion of alternative interpretations.



### **3. Chinese financial development: reinterpretation**

To put the above realities into perspective, this section discusses the goals and effectiveness of the Chinese financial system and justifies selected policy choices made by the authorities.

#### **3.1. Financial and monetary policies**

The ultimate goal of monetary and financial policy is to achieve a particular growth rate with the minimum macroeconomic disturbance possible. Thus, authorities often use financial policies to affect the opportunity costs of external finance. In this respect, to meet its development goals, the Chinese government has supported particular activities by controlling interest rates and sectoral credit allocation together with its long practice of a prudent monetary policy (although it is now considering a shift to a tight policy aimed at preventing the overheating and inflation of economic growth).

Even though the Central Bank Law instituted the People's Bank of China (PBOC) as a monetary policy implementer and financial institution supervisor, the PBOC is not an independent entity like the European Central Bank or the Bank of Japan. Rather, the development of new financial products and determination of the interest rates on loans remain subject to government control in order to ensure both compatibility with other development policies and financial system stability. Moreover, in contrast to the U.S. or Japanese central banks' focus on inflation, the Chinese central bank has concentrated on reallocating loanable funds from regions of high to low growth and has continued to rely on administered interest rates. Thus, in China, the central bank is not independent from the government bureaucracy and serves as a developmental institution rather than as part of market institutions.

Although such controls over the price and financial sector may appear a less desirable policy stance, related policies implemented by Chinese authorities have proven effective in ensuring domestic financial stability and external shock immunity. For instance, by keeping the entire financial system under control, financial policies have prevented the Chinese financial institutions from taking up risks (like foreign currency risk or some derivative risks) that could have led to the type of sudden collapse that affected most of East Asia during the 1997–98 financial crisis (Xinghai, 2001). The only partial convertibility of the RMB (limited on the current account but not on capital account transactions) made it far less vulnerable to speculative attacks.

Moreover, China abandoned the credit plan in 1998 and has since progressively introduced instruments for indirect monetary control through mainly open market operations. As a result of these steps, together with the development of interbank markets, the liquidity of banks and other financial institutions has improved (Wang, 2000). Nevertheless, despite the emergence of instruments for indirect monetary policy, the authorities have remained cautious about the risks of any financial instability that could erode monetary policy effectiveness while imposing heavy costs on taxpayers and disrupting the real economy through reduced availability of credit and other

services like payments (Goldstein and Turner, 1996).

Equally important, direct monetary policy instruments have contributed in creating opportunities for profitable and stable economic environment in other sectors. Thus, even though proponents of financial repression theory cite controlled interest rates as one tool of financial repression, China's financial policies have actually provided positive rather than the theoretically expected negative outcomes. First, monetary and financial policies have produced high saving rates rather than the opposite (as predicted by related theories). On these grounds, even McKinnon (1994), a leading figure in financial repression theory, implicitly recognizes the necessity to resort to financial restraint policies given that China's interest rate policy, particularly on saving deposits, remains very important to preserving the incentives of households and enterprises to build up their financial asset positions. Despite the merits of a market economy, recent economic growth theories (especially endogenous growth) recognize that selected types of government spending are economically efficient (see Barro and Sala-i-martin, 1999; Aghion and Williamson, 1998), those include market enhancing policies known as "financial restraint policies (Stiglitz, 1993; Hellmann, 1997). Through financial restraint policies (such as entry restrictions, credit allocation), the Chinese government has been creating rent opportunities to provide banks with efficient incentive to invest in deposit mobilization.

Second, except during very short episodes of inflation (from 1988 to 1990 and from 1993 through April 1996), Chinese authorities have been successful in maintaining a positive deposit rate in real terms by, for instance, instituting the so-called value-guarantee deposits (which were designed to insulate long-term deposits from inflation). Third, since Chinese SOBs have generally held reserves in excess of requirements (Girardin, 1997), an increase in the reserve requirement may not actually lead to an increased level of financial repression through a reduction in the overall level of SOB intermediation. Additionally, since a number of financial institutions have failed to reach the eight percent capital adequacy ratio, the differentiated required reserve ratio scheme is conducive to curbing excessive credit expansion of those financial institutions having a low capital adequacy ratio and poor asset quality (Wu, 2004).

What the above discussion illustrates once again is that, in many respects, the policies implemented by the Chinese authorities can be interpreted as necessary financial restraint measures (like directed and sectoral credit allocation) rather than financial repression (as defined in McKinnon, 1973; Shaw, 1973). Indeed, under the above conditions, it appears that, in contrast to the market speculative-focused view in which capital is distantly linked to the means of production while being associated with frequent financial instabilities, for a transition or developing economy, the preference for a controlled banking system is important.

In general, policies and reforms, either monetary or financial, are effective if they coherently fit into economic growth strategies. In this respect, China has embarked on an export-led growth orientation with the result of a continuous building up of foreign exchange

reserve. Because of the peg ratio of the RMB to the \$US, the People's Bank of China (PBC) has had to buy up dollars (i.e., supply the RMB) in order to withdraw excess liquidity by selling securities primarily to state-owned banks. This sterilization process means upward pressure on interest rates, which if allowed to increase would attract additional capital inflows. The PBC thus has an incentive to control interest rates and, since that cannot suffice, must also shape the rules of financial interactions by relying on administrative means to manage money and credit growth.

Again, the argument here is rather that in the case of China, policies such as credit allocation and controlled interest rates extend far beyond the mere State intervention emphasized by neoclassical economics. They might have facilitated co-evolutionary fitness within the finance-growth nexus. As such, monetary and financial intervention policies in China might have played 'a more creative role by allowing private agents to satisfy individually or collectively certain goals unattainable through market forces alone' (Moreau, 2004).

To date, then, China's monetary and financial policies have been effective in ensuring economic growth and macroeconomic stability; which provides a preliminary indication of financial policy coherence and effectiveness with economic growth and development goals. Therefore, any credible evaluation of financial system and its development in such a setting only makes sense in terms of policy coherence with the country's developmental goals.

### **3.2. Development goals and adaptive efficiency**

The objective of a an SOB in a developing or a transition economy is to maximize the developmental impact (i.e. social return) of lending subject to the condition that its operations remain solvent and/or bail-out by the state is guaranteed. In the case of China, the role of state-owned banks, specifically, is to bankroll the government's massive infrastructure projects and to keep state-owned enterprises that would otherwise be bankrupt afloat. Also, Chinese authorities regarded directed-loans (most of which generated the NPLs) as a means for reducing regional disparities (Park and Sehr, 2001). That is, it uses the financial system, especially the state banking sector, to provide preferential credit treatment to provinces with a lower level of economic development (Chen, 2003).

Clearly, the above loan distribution differs from the optimum distribution according to market economic theories. Even after subsequent reforms, most Chinese banks are still not profit centers (but rather extended public service institutions) and tend to subordinate financial performance to development purpose, thereby privileging the preservation of the entire system over mere corporate profit. That is why unprofitable state-owned enterprises account for 25 percent of gross domestic product but receive 65 percent of loans (Vardy, 2007). In that context, the relevance of allocative efficiency criteria appears to be questionable. Hence, for the financial inefficiency argument to be valid, one could think of a factor that leaves the Chinese real sector unaffected by its poor financial system. While it may seem natural to argue that FDI can represent

such a factor, yet the argument by Alfaro et al. (2004) shows that the country's capacity to take advantage of these externalities (FDI) depends on local conditions, especially the domestic financial system. These inefficiencies—as manifested through NPL and directed credit allocation—may have been keys in building up the required spillovers without which, after all, financial intermediation would not have facilitated economic growth.

The economy is a series of linked markets. FDI inflows energize thus other sectors through positive and negative externalities. When the attention is focused upon the spillovers, it is clear that economic growth could be achieved with the effects of positive externalities being larger than the negative ones. Nonexcludability and nondiminshability, properties of a public good that are inherent in the classic state-owned enterprise, create externalities that impair economy-wide economic efficiency. (Jefferson, 1998).

Although the levels of NPLs in the SOBs are high by the standards of industrial economies, two circumstances make this issue of less dramatic concern. First, to induce lending to state enterprises—a political objective to support employment—banks receive a government subsidy in the form of an ex-post bailout. Second, the Chinese government does not carry a large amount of debt: total outstanding government bonds have only grown from nine percent of the GDP in 1998 to around 16 percent of the GDP in 2005. In contrast, countries such as the U.S. and India have a large amount of government debt even though their banking sectors are healthy as measured by low levels of NPLs (Allen, et al., 2007). Therefore, in the institutional context of China, there can be no theoretical presumption that credit has been sub-optimally allocated or that SOBs should have focused on financial returns.

The exclusive use of financial measures to gauge the performance of state-owned enterprises (SOEs) and SOBs is also inappropriate in that these institutions are trying to satisfy a broad range of objectives (economic development and social objectives) in contrast to firms and banks in a purely market economy that are attempting solely to maximize profits. Thus, in the case of China, interpreting the lower allocative efficiency in SOB lending as inefficiency is misleading (Laurenceson and Chai, 2003) because it has long been recognized that projects having great development significance may only yield a marginal financial return. That is, due to the existence of market failures, there is often a large divergence between social and private returns to lending. Rather, the presence of institutional complementarity implies that, even if a system can be identified that has the best components; it is not necessarily the best system (Holzl, 2006).

Moreover, what the market might view as inefficient may simply reflect a commitment by many SOE managers and workers to facilitate a gradual transition to the private sector (Angresano, 2005). That is, even though the decision to retain inefficient, large SOEs may appear economically irrational, China has actually lowered the social costs of reform by making a conscious decision to endure some inefficiency in order to maintain higher employment levels and corresponding political and social stability (Oi, 1999). Through such a tradeoff, it has thus

avoided any dramatic collapse in the SOE's output. Clearly, the key to continuing good economic performance might have been a flexible institutional matrix in which financial system has been inseparably part of. In this respect, measuring the amount that each part separately contributes to the value created by the whole is trivial. Such a perspective in turn implies a complex and evolving economic system. Hence, there are good reasons to view the Chinese financial sector as an evolutionary sub-system insofar as it has been capable of organizing a web of specific investment around one or more critical resources linked inextricably to the best growth opportunities (Sun, 2002).

It follows from the above that, rather than allocative efficiency, the relevant criterion should be the 'adaptive efficiency' defined, by North (1993), as the capacity to develop institutions that offer a stable framework for economic activity. Adaptive efficiency is needed since the aim of financial institutions is to improve a given situation according to developmental goals and not to maximize any optimal profit or financial return. From the characteristic that the whole of a complex adaptive system is greater than the sum of its parts, it can be postulated that in the process of channeling fund to firms, a growth-enabling dynamic emerges that creates a whole greater than the sum of the parts. In essence, individual bank does not have to be profitable (since that is not their assigned mission anyway); it is the spillovers --generated by interactions between those financial institutions-- that are responsible for the persistence of the financial system's fitness and the emergence of a strong economic growth. It appears thus that much of what critics cite as intermediation inefficiencies --non performing loans, directed credit allocation-- are, in fact, a dissipative energy generating the required spillovers that fuel the entire system.

In general, financial markets face permanent dilemmas between efficiency and evolutionary viability—defined here as the probability that some innovation will emerge at a future time that will turn out to be fitter in the new environment (Dosi, 1990). Financial systems also differ in the ways they seemingly trade off “static efficiency” for “evolutionary viability,” as well as in the apparent success of such tradeoffs. Admittedly, in some instances certain tradeoffs become inevitable in order to ensure institutional coherence (fitness or evolutionary viability, as in Dosi, 1990). As Darwin points out, plants and animals evolve over time, and the survival of the individual and of the species as a whole depends on how well it fits with its environment. Nevertheless, such survival of the fittest does not mean “survival of the one that takes the most exercise”; rather, it means survival of the species that best adapts to its surroundings. The same logic applies to financial institutions. It is not only efficiency that makes a financial institution intrinsically relevant but how well that institution matches or fits the economic environment and overall development goals.

In addition, in a coevolutionary process, the adaptive landscape of one sector heaves and deforms as the other sectors make their own adaptive moves (Kauffman, 1992). Thus, in a rapidly changing economic environment such as that of China, the coevolving financial system

is in no way limited to primarily attaining market efficiency. Rather, the workability of the financial system depends on its different elements fitting together: the system can be considered consistent insofar as its complementary elements take on values that lead to an optimum, even though such an optimum need not be the most efficient. Had Chinese authorities privileged financial return (allocative efficiency) from the start, as did their Russian counterparts, for instance, the macroeconomic system would have collapsed with incalculable economic and socio-political consequences.

All things considered, while recognizing the validity of some alleged inefficiencies inherent in the Chinese financial system, it is clear that the Chinese financial system, dominated by state-owned banks, has shown fitness with economic growth and development goals along the country's transitional path. Sustained economic growth and high social return could not have been achieved if the financial system were inefficient or inadequate.

The above described macroeconomic success does not, however, lead to the dismissal of the importance of allocative efficiency criterion, whose desirable economical properties are more relevant in a market or mature economy, a developmental stage that China has clearly not yet attained. Furthermore, as in any adaptive system, past performance does not ensure future systemic fitness. Rather, as economic growth proceeds, there is sufficient reason to continuously reinvent and adapt the Chinese financial system to fit with its entire economic environment. Therefore, the focus should be on ensuring that the financial system continues to fit the economic growth and development targets.

#### **4. Conclusion and Final Reflections**

The essay aimed at providing a better conceptual interpretation of theoretical and empirical studies on Chinese financial development while searching for alternative criteria (other than allocative efficiency) in understanding its transitional financial system. Economic theories predict that efficient financial system facilitates economic growth while inefficient one inhibits growth. Yet, it is difficult to reconcile empirical facts about China's economic growth outcomes with reasonable assumptions about the efficient and liberalized financial intermediation, posing difficulties for financial reform policies. Using an evolutionary perspective as a metaphor, this essay offered suggestions that adaptive efficiency criterion offers conceptual as well as methodological approaches to resolving the above contradiction.

Conceptually, the essay traced the development of China's financial system in its interactions with the country's macroeconomic and development goals. Making the financial system part of a complex adaptive system reconciles many of the apparent puzzle since, for instance, the wasted resources are not lost at the macro-systemic level as evidenced by the sustained high economic growth. Such an outcome ultimately suggests that much of what critics cite as intermediation inefficiencies –non performing loans, directed credit allocation– are, in fact, a dissipative energy generating the required spillovers that fuel the entire system.

Methodologically, the argument in this essay alarm at the growing disconnect between the verdict emerging from transition economies such China and financial development theories. The essay goes thus to offer suggestions to develop a better understanding of the coevolution of financial and economic growth by exploring the various evolutionary features such as indicators of adaptive efficiency and dissipative spillovers. Even though the measurement and proxies for adaptive efficiency have not yet been fully articulated within a rigorous quantitative framework, they present researchers with an opportunity to generate new insights. Specifically, future studies need to investigate the effectiveness or fitness patterns in the pertinent time series data resorting to available econometrics tools. For instance, evidence of bi-directional Granger causality can be taken as a preliminary indication for the presence of a coevolutionary pattern. Ultimately, an evolutionary perspective combined with endogenous growth models is likely to reconcile many of the apparent contradictions in the finance-growth nexus in transition economies.

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