Fixing China's Banks, Not Russia's

by Michael S. Bernstam and Alvin Rabushka

If a picture is worth a thousand words, what about two pictures? We set them side-by-side in figure 1. Figures 2, 3, and 4 supplement three more pictures.

They encapsulate an eye-catching story of our times. From academics to investment bankers, from governments to *New York Times* columnists, from philosophers of history to cable news commentators, all Western eyes seem to be focused on a faraway subject, that China is facing a meltdown of its banking system.

Western countries have accorded Russia a market economy and democracy status. They have denied both to China. A viable banking system is a necessary condition of a market economy. This addendum shows how China, not Russia, is developing an advanced, market banking system.

Bad Loans and a Great Evolution

Two themes overlap in this dissection, one specific, the other systemic. The first theme features in *The Wall Street Journal*, *Financial Times*, and *The Economist*.[1] In the 1990s, China encountered a problem of non-performing loans—loans extended by banks to enterprises which became delinquent on paying interest and/or repaying principal—and has been rapidly fixing this problem. Panel A of figure 1 documents this development among China's four state-owned banks, which command 55 percent of total banking assets.[2]

The second theme is that the rise and fall of non-performing loans in China accompanied an unrivaled financial deepening and economic expansion after the abolition of central planning,[3] in contrast with financial shallowing and economic decline in Russia. Panel B of figure 1 and figures 2 and 3 illustrate these contrasting developments in the global context.

The rise and fall of non-performing loans in China mark financial adaptation in the systemic

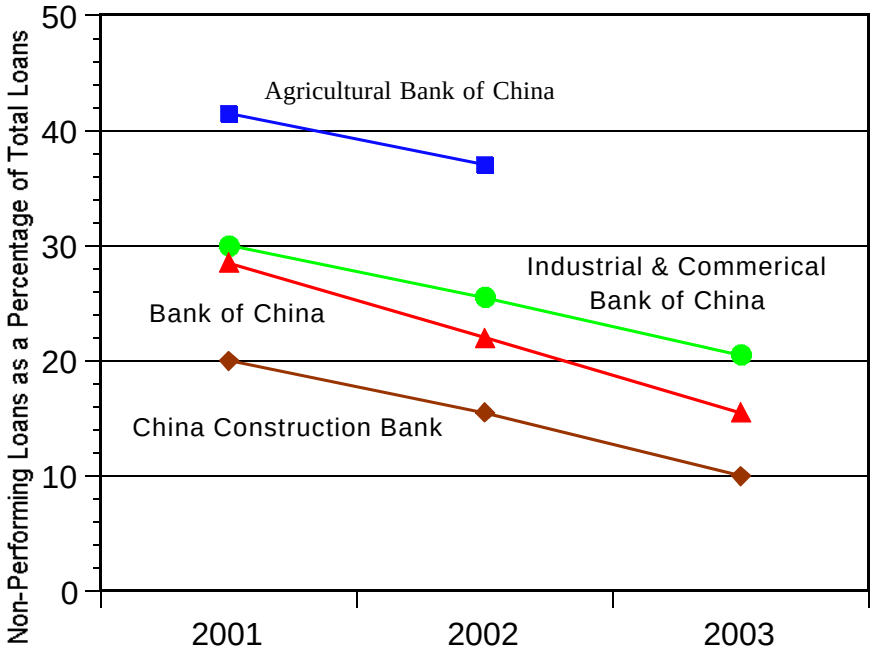
[1]E.g., "A Survey of Business in China," *The Economist*, March 20, 2004, pp. 14-19; *Financial Times*, March 11 and 14, 2004; *The Wall Street Journal*, December 2, 2003, pp. A16-A17, March 1 and 9, 2004, p. A14.

[2]"Banking Assets up 16.8% in 2003," *China View*, March 12, 2004; China Banking Regulatory Commission cited in Ben Dolven and Anthony Kuhn, "Capitalizing China's Farms," *The Wall Street Journal*, April 27, 2004, p. A16.

[3]Gregory C. Chow succinctly put it in his definitive book, *China's Economic Transformation* (Malden, MA and Oxford: Blackwell Publishers, 2002), p. 221: "The commercial banks have been providing an outlet for savings during these years in increasing ratios to national income, in spite of institutional weaknesses." Figure 3 attests to this.

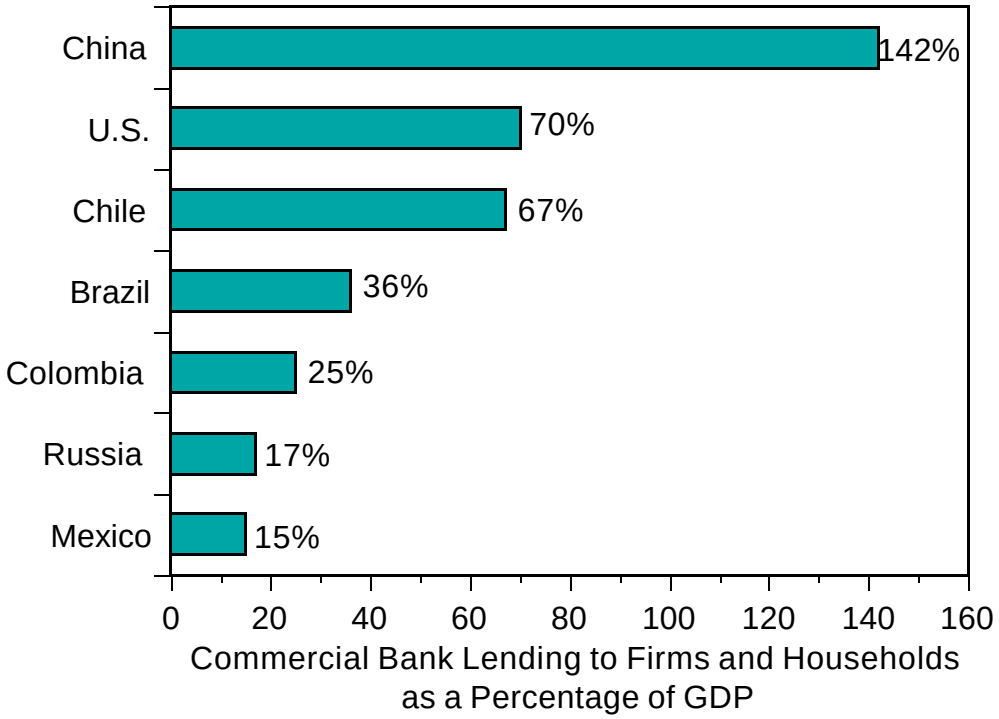
Figure 1. CHINA: NON-PERFORMING LOANS, 2001-2003, AND COMMERCIAL LENDING IN WORLD PERSPECTIVE

Panel A. Non-Performing Loans as a Percentage of Total Loans



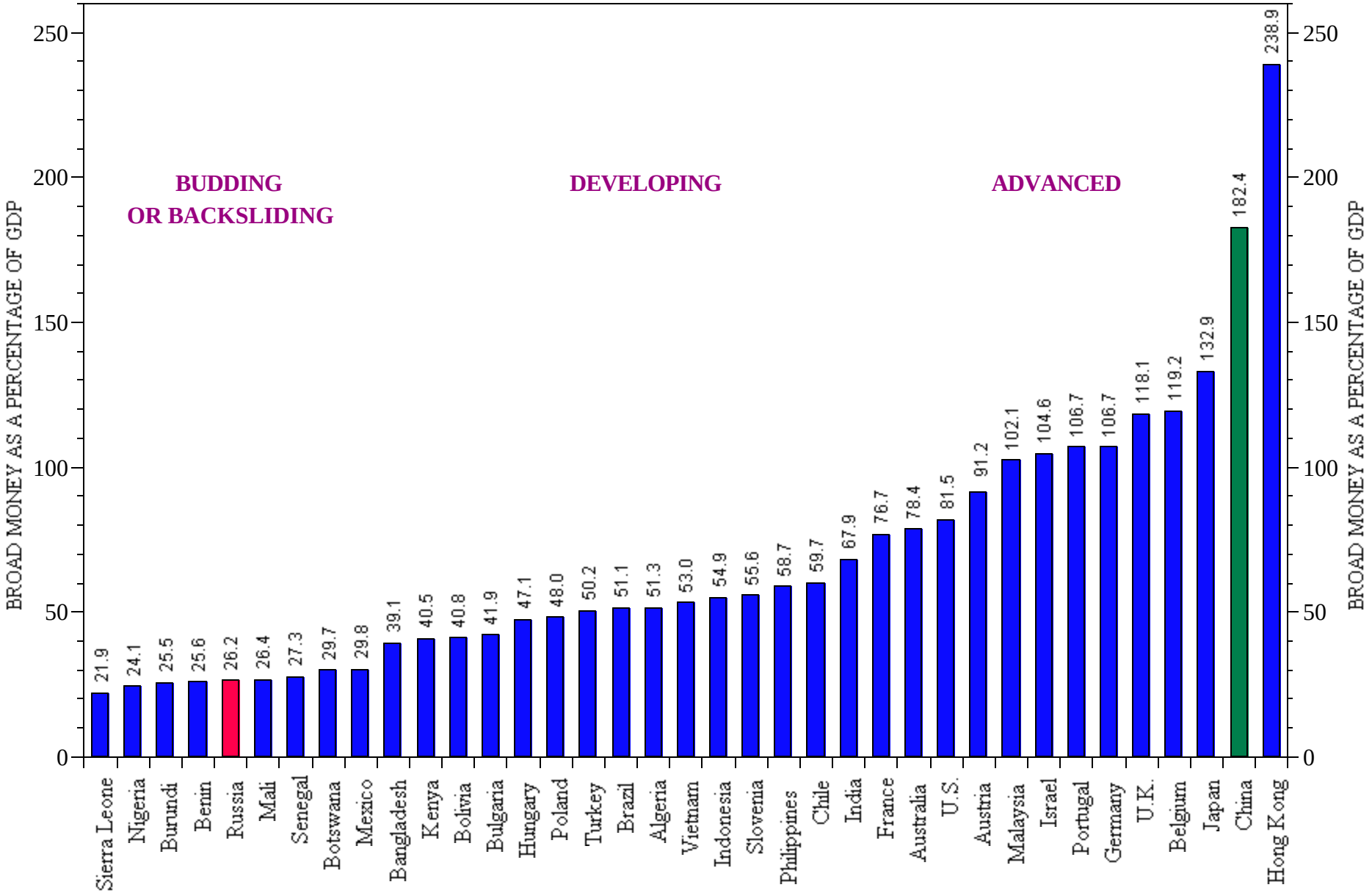
Source: *The Wall Street Journal*, March 12, 2004, p. A13, based on data from the Chinese banks

Panel B. Commercial Bank Lending to Firms and Households as a Percentage of GDP in Selected Countries



Sources:
All countries except Russia: *The Wall Street Journal*, March 17, 2004, p. A15, based on the data from UBS Warburg: Moody's (U.S.); Mexico's Central Bank
Russia: The IMF, *International Financial Statistics Yearbook 2003*, pp. 500-502

Figure 2. LOANABLE FUNDS: BROAD MONEY AS A PERCENTAGE OF GDP, SELECTED COUNTRIES, 2003 OR THE LATEST AVAILABLE YEAR

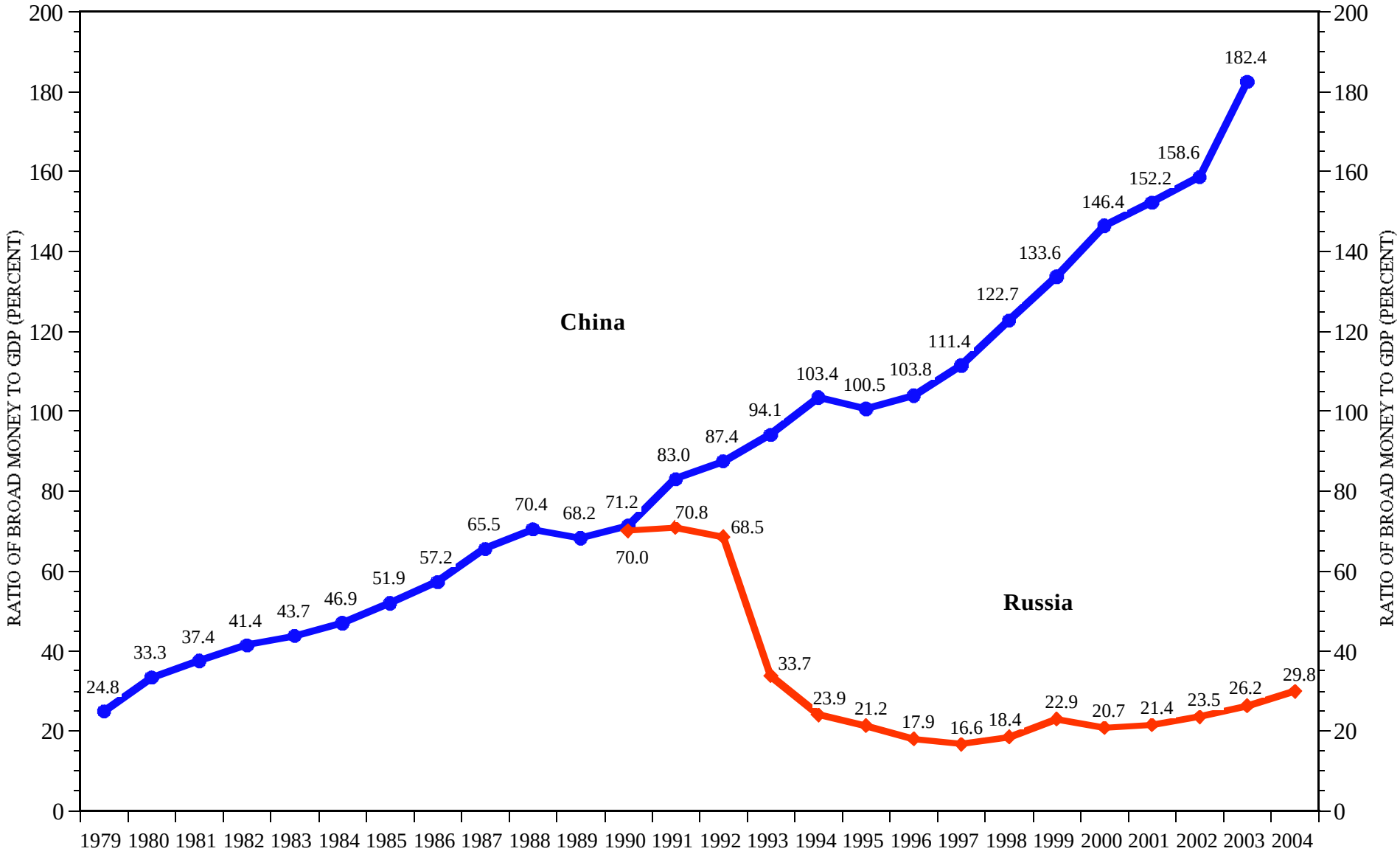


Notes:

1. Broad money includes currency, demand deposits, savings deposits, and foreign exchange deposits
2. The denominator consitutes gross domestic product (GDP) in 2002 or the latest available year

Source: IMF, *International Financial Statistics*, March 2004 (Washington: The IMF, 2004)

Figure 3. LOANABLE FUNDS: BROAD MONEY AS A PERCENTAGE OF GDP, CHINA, 1979-2003, AND RUSSIA, 1990-2004



Notes:

1. Broad money includes currency, demand deposits, savings deposits, and foreign exchange deposits
2. The numerator constitutes the amount of broad money at the beginning of the year. The denominator constitutes gross domestic product (GDP) in the previous year
3. Due to lack of data, the monetary aggregate M2 instead of broad money is used for Russia in 1990-93. This substitution understates loanable funds in 1990-93.
4. The data for 1990 for Russia are estimated using national income accounts for 1989 and the incomplete monthly series on the money stock in 1990

Sources: IMF, *International Financial StatisticsYearbook*, various years, except for Russia in 1990-93 and 2004, wherein the national official statistics are used

evolution of China's two-track economy from central planning to the market. Banks separated enterprises and helped break up, forestall, and foreclose their inherited network. In the process, they separated credit from payments and established financial intermediation between households and enterprises. The rise and fall of non-performing loans in Russia (from one percent of total loans in 1991 to 19 percent in 1997 to 3 percent in 2004)[4] accompanied a different evolution after central planning. Russia's banks do not exist off of and for financial intermediation. They function so as to transmit the subsidy extracted by the enterprise network from the government and the public.[5] Banks share in this subsidy and roll over non-performing loans to facilitate the subsidy flow. In the process, credit was never separated from payments and the banks merely re-intermediate between enterprises. Figure 4 illustrates this divergent evolution in Russia and China.

This addendum will explore and link the two themes. The first section submits a taxonomy of non-performing loans and contrasts China's and Russia's financial development. The second section follows credit, payments, and banking in the evolution of economic systems after central planning.

As we suggested throughout *From Predation to Prosperity* (see, e.g., chapters 2, 3, 4, and 5), the contrast between Russia and China opens up a perspective on economic systems and hence on world economies, past and present. Separation between credit and payments, which is the first-order outcome of the rise of financial intermediation in banking, led to emancipation of investment from commerce on the eve of the industrial era. China has long since passed this evolution. Russia left behind industrial central planning but bypassed the world of modern financial intermediation and industrial investment.

A Taxonomy of Non-Performing Loans

Fixing non-performing loans has a long, creative history.[6] Chinese policy makers found an original and efficient solution for fixing non-performing loans and other banking problems. It may look like creative accounting, and it certainly is, but it is more than that, for it maximizes value on the dollar (or Renminbi), minimizes losses, and wards off relapses.

Fixing China's non-performing loans

[4] 1991: Russian State Committee on Statistics, *Finansy v Rossiiskoi Federatsii v 1992 Godu* (Moscow, 1994), p. 55; 1997 and 2004: See the tables of outstandings in the flow of funds (the so called payments tables) at www.gks.ru.

[5] For a discussion, see *Fixing Russia's Banks* and Chapter 1 of *From Predation to Prosperity*.

[6] In Shakespeare's *Merchant of Venice*, the hostile Antonio offers Shylock surety for a loan of 3,000 ducats to Bassanio for three months: "If thou wilt lend this money, / lend it not as to thy friends (....) / But lend it rather to thine enemy, / Who if he break, thou mayst with better face / Exact the penalty."

The Chinese solution is threefold.

1. The government recapitalized the four major state-owned commercial banks, the holders of non-performing assets, with $45 billion in foreign exchange assets from the People's Bank of China (the central bank). This approach preempts the issue of bonds, with its ensuing debt service costs. It also minimizes recidivism (as bailouts invite risky lending and beget new bailouts—what the literature calls "moral hazard") because domestic bonds can grow on trees but foreign bonds cannot. Foreign bonds cannot be expected to bail out the banks the next time.

2. The government set up four asset management companies (AMCs) in 1999 and swapped banks' non-performing assets for their debt, on par value, for subsequent disposal at market value. After the discount sale and/or negotiated debt collection from enterprises, the price of AMC bonds will decline commensurate to the AMC reduced capacity to service their debt and redeem their bonds. They will then be able to buy back their debt at a discount and close shop after their mandated 10 years. Better yet, the AMCs could swap enterprise debt for equity and sell this equity, acting as investment banks or venture capitalists. This is an efficient consignment and swap arrangement which minimizes losses.[7]

3. In lieu of uniform regulations, the China Banking Regulatory Commission and the People's Bank of China refined sector-specific credit restrictions.[8] Bank-specific reserve requirements are linked to the ratio of non-performing loans in the bank's portfolio. Sector-specific interest rate differentials for commercial banks have been sharpened to restrict risky credit.[9] Bank capital must be raised to 8 percent of loans, which automatically constrains lending. The government will further restrict lending if non-performing loans resurface and erode the equity capital of recapitalized banks. Later in 2004, foreign financial institutions will take stakes in two of the four big state banks. Meanwhile, China has opened its financial markets to competition from 62 major foreign banks which constrain credit by risk assessment.

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[7]In 1998, we proposed a similar strategy for Russia's enterprise payment arrears and similar capital swaps for insolvent banks. See *Fixing Russia's Banks*, pp. 91-98.

[8]See, e.g., James Kynge, "China's Economy Soars Despite Beijing's Curbs," *Financial Times*, April 15, 2004; Credit rationing, such as sector-specific, bank-specific, and enterprise-specific credit ceilings, is a crude and illiberal measure which nevertheless worked as the second-best in Japan in the 1950s, in Taiwan in the 1960s, in South Korea in the 1970s-1980s, and in Poland and other fledging banking systems of Eastern Europe in the 1990s. See Ronald I. McKinnon, *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy* (Baltimore and London: The Johns Hopkins University Press, 1993), pp. 81-82, 85-88; Joseph E. Stiglitz and Andrew W. Weiss, "Credit Rationing in Markets with Imperfect Information," *American Economic Review* 71, no. 3 (June 1981): 393-410 and "Credit Rationing: Reply," *American Economic Review* 77, no. 1 (March 1987): 228-231; and Chapter 4 of *From Predation to Prosperity*, pp. 18-25, especially item 3 on pp. 19-20.

[9]A brief list is in James Kynge, "China Bank Reforms to Cool Loan Growth," *Financial Times*, March 24, 2004.

A conventional triad applied in many countries consists of (1) recapitalization of banks with government bonds and (2) a commensurate negotiation downward, disposal, and write-down of non-performing assets, accompanied by (3) increased regulation. This is a simple swap of good assets for bad assets, at the taxpayers' expense, while revamped regulation strives to preclude moral hazard and recidivism. Policy (2) partially compensates for the short-term costs of policy (1), while policy (3) addresses the long-term costs of policy (1). This is a typical situation where it is hard to predict whether the cure will turn out to be better than the disease because bailouts tend to reproduce, indeed multiply, non-performing loans (the now-proverbial "moral hazard").[10]

In contrast, in the Chinese approach, recapitalization is self-contained and moral hazard is thus contained (again, because foreign bonds don't grow on trees). There is no need to solve the moral hazard consequences of policy (1) with policy (3). The Chinese approach builds-in the safeguards against moral hazard—that is, against policy (1)—within policy (1) itself. This allows policies (2) and (3) to address broader and deeper issues. Both policies lead to restructuring of enterprises, not only banks, and, hence, restructuring of borrowers, not only creditors. Asset Management Companies do not carry fixed liabilities to hundreds of millions of depositors; rather, they carry market-adjustable liabilities to four state-owned banks. They can concentrate on deriving the most value from their newly acquired assets, enterprise non-performing loans, and on streamlining enterprise finances along the way.[11] The conventional triad overhauls banks, the Chinese approach overhauls enterprises along with banks.

A word of caution. China has been fixing its non-performing loans. It is too early to say whether it will have them fully fixed. Overall, according to the China Banking Regulatory Commission, the ratio of non-performing loans to total loans in the entire banking sector fell from 28.0 percent in 1998 to 23.1

[10]Gregory C. Chow proposed an improvement over the conventional policy triad in fixing non-performing loans. In economies with high long-term economic growth (China averaged 9 percent per annum in the last 25 years) and high savings rates, the government can increase the money supply commensurately without causing inflation. Accordingly, the government can recapitalize banks with currency instead of bonds. Currency constitutes government bonds which bear no interest and have infinite maturity, thus never have to be redeemed. When income elasticity of the demand for money balances is about 1.2, as in China, the central bank can issue base money at a growth rate of 11 percent per annum, given a 9 percent growth of real income. This is a zero cost (although there are opportunity costs) recapitalization of banks, eradicating non-performing loans. Chow points out that this approach is not comprehensive for it does not solve the problem of moral hazard and recidivism. Gregory C. Chow, *China's Economic Transformation*, pp. 229-230.

[11]"The asset management company (....) has the power to supervise and monitor the financial position of the state enterprises, being their creditor." Gregory C. Chow, *China's Economic Transformation*, p. 74. "Foreign AMCs undertake mainly to solve bank problems. Yet China wishes to solve the problems of banks and state-owned enterprises and lighten financial burdens as well." Li Ying and Li Xin, "Establishment of Financial Asset Management Companies and Related Impacts," *Deleglertenburos der Deutschen Wirtschaft China und Hongkong*, March 1, 2004.

percent in 2003 to 17.8 percent in 2004.[12] Panel A of figure 1 displays rapid dissipation of non-performing loans during 2001-2003, from 41.5 percent of total loans of the Agricultural Bank to 37 percent (in 2002), from 30 percent of total loans of Industrial and Commercial Bank to 20.5 percent, from 28.5 percent of total loans of Bank of China to 15.5 percent, and from 20 percent of total loans of China Construction Bank to 10 percent. But this may be a pure accounting result of removing bad assets from the balance sheets of the banks to the balance sheets of AMCs. A timing effect also played a role. A rapid expansion of new loans increases the denominator, total loans, without accounting, as yet, for the amounts that may fail to be repaid and would augment the numerator, non-performing loans. Still, the AMCs have already sold about 30 percent of loans from their portfolio at some 20 cents on the dollar,[13] and this is not an accounting fluke. In the next two years, AMCs plan to dispose of another 25 percent of these loans. The pace of reconstruction is swift. To adjudicate whether China will have the problem of non-performing loans fixed, one will need to extend this diagram at least three years ahead. If the curves turn upward, the problem resumes. If the curves continue to go downward, the problem has been fixed. This is a straightforward proposition, fully verifiable and falsifiable. In the next few years, one has an opportunity to test a policy against reality.

"Or lend us gold, and that is perilous"[14]

Banking is a risky activity. Banks make money by making up money, one way or another—usually by issuing credit which returns with interest. But borrowers may fail to pay interest and repay debt, and then banks lose money. To lend or not to lend is always the question. But lack of lending means neither business nor profit, so that non-performing loans are always a problem.

Non-performing loans pose at least four dangers, one for bank owners, one for depositors, and two for the economy at large.

1. Owners do not receive a market return on their capital. In the worst case, if the bank fails, owners lose their assets. In modern times, this may affect a broad pool of shareholders.

2. Depositors do not receive a market return on savings. Banks pass their losses onto depositors by suppressing interest rates. In the worst case, if banks fails, depositors lose their assets or any uninsured balance. Banks also redistribute losses to other borrowers by charging higher interest. Lower deposit rates and higher lending rates repress savings and financial markets, which hampers

[12] 2003 and 2004: cited in Mure Dickie, "Tough Targets Set for China's State Banks," *Financial Times*, March 11, 2004; 1998: cited in Makoto Ikeya, "Chinese Banking System: Impact of Asset Management Companies," *R&I Rating Joho* (Hong Kong, November 1999).

[13] Karen Richardson, "China Moves on Loan Cleanup," *The Wall Street Journal*, March 9, 2004, p. A14.

[14] Geoffrey Chaucer, *The Canterbury Tales*, "The Shipman's Tale."

economic growth.

3. Non-performing loans epitomize bad investment. They misallocate credit from good projects, which do not receive funding, to failed projects. Bad investment ends up in misallocation of capital and, by extension, labor and natural resources (and may even finance value subtraction, e.g., in Russia[15]). The economy performs below its production potential.

4. Non-performing loans may spill over the banking system and contract the money stock, which may lead to economic contraction. This spillover effect can channelize through illiquidity or bank insolvency. (a) When many borrowers fail to pay interest, banks may experience liquidity shortages. These shortages can jam payments across the economy exactly like a power plant failure in the Midwest in 2003 caused blackouts in New York and across many states. (b) Illiquidity constrains banks in paying depositors, e.g., cashing their paychecks. Banking panics follow. A run on banks by depositors only amplifies illiquidity. If banks fail, their deposits as part of the national money stock become inoperative. The money stock contracts and economic contraction (recession or depression) follows. (c) Undercapitalized banks become insolvent if the amount of non-performing assets exceeds the banks' capital base. Subsequent bank failure produces the same contraction effect on the money stock and the economy as described in (b).

It follows that the extent of actual danger of non-performing loans for the economy depends on the overall state and dynamics of loanable funds. If loanable funds of the banking system are large and growing, non-performing loans can be contained. If not, the financial system and the economy fail.

Loanable funds

How robust is China's banking system? As usual, reasonable observers disagree. Gregory C. Chow discerns:

> "Is the Chinese banking system in a crisis situation? The answer appears to be no, in spite of the problems and shortcomings of the system (...) People have confidence in the value of their deposits in the banks because they believe that the government owns the banks and implicitly guarantees their deposits. The fact that 20 to 25 percent of total bank loans are bad has not affected this confidence and is not likely to lead to large withdrawals of deposits. Given the high savings rate of the Chinese people and the limited alternatives for their savings, in the decade of the 1990s the ratio of savings deposits to GDP in China was rising (...) Improvement in liquidity in the banking sector was further evidenced by the reduction of its loans-to-deposits ratio from 200 percent in 1991 to 140 percent in 1998 (...) The

[15] See Chapter 1 of *From Predation to Prosperity*, pp. 23-25.

> commercial banks have been providing an outlet for savings during these years in increasing ratios to national income, in spite of institutional weaknesses. (...) The commercial banks have been serving as financial intermediaries."[16]

The Economist advances an opposite view, which is nearly universal in Western intellectual and policy circles:

> "Outwardly robust China has a black hole for a heart (...) A developing economy with a broken financial system."[17]

Who is right? Fortunately, the answer in this case is a matter of fact, not interpretation, a matter of evidence, not eloquence, with clarity seldom shining in the realm of social science and public policy. The data in figures 1, 2, 3, and 4 demonstrate that Chow is right and *The Economist* is wrong.

In the short time span of 25 years, China has developed one of the most advanced banking systems in the world with incredible financial depth. Loanable funds, along with stock market capitalization, are usually employed to evaluate financial depth. The total domestic money stock M2 or M3 (currency plus demand deposits plus savings deposits plus time deposits) or the stock of broad money (M3 plus foreign exchange deposits) approximate loanable funds. The ratio of the money stock M3 or broad money to gross domestic product (GDP) measures financial depth (e.g., in figures 2 and 3). Another indicative measure is the ratio of commercial bank loans to GDP (e.g., in panel B of figure 1). An ultimate measure is the share of savings and time deposits in the money stock M3 (e.g., in figure 4). It shows the depth of financial intermediation in banking—how much credit is available for long-term investment beyond financing short-term payments. By all these measures, China's financial system is as solid as the Rock of Gibraltar and as good as gold.

Panel B of figure 1 compares commercial bank lending to firms and households as a percentage of GDP in selected countries ca. 2003-2004. Mexico and Russia represent a low bound of the sample, with 15 and 17 percent, respectively. Columbia and Brazil are in the middle, typical for developing countries, with 25 and 36 percent, respectively. Chile, the U.S., and China constitute the upper bound, with 67, 70, and 142 percent, respectively. In fact, China's depth of commercial bank lending is twice that

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[16]Gregory C. Chow, *China's Economic Transformation*, pp. 72-73, 221. The significance of the last quoted sentence will become apparent at the end of our addendum.

[17]"A Survey of Business in China," pp. 17, 19. The list of sources for this survey ignores Gregory C. Chow's definitive book but features prominently *The Coming Collapse of China* by Gordon G. Chang (2001). In this spirit, the adjacent editorial, entitled "Losing Its Balance," envisages "China's dazzling success (...) some day, to turn to dust." A subsequent editorial is entitled, as one could guess, "The Great Fall of China?" *The Economist*, May 13, 2004.

of the U.S.[18] This puts China in context.

Figure 2 broadens the sample and the context. It plots directly the most widely used measure of financial depth, the ratio of loanable funds to GDP (with loanable funds approximated as broad money), among 37 representative countries at all levels of economic and financial development, in 2003 or the latest available year. The sample readily lends itself to a breakdown into three developmental categories.

- Economies with the ratio of loanable funds to GDP in the range under 30 percent can be viewed as budding financial systems. In our sample, these are Sierra Leone, Nigeria, Burundi, Benin, Mali, Senegal, Botswana, and Mexico. In the unique case of Russia, which fell from 70.0 percent in 1991 to 16.6 percent in 1997 and bounced back to 29.8 percent in 2004 (see figure 3), one can talk about a backsliding instead of a budding financial system.
- Economies with ratios of loanable funds to GDP in the range between 30 and 60 percent can be viewed as developing financial systems. In our sample, these are Bangladesh, Kenya, Bolivia, Bulgaria, Hungary, Poland, Turkey, Brazil, Algeria, Vietnam, Indonesia, Slovenia, Philippines, and Chile. Notice that post-central plan economies of Eastern Europe as well as Vietnam, unlike Russia, belong to this group of developing financial systems.

- Economies with ratios of loanable funds to GDP in the range above 60 percent can be viewed as advanced financial systems. In our sample, these are India, France, Australia, U.S., Austria, Malaysia, Israel, Portugal, Germany, U.K., Belgium, Japan, China, and Hong Kong. China, with the ratio of 182 percent in 2003 is near the top of the list.

In terms of financial depth and development, measured by the ratio of loanable funds to GDP, figure 2 finds Russia in the cluster of African economies and China among the most advanced economies of Western Europe, North America, and the Asian Tigers.

Contrary to dire predictions of financial collapse, China demonstrates rapid financial deepening—a dynamic which may be even more important for assessing the impact of non-performing loans vs. loanable funds than the static of financial depth. Figure 3 compares the ratio of loanable funds (approximated as broad money) to GDP in China and Russia after the abolition of central planning. China started in 1979 at the level of budding financial systems, 24.8 percent, which, ironically, is the average level where one can

[18]Extensive equity and other financial market instruments supplement ordinary credit markets in the U.S. and augment its financial depth. Demographic and economic dynamics contribute to the high rate of savings (and, by extension, deposits and lending) in China. Rapid rise in personal incomes due to spectacular economic growth in the last 25 years after decades of privation shifted the long-term ratios of saving and consumption disproportionally towards saving. Most importantly, at the same time, high fertility and low mortality of the past period created an age distribution with a high proportion of young people who save and a low proportion of old people who spend. See an elaborate discussion in Franco Modigliani and Shi Larry Cao, "The Chinese Saving Puzzle and the Life-Cycle Hypothesis," *Journal of Economic Literature* 42, no. 1 (March 2004): 145-170.

find the backsliding Russia's financial system in 1994-2004. China's financial deepening from the 24.8 percent ratio of loanable funds to GDP in 1979 to 182.4 percent in 2004 was swift, steady, and, during the last five years, accelerating. This ratio increased by 30 percent in 1994-1999 and by 50 percent in 1999-2004. There is no leveling-off of financial deepening even at the most advanced stage of financial development.

Ironically, again, Russia started in 1990, before the abolition of central planning, at the level of the 70 percent ratio of loanable funds to GDP, which is a lower bound of advanced financial systems, e.g., India in 2003. China was at the same level in 1990. As figure 3 displays, China and Russia converged at that level in 1990. Then Russia started its long march of financial shallowing and backsliding after the abolition of central planning, down to 16.6 percent in 1997, lower than most African countries. A partial recovery in 1999-2004 brought Russia up to the 29.8 percent ratio of loanable funds to GDP—about the level in China in 1980. What *The Economist* above pronounced about China applies instead aptly to Russia.

Ten types with non-performing loans and one without

China's non-performing loans are different and unique. This section discusses their difference and their origin after the abolition of central planning. Table 1 assembles ten different types of non-performing loans, due to different sources, plus one type of the banking system without non-performing loans.

The eleven items on the list in table 1 are neither necessary, because some may overlap, nor sufficient, because there may be other, additional types of non-performing loans. This list serves merely a comparative purpose. It differentiates non-performing loans after the abolition of central planning under the two-track economic system in China (line 9) and under Enterprise Network Socialism in Russia (line 10) from numerous other types.

Let us start at the end of the list. Line 11, central planning. Central planning did not face the problem of non-performing loans. This fact puts the matter in perspective. If one wants to single out a problem and dwell on it outside of the systemic context, central planning is often a solution. There were no non-performing loans, open inflation, measured unemployment, revenue deficiency, lack of monetary policy credibility, current account imbalances, exchange rate misalignments, currency crises, asset price bubbles, underinvestment, overconsumption, over-leveraging, credit crunches, bank failures, moral hazard, liquidity traps, low-level equilibrium traps, dual markets, backward-bending labor supply curves, excessive litigation, time inconsistency, commitment failures, incomplete contracts, predatory price cutting, externalities of deficient corporate governance, the Dutch Disease, the Olivera-Tanzi effect, rent-seeking, state capture, market failures, and a host of other catastrophes too numerous to mention.

Industrial central planning is an euphemism for economy-wide forced production. Central planning functioned as the nation-enterprise. The supply chain of enterprises acted as the assembly line of the

Table 1. A Taxonomy of Non-Performing Loans

	Source of non-performing loans	Description and cases	Separation between the monetary authority and enterprises	Separation of credit from payments, financial intermediation
1	Asymmetric information	Lenders do not have sufficient information about borrowers (all economies, past and present)	Yes	Yes
2	Moral hazard	Banks expect government bailouts and make risky loans (all modern and developing economies)	Yes	Yes
3	Cycles and bubbles	Banks expand risky credit during booms (all economies)	Yes	Yes
4	Adverse risk selection	High real interest rates imposed by government crowd out good borrowers and invite deadbeats (e.g., Latin America)	Yes	Yes
5	Unrestricted capital flows	Dollar loans to non-dollar earners become non-performing when currencies devalue (e.g., East Asia in the 1990s)	Yes	Yes
6	Principal/agent problem	Management discounts risks to show profits (all economies)	Yes	Yes
7	Financial-industrial groups	Banks lend to related firms (e.g., keiretsu in Japan)	Yes	Yes
8	Industrial policy	Government directs investment to export-oriented industries and manufacturing, some firms fail (e.g., South Korea)	Yes	Yes
9	A two-track economy	Government encloses and rations state bank lending to state enterprises to forestall trade and tax arrears and foreclose the enterprise network, many projects fail (China, post-1978)	**Yes**	**Yes**
10	Enterprise Network Socialism	Banks transmit and recycle subsidized loans to the enterprise network to pay trade and tax arrears (e.g., Russia)	**No**	**No**
11	Central planning — **no non-performing loans**	Automatic government credit to pay off arrears and debt write-off (e.g., USSR, China pre-1978, Nazi Germany)	**No**	**No**

government, with forced output quotas connected by forced exchange and forced delivery. Forced production, forced exchange, and forced delivery formed the supply nexus. On the demand side, the government financed production in order to transmit and enforce output quotas. Output produced with controlled inputs at controlled unit prices was funded in advance by plan targets. Banks (branches of the state bank) monitored and enforced payments. Forced delivery and forced payments linked the input-output chains.

Enterprise credit and investment were separate. Bank credit was relegated to pay off trade arrears and transmit credit to creditor enterprises to enforce forced delivery and keep the forced exchange chain intact. The government separated, controlled, and directly allocated investment. Technologically advanced investment was forced onto enterprises. The government was interested in inducing high-quality investment in order to minimize costs, increase productivity, maximize returns, and raise output quotas for enterprises. Enterprises were interested in maximizing spending on low-quality, indeed wasteful, investment in order to maximize costs for the government and retard productivity so as to constrain the government in raising output quotas.[19] The government centralized most enterprise investment and transmitted it from the treasury through the state banks to enterprises. The ultimate source of investment was hidden payroll tax via suppressed wages.

The functions of banking under central planning derived from these conditions. One, direct function of banking was to transmit enterprise investment separately from credit to ensure and enforce its designated use. The second, direct function of banking was to pool household savings for government investment dispensed to enterprises. The third, direct function of banking was fiscal, to automatically remit enterprise taxes and surpluses (profits) due to the government as the owner. The fourth, indirect function of banking was preservation and reinforcement of forced production under central planning. It includes (a) monitoring overuse of inputs; (b) monitoring price manipulation by suppliers; (c) monitoring and enforcement of centrally planned output delivery; and (d) preservation of the supply chain and mandated production mix. This unique function of banking was made possible by a unique function of money under central planning.

Money functioned as the monitor of forced production. Banks monitor enterprise money balances within the centrally planned supply chain. When balances turn negative, they reveal negative net cash increase during the cash flow period accompanied by payment arrears. Under the flowing demand, this position can be due to overuse of inputs above the planned quotas, unauthorized price increases by suppliers, under-production and under-delivery of mandated output to designated buyers, and/or internal consumption of output. Hence the fifth, direct function of banking. The banking system automatically issues credit to illiquid, trade-indebted enterprises and transmits, indeed enforces, payments to creditor enterprises. The government then looks throughout the input-output chain into the causes of cash flow

[19]For a detailed systemic dissection see Michael S. Bernstam, *The Wealth of Nations and the Environment* (London: Institute of Economic Affairs, 1991), pp. 40-51, 63-65. It follows that forced governmental investment and forced application of technological R&D were responsible for industrial progress of central plan economies.

shortfalls and punishes managers. Enterprises may repay bank debt when their cash flow improves. Otherwise enterprise debt was written-off within a year as uncollectible.[20] This is a central plan version of bankruptcy. An automatically and continuously reactivated credit line cleaned up, or rather wiped out, non-performing loans.

An automatic credit line enabled, or rather forced, enterprises to pay suppliers which preserved the centrally-imposed supply chain and kept forced exchange intact. Absent these credits and payments, buyers could reduce production and delivery and/or change suppliers while suppliers could channel delivery of output to more liquid buyers. They could break up the centrally-imposed supply chain, increase prices, extirpate price control, introduce competition, shatter forced exchange, change the production mix, and, ultimately, nullify output quotas and forced production. This sequence would dismantle central planning, melt it down before the government's eyes.[21]

State action had to be immediate, indeed automatic, before this chain reaction would set in motion. Automatic credit issue to enterprises with subsequent debt write-off was a cash flow subsidy for buyers which functioned as a forced subsidy to enforce delivery on the part of both buyers and suppliers. This was

[20]In the case of collective farms in the USSR, debt collection could be extended to three years before a write-off, in order to extract more agricultural output as repayment in kind by reducing internal consumption.

[21]To reconcile the automatic credit line with suppressed wages the government imposed wage control. Otherwise enterprises could divert credit from paying off trade arrears to raising wages, which would have defeated wage suppression. Suppressed wages represent the ultimate tax under central planning. They make centrally planned enterprise investment possible. Diversion of bank credit from paying off arrears to wages would defeat both wage suppression as the ultimate fiscal source and forced delivery under forced exchange and thus melt down forced production, that is, central planning itself. Wage control was thus essential. The government set up the elaborate and uniform piece-meal wage rates for each specific task on the assembly line and in the value-added chain within the enterprise and pay grades for each salaried position. Positive incentives were added on the margin in the form of discretionary bonuses in money and in kind for managers and workers for meeting and exceeding production quotas. But enterprises had no discretion to alter wage rates and salary grades. However, each enterprise's total wage fund could not be fixed because of output and employment fluctuations. Hence, enterprises could inflate output, claim overtime, reclassify employees to upgrade their salaries, and upgrade the skill level and thus the piece-meal wage rates of wage workers. To create a cash constraint against wage inflation and preempt diversion of automatic bank credit from paying off trade arrears to paying wages, the government separated currency from credit. First, it made wages payable in currency only, not by checks or deposits. Second, it made credit not convertible into currency beyond the preset wage fund. Non-convertibility between credit and currency ran both ways. (1) Enterprises could not withdraw currency from their account beyond the designated wage fund even if they had money balances after receiving credit to pay off trade arrears. (2) Currency deposited by households was not convertible into credit. Banks could not issue extra credit just because they had extra deposits. Credit was based on the banks' mandate to transmit payoff of trade arrears, not on household deposits of savings from wages. Having extra deposits was neither necessary (money could be printed) nor sufficient (credit might not be allowed) for issuing extra credit. The money stock was split because the monetary flows were split. Currency (M0) and non-currency (M3 - M0) constituted separate circuits in the flow of funds, in effect, separate, non-convertible currencies. Credit and deposits separated within non-currency. This twofold separation of credit from currency and credit from deposits was the monetary mechanism for fiscal enforcement and enforcement of production quotas under central planning.

a forced subsidy for the purpose of enforcement of forced production and preservation of central planning.[22] The carrot was at the end of the stick.[23] In short, non-performing loans wither.

Now we can move from the bottom to the top of the list in table 1, from non-existent non-performing loans under central planning to a plethora of existing non-performing loans. Apart from the idiosyncratic cases of China and Russia after central planning (lines 9 and 10), eight other types are generic. They are summarized in a formulaic and self-explanatory format in lines 1 through 8. We cannot say anything new or original about them, beyond what can be found in the textbooks on banking and finance, and there is no point to pontificate.[24]

These eight generic types (lines 1 through 8) traverse many different economic systems and belong to none in particular. The types of non-performing loans in China and Russia are system-specific. They can be found only in post-central plan economies—either a two-track economy in China and similar

[22]For additional discussion see Chapter 1 of *From Predation to Prosperity*, p. 5; Chapter 3, Section B, pp. 11-12, especially footnote 40; and *Fixing Russia's Banks*, pp. 23-25.

[23]The literature calls this phenomenon the soft budget constraint but misinterprets it as a government indulgence. See a comprehensive survey in Janos Kornai, Eric Maskin, and Gerald Roland, "Understanding the Soft Budget Constraint," *Journal of Economic Literature* 41, no. 4 (December 2003): 1095-1136. In reality it is a government imposition, a forced subsidy to preserve central planning. It is a control and coordination mechanism of central planning, a chain that ties together the gang production on the unified assembly line across the economy. The literature observes the carrot and overlooks the stick. The soft budget constraint means hard life for enterprises. Softness is also limited to government-pursued enforcement. Credit is soft across the economy but not across activities: for paying off arrears and enforcing forced exchange and forced delivery, yes; for other activities, no. In short, soft credit is hard to live with and, more often than not, hard to get. Central planning is no free lunch.

[24]Perhaps one interesting angle can be added to the principal/agent problem in banking. The principal/agent problem is inherent in organizations, government, and even the family. Agents (managers of organizations, subordinates in the government, or children in the family) can pursue their own agenda different from that of the principals (owners of organizations, superiors in the government, or parents in the family). Banking exacerbates the principal/agent problem. This is a specific affliction of intermediation. Expansion of business in productive activities does not usually mean risky exposure; in banking, it usually does. Managers discount risks to demonstrate their ability to generate quick profits. In addition, not only bank owners but also depositors are exposed. Unlike owners, depositors have few means to monitor lending activity and no authority to control managers. Even competition in banking is a double-edge sword. When some banks increase risky exposure and reap extraordinary returns, e.g., by lending to foreign governments, corporations, and financial organizations while insufficiently hedging against currency risk, default risk, etc., other banks must follow suit in order to match the former's earnings per share and interest paid to depositors, lest shareholders dump their stock and depositors move funds to their competitors. This collective rush of banks to financial precipice is known in the literature as the lemming effect, named after Scandinavian rodents famous for migrations through the North Sea ending in collective drowning. See, e.g., Georgio Szego, "Introduction," *Journal of Banking and Finance* 17, no. 5 (September 1993): 773-783; J. Mei and A. Saunders, "Excessive Gambling with Unfavorable Odds: Financial Institutions' Real Estate Investments," and R.G. Rajan, "A Theory of Fluctuations in Bank Credit Policy," in Kellogg Graduate School of Management, Northwestern University, *Proceedings of the Second Annual Symposium on the Globalization and Reform of Financial Institutions* (Evanston, IL, May 1993).

countries or Enterprise Network Socialism in Russia and similar countries.[25] The following matrix summarizes how non-performing loans in the two-track economy in China and under Enterprise Network Socialism in Russia are different from all other types:

Non-performing loans	Long-term	Short-term
Economy-wide	All types except China and Russia (lines 1-8 in table 1)	Russia
One-track	China	-

Consider the basic facts about non-performing loans in Russia and China in comparison with other types and between each other.

Facts about China:

1. Non-performing loans are sectoral and period-specific. This is primarily the debt of state enterprises to the state-owned banks accumulated after the abolition of central planning

2. Non-performing loans arise from a special relationship between a special class of creditors, the four big state-owned commercial banks, and the special class of borrowers, state enterprises inherited from central planning. This special relationship combines a carrot and a stick. State banks issue credit to state enterprises on special conditions. Credit ceilings evolved from the central plan-type financing of trade arrears on account of production targets in 1983-94 to the entitlement-type credit quotas independent of production in 1995-98 to discretionary bank credit subject to caps thereafter. This is a carrot. Non-performing loans arise along the way. State banks conduct industrial policy as a government agent subsidizing another government agent, state enterprises.[26] In the process, and in a continuation of central plan arrangements, banks enforce profit remittance of state enterprises to their owner, the government, and tax remittance. Together with credit ceilings, this is a stick. State banks act as a fiscal agent and property manager (under state ownership, the two functions overlap), controlling another government agent, state enterprises.

[25] A comparative description of both systems is in Chapter 2 of *From Predation from Prosperity*. Additional description of Enterprise Network Socialism is in Chapter 1 and its Addendum, "The Roller-Coaster of the Russian Economy." Additional description of the two-track economy and hybrids between the two-track economy and Enterprise Network Socialism are in the second part of Chapter 4, pp. 17-26.

[26] See Gregory C. Chow, *China's Economic Transformation*, pp. 52, 72, 223, and *passim*. In addition, after 1994, three new, state-owned policy banks finance specific development projects (Ibid., p. 72). They substituted for direct budget investment in large-scale enterprise projects which characterized central planning. According to the China Banking Regulatory Commission and *China Finance Year Book*, policy banks now hold 8 percent of total loans (cited in Ben Dovlen and Anthony Kuhn, "Capitalizing China's Farms").

This is the state enterprise/state bank track.[27]

3. The new-entrant enterprises constitute the second track. These are, first and foremost, township and village enterprises (TVEs) owned by local governments, cooperative enterprises, joint ventures, foreign ventures, and, lately and increasingly, private enterprises. Their financial counterparts spawned in the 1990s are International Trade and Investment Corporations, ITICs (joint ventures of local governments and foreign entities), rural credit cooperatives (RCCs, grown up to 35,000 by 2004), urban cooperative banks and credit unions, city commercial banks, and the 11 joint-stock commercial banks, national in scope.[28] The second track is—by law and by strictly enforced policy—financially separated from the first track of state enterprises and state banks: trade, yes; credit, no. The government forbids the big four state banks to lend to the second track enterprises and banks. The best word to describe this policy is verboten.

4. Township and village enterprises and other new entrants had to rely initially on self-financing from retained earnings. Now they can use the credit facility of the second-track banks.[29] Uniquely in contemporary banking, this facility is effectively moral hazard-free, which makes second-track banks not prone to the buildup of non-performing loans. The second track is not like private and local government sectors in Western market and developing economies, intricately connected by myriads of financial links to the national state sector. The second track is a separate track.[30] The

[27] In addition, the state track includes savings deposits institutions under the postal offices.

[28] Additional sub-divisions and institutions include trust investment corporations, financing corporations, and financing and leasing corporations. For a full nomenclature of banks and non-banks, see National Bureau of Statistics of China, *China Statistical Yearbook 2003* (Beijing: China Statistical Press, 2003), p. 702.

[29] According to the China Banking Regulatory Commission and *China Finance Year Book*, the latest distribution of loans is as follows: the four state-owned big banks hold 55 percent of total loans, policy banks 8 percent, joint-stock commercial banks 14 percent, rural credit cooperatives 10 percent, and others, primarily urban cooperative banks and credit unions, 14 percent (cited in Ben Dovlen and Anthony Kuhn, "Capitalizing China's Farms"). In all, the first-track banks hold about 63 percent of total loans and the second-track banks and rural credit cooperatives, 37 percent.

[30] Agriculture with private farms holding tenure rights on state-owned land and forming rural credit cooperatives for lending can be viewed as the third track. Without private land ownership, farms have no collateral and no access to bank credit. This impedes sufficient agricultural investment and horizontal integration towards the optimal farm size determined by the market. But this impediment also precludes farms from joining industrial enterprises in a network over the value-added chain. Rural credit cooperatives fill the void of agricultural lending under the multi-track system. Separation of the third track has become more pronounced since the mid-1990s when joint-stock commercial banks discontinued lending to farms exactly in order to minimize their exposure to non-performing loans, which now amount to 26 percent of total loans of rural credit cooperatives. The national government started a drastic policy. It offers to repurchase 50 percent of non-performing loans of RCCs in those provinces which will tighten up RCCs. It strives to consolidate 35,000 RCCs into 3,000 credit unions in order to diversify risk and intermediate deposits to the most efficient investments. This amounts to cutting-off subsidies to marginal farmers at the expense of more successful farmer

second track is enclosed. There is a Chinese wall of financial separation between the first and the second tracks. In Western market and developing economies, private banks, investment institutions, and productive corporations or financial-industrial conglomerates are subject to moral hazard. They can be and are periodically bailed out because they are said to be "too big to fail." That is, the spillover costs of their failure to the national economy (the lost of investments and deposits and the subsequent contraction of the money stock and the economy) exceed the fiscal costs of their bailout. The government socializes the cost of their failure and thus invites the next failure, which is the very nature of moral hazard.

In the Chinese second track, nothing and no one is too big to fail. Contrary to world-wide expectations and the ire of Western investors, in 1999 China let the Guandong International Trust and Investment Corporation (GITIC), one of the largest ITICs, along with other, smaller ones, fail. Furthermore, the Chinese government abruptly shut down, without compensation of creditors, most other insolvent investment companies which borrowed from Western lenders to finance local government ventures.[31] The cost of the second-track enterprises and banks joining the subsidized first track and spreading the subsidy chain across the economy vastly exceeds the spillover costs of failures confined within the second track. The government forestalls the two tracks joining together and forming an economy-wide network. This predatory network would have been powerful enough to build up trade arrears and tax non-remittance in order to extract monetization and other self-enforceable subsidies, as in Russia.[32]

The Chinese wall of separation between the two tracks serves as a firewall. Second-track creditors are on their own to bear the costs of non-performing loans and apply risk-averse lending to preempt them. Non-performing loans do not spread from the first track. Both national government and the uninsured second-track investors (local governments, urban cooperative owners-depositors, and foreign co-owners of the second-track banks), while pursuing their divergent, selfish, and indeed conflicting interests, implicitly cooperate to this end. Think of this as the Chinese Invisible Hand on a two-track course.

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depositors/credit cooperative members (Ben Dovlen and Anthony Kuhn, "Capitalizing China's Farms"). The third track is being phased-out by de-subsidization, migration of peasants to higher-wage urban areas, and industrial development on formed farmlands. Township and village enterprises have been displacing farms. In recent years, in addition to legalized phase-outs, 178,000 development projects and 3,763 industrial parks formed by local governments displaced farms in a rush of less-than-legal land deals (Jim Yardley, "China Races to Reverse Its Falling Production of Grain," *The New York Times*, May 2, 2004, p. 6). In the process of consolidation of its productive and financial units, phase-out, and de-subsidization, the third track is converging with the second track of new-entrant enterprises such as TVEs.

[31]For a discussion of facts and the policy context, see Chapter 4 of *From Predation to Prosperity*, pp. 18-25.

[32]See *From Predation to Prosperity*, Chapter 1 and Addendum, "The Roller-Coaster of the Russian Economy."

Facts about Russia:

1. Between 97 and 99 percent of non-performing loans in Russia were short-term (under one year) in the 1990s.[33] This is an awestruck statistic. It is sufficient to discern that, first, non-performing loans in Russia had nothing to do with credit for investment and everything to do with credit for payments. Second, banks did not worry and did not stop lending for payments. They continuously rolled over delinquent short-term loans. In contrast, as table 1 attests, non-performing loans in all other economies constitute failed investment.

2. Between 80 and 95 percent of total loans in 1992-98 and 70-80 percent in 1999-2004 were short-term, under one year.[34] Again, these loans constitute credit for payments, not for investment. Banks functioned, by and large, to recycle short-term loans which underwrite and facilitate trade credit, not as quintessential financial creditors for investment.

3. Non-performing loans in Russia are not an independent banking phenomenon. They merely comprise one more category of enterprise debt arrears, along with trade payment arrears, tax non-remittance, and payroll arrears. The roller coaster of non-performing loans, up from 1 percent of total loans in 1991 to 19 percent in 1997 and down to 3 percent in 2004, corresponds to the rise and fall of tax non-remittance and to the roller coaster of enterprise trade arrears relative to the money stock during the same two periods.[35] When trade payment arrears increased relative to the money stock, so did tax non-remittance, payroll arrears, and non-performing loans. When monetization (due to the new Central Bank policy of mandated repatriation of export revenues after the default of 1998) reversed this trend, payment arrears declined relative to the money stock. Tax non-remittance, payroll arrears, and non-performing loans diminished accordingly. Non-performing loans in Russia are part of the system of the enterprise network arrears and their self-enforceable tax subsidy.[36] Banks transmitted and recycled subsidized loans to the enterprise

[33]Central Bank of Russia, *Biulleten Bankovskoi Statistiki* (Bulletin of Banking Statistics), monthly, 1992-98. The last issue which published these data is no. 1 (56), 1998, pp. 54-55. The series of non-performing loans by maturity was discontinued. This paucity is not important because non-performing loans themselves gradually dissipated in 1999-2003 to less than 3 percent of total loans by 2004, as part of the general trend of monetization of enterprise debts. See "The Roller-Coaster of the Russian Economy," Addendum to Chapter 1 of *From Predation to Prosperity*.

[34]1992-93: Central Bank of Russia, *Tekushchie Tendentsii v Denezhno-Kreditnoi Sfere* (Current Trends in Money and Credit), no. 2 (April 1993), p. 13; 1993-2004: Central Bank of Russia, *Biulleten Bankovskoi Statistiki* (Bulletin of Banking Statistics), monthly, 1992-2004. Issues beginning with no. 2-3 (1998) are available at http://www.cbr.ru/BBS/bank_bulletin.asp.

[35]Documentation is in table 1 and figures 1, 3, 4, and 7 of "The Roller-Coaster of the Russian Economy," Addendum to Chapter 1 of *From Predation to Prosperity*.

[36]See Ibid. and Chapter 1 of *From Predation to Prosperity* for a detailed discussion of the tax subsidy.

network as part of this subsidy to pay trade and tax arrears. This transmission is the basic banking function in Russia.

To conclude the contrast, China's non-performing loans are for investment, Russia's non-performing loans are for payments. Table 1 lines up systemic differences between various types of non-performing loans. The unique feature of China's non-performing loans is their predominant confinement to one, separate track of enterprises and banks in a multi-track economy. The unique feature of Russia's non-performing loans is their short-term maturity and recycling as an appendage to enterprise payment arrears.

The last two columns of table 1 raise bigger questions than non-performing loans. They address the core issues of financial intermediation and systemic separations of credit from payments and payments (and thus enterprises) from the monetary authority. The next section turns to them.

The Tale of Two Credits

China and Russia exemplify two vastly divergent paths in the systemic evolution of credit and payments after the abolition of central planning. This section compares them. Under central planning, an automatic credit line enforced the nexus of forced production, forced exchange, and forced delivery. This was a self-contained system, evolved and congealed over time. What new system could emerge and evolve when the old system is abolished? It depends on the way central planning is abolished. It is a-systemic to expect a linear progression towards a free market economy as the one and only, teleological path regardless of a chosen direction.[37]

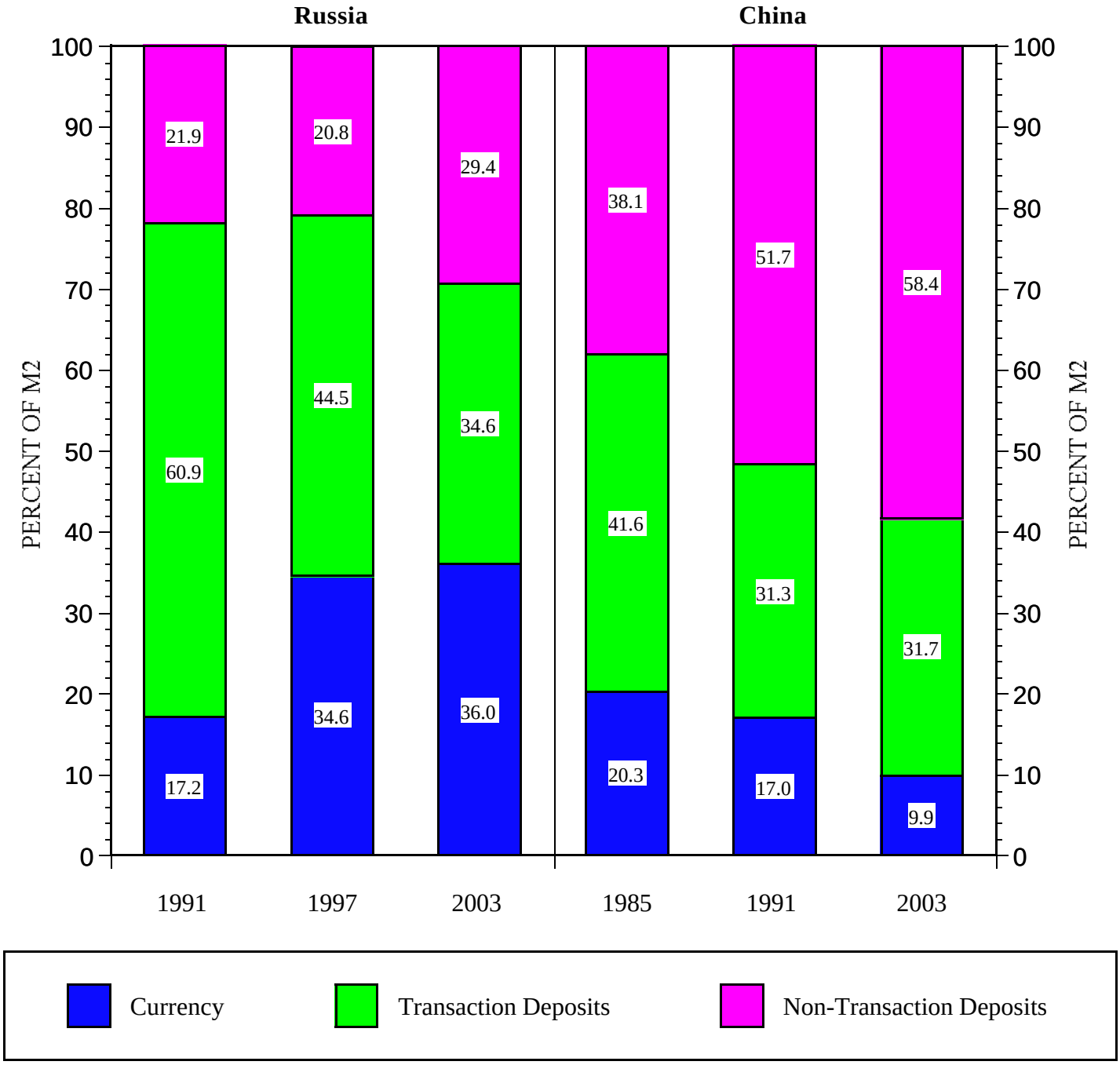
Two paths, two credits

If abolition of central planning comes through liberalization of transactions and privatization, the nation-enterprise immediately devolves into an enterprise network. This happens by default, without any collusion on the part of enterprises.[38] Throughout the inherited supply chain, liberalized seller-enterprises send out invoices to buyer-enterprises overcharging them to the tune of expected inflation. Given the cash flow constraint, payments fall into arrears and the payment system becomes jammed. Seller-enterprises compensate themselves for overdue receivables by not remitting to the government payroll taxes withheld from workers, profit taxes, and value-added taxes from the payments they receive. Enterprises thus take over the fiscal system and bankrupt the government. To resume tax remittance, the government must

[37]For an extensive discussion of a linear vs. a multi-dimensional approach to economic systems, see Chapter 3 of *From Predation to Prosperity*, especially figure 3.3 and its accompanying exposition, and Chapter 5.

[38]Chapter 2 of *From Predation to Prosperity*, pp. 1-8 describes this evolution..

Figure 4. RE-INTERMEDIATION OF PAYMENTS IN RUSSIA VS. SEPARATION OF CREDIT FROM PAYMENTS AND FINANCIAL INTERMEDIATION IN CHINA AFTER CENTRAL PLANNING, SELECTED YEARS



Notes:
Currency refers to currency outside banks, the monetary aggregate M0. Transaction deposits include demand deposits and checkable deposits. Transaction deposits = M1 - M0. Non-transaction deposits include savings and time deposits . Non-transactions deposits = M2 - M1. Monetary aggregate M2 sums up currency, transaction deposits, and non-transaction deposits.
Sources:
China, 1985: calculated from IMF, *International Financial Statistics Yearbook 1995* (Washington: The IMF, 1995), pp. 292-295.
China, 1991 and 2003, and Russia, 1997 and 2003: calculated from IMF , *International Financial Statistics Yearbook 2003* (Washington: The IMF, 2003), pp. 223-224 and 500-502.
Russia, 1991: calculated from national statistics.

monetize it. The Central Bank issues credit as a quasi-fiscal subsidy to enterprises.

The banking system serves to transmit this subsidy to enterprises and lives off this transmission. Bank credit by and large comprises transmission of this monetized subsidy. Inflationary expectations are validated. This feedback loop of over-invoicing, network payment arrears, tax non-remittance, and forced Central Bank credit (forced monetization) becomes a new financial system in its own right. Enterprises take over the monetary system. Tax non-remittance and forced Central Bank credit sum up into a self-enforceable tax subsidy for the enterprise network.[39] The predatory enterprise network emerges from the devolution of the nation-enterprise through liberalization and privatization. Network arrears and the self-enforceable tax subsidy create economy-wide redistribution of income between enterprises and between enterprises, the government, and taxpaying households. Enterprise Network Socialism is born.

If the abolition of central planning comes through segregation of the economy on a multi-track path, credit is restricted on a track-specific, sector-specific, bank-specific, and enterprise-specific basis as described earlier in this addendum. This multi-track approach breaks up the nation-enterprise and forestalls the enterprise network. The following discussion looks into implications of these two paths after central planning for credit and investment. Figure 4 serves as background information for this comparison. The last two columns of table 1 and the juxtaposed columns of table 2 (The Table of Two Credits) summarize it.

A multi-track breakup of the nation-enterprise vs. its devolution into a network

We can now explore how payments, credit, investment, enterprise taxes and subsidies, banks, and the monetary authority reassemble under the new economic systems in Russia and China. Different systems evince different integrations and separations of these generic institutions. This re-assemblage marks the process of adaptation in the evolution of new economic systems past central planning.

To recapitulate, abolition of central planning tore apart the nation-enterprise on two layers at once. It (1) lifted forced production, forced exchange, and forced delivery and (2) deactivated their enforcing, automatic credit line. The third layer of the nation-enterprise, the inherited supply chain, remained underneath. This is a latent enterprise network. It was ready to activate instantaneously unless it was deliberately broken up, the old enterprise sector phased-out, the new enterprise sector phased-in.[40] Liberalization and privatization let the inherited enterprise network loose and led to the devolution of central

[39] This paragraph summarizes a detailed description in Chapter 1 of *From Predation to Prosperity* and Addendum to Chapter 1, "The Roller-Coaster of the Russian Economy." See evidence in figures 6, 7, and 8.

[40] For a detailed discussion of phasing-in the new enterprise sector and phasing-out the inherited sector across 42 post-central plan economies, see Chapter 2 of *From Predation to Prosperity*.

planning into Enterprise Network Socialism.

The automatic credit line under central planning forced enterprises to pay off trade arrears and thus forced suppliers to keep forced delivery current. This system necessitates two corollaries, the first already mentioned earlier and the second so extraordinary that its time to surface has arrived only now.

1. *Confinement of credit to payments*: Credit served the primary function of paying-off trade arrears when enterprises could not make payments from regular cash flow. Credit was enclosed to payments. What systemically followed was separation of credit from investment and from deposits, and hence lack of financial intermediation between households and enterprises through the banking system. The banking system was not a financial intermediary.

   Although the automatic credit line is unique to industrial central planning, its consequences—confinement of credit to payment, separation of credit from investment, and lack of financial intermediation between enterprises and households—are not unique.[41] For other systemic reasons, primarily government and private confiscations of private savings and frequent repudiation of government debt to financial entities, these features were universal before the Financial Revolution and the Industrial Revolution in 18th century England and in all non-market economies afterwards.[42] It is their opposites that are novel and unique—separation of credit from payments and integration of credit, investment, and deposits through financial intermediation between households and firms through the banking system. These are novel features, unique to Western market economies, some modern developing and post-Communist economies (see the middle, developing, cluster in figure 2), and the multi-track economy in China. These conditions constitute a prerequisite for the market economy.

2. *Inseparability of monetary authority from payments and thus from enterprises*: The automatic credit line and confinement of credit to payments integrated the monetary authority with payments and enterprise cash flow, and, by extension, with enterprises as such. In the flow of funds, the automatic credit line for paying off trade arrears was the direct monetary pipeline from the State Bank as a monetary authority through its branches to enterprises.[43] Inseparability of monetary

[41]Separations of deposits from credit and currency from credit are unique. One is accustomed to think of currency (and later, deposits) and credit as inseparable. They were inseparable in all economies since the monetary and credit system of ancient Athens and the Thessalian League.

[42]Chapter 4 of *From Predation to Prosperity* discusses the financial revolution before the Industrial Revolution.

[43]In terms of the organizational chart, the State Bank was the penultimate monetary authority under industrial central planning. It made decisions on issuing credit. It did not make independent decisions on issuing currency. Under wage control and separation between credit and currency, this distinction mattered. The ultimate monetary authority on issuing currency was the highest level of government. In the Soviet Union it was the Politburo of the Central

authority from payments, enterprise cash flow, and enterprises is a novel and unique systemic feature of industrial central planning.[44]

Independence of the monetary authority from the fiscal authority and other government mandates has been a major systemic issue in many economies. For example, to mark their separation, establishment of the independent central bank in Italy in 1947 was called "divorce." Funding directed government investment under industrial policy in Japan and elsewhere after World War II, in addition to financing and monetizing government debt, can be viewed as an extension of inseparable fiscal and monetary systems. In Japan in the 1950s-1970s, the monetary authority funded the banking system (specifically the "main bank" of each keiretsu) for directed investment provided to firms as a matter of industrial policy.[45] None of these systemic arrangements involved an automatic credit line from the monetary authority to finance enterprise payments. Either through the fiscal authority or through the banks within an industrial conglomerate, the monetary authority was separated from payments and enterprises. Central planning built-in the inseparability of the monetary authority from payments and enterprises for its own enforcement—to enforce forced production, forced exchange, and forced delivery. The column next to last in table 1 contrasts this feature across economic systems and cases.

When the monetary authority is separate from payments and enterprises, it can conduct monetary policy subject to fiscal mandates and conditions. When the monetary authority is inseparable from payments and enterprises, it cannot conduct monetary policy by itself. Enterprises effectively run monetary policy to one or another extent. This means that money as the store of value for

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Committee of the Communist Party which issued the document called "the emission directive." It authorized currency issuance by the State Bank and set money printing targets and limits for each period of time. In Nazi Germany, the Reichsbank issued credit and printed currency, and had, under the presidency of Hjalmar Schacht in 1993-39, some currency discretion but the currency directive came from the Ministry of Finance and, ultimately, from the Reichschancellor. Notice the following contrast. Schacht held dual positions of Commissioner of Currency and President of the Reichsbank in 1923-30, that is, before Nazi central planning and before separation between currency and credit. After that, he held dual positions of President of the Reichsbank and either Minister of Economics or Plenipotentiary General for the War Economy in 1933-37 (Minister without Portfolio until 1943). He lost the Reichsbank presidency in 1939 for trying to restrain the automatic credit line. He urged tightening of government credit and cautious use of foreign exchange reserves, both to no avail, and in 1938 discontinued discounting short-term Reichsbank notes for armament expenditures and in 1939 defied the directive of the Ministry of Finance on issuing credit for additional government salaries and contracts. See, e.g., John Weitz, *Hitler's Banker: Hjalmar Horace Greeley Schacht* (Boston: Little, Brown, 1997).

[44]This characteristic applies to both multi-industry central planning in modern economies and to mono-industrial central planning in their historical antecedents such as Egypt under Muhammad Ali in 1805-1849. See Chapter 5, Section A of *From Predation to Prosperity*, p. 11.

[45]Masahiko Aoki and Hugh Patrick, eds., *The Japanese Main Bank System: Its relevance for Developing and Transforming Economies* (Oxford and New York: Oxford University Press, 1994).

Table 2
The Ta(b)le of Two Credits

Russia	China
Liberalization and privatization of the nation-enterprise	Multi-track breakup of the nation-enterprise
1. Network payment arrears create Enterprise Network Socialism. Banks underwrite and underlie the enterprise network 2. Banks transmit the self-enforceable tax subsidy from the government to enterprises to pay off arrears and remit taxes. The subsidy is set by the enterprise network 3. No separation of credit from payments 4. No separation of the monetary authority from payments and thus from enterprises. The network takes over fiscal and monetary policy 5. Separation of credit from investment 6. Banking primarily means re-intermediation between enterprise deposits and enterprise credit for payments	1. A multi-track economy separates the old state sector and the new-entrant market sector. Sector-specific lending restrictions segregate banks and turn them into vehicles that separate enterprises and preempt network payment arrears 2. Banks remit taxes and profits from state enterprises to the government and transmit a separate subsidy embedded in subsidized credit. The subsidy is set by the government 3. Separation of credit from payments 4. Separation of the monetary authority from payments and thus from enterprises 5. Channeling of credit to investment 6. Banking primarily means financial intermediation between household savings and enterprise investment
Credit for payments, re-intermediation	Credit for investment, financial intermediation

individuals can be debased not only by the government and banks but also by non-financial enterprises. This feature potentially opens the door to collective counterfeiting. Wage control and separation between currency and credit under central planning constrained this outcome. In Russia, liberalization and privatization of the latent enterprise network unleashed collective counterfeiting by enterprises.[46]

Abolition of central planning deactivated its enforcing, automatic credit line. This set off the chains of financial separations and integrations in a systemic progression. Two opposite evolutions followed. One pursued a multi-track breakup of the nation-enterprise into a restricted market economy with the new entrants in China. Another turned into a socialist devolution of the nation-enterprise via liberalization and privatization in Russia.[47]

First, the chain of financial separations and integrations in China. They unwind how a multi-track approach forestalls the enterprise network from both sides. The government doesn't let it be and enterprises—both old, state enterprises and the new-entrant market enterprises such as TVEs—don't want it to be. The nation-enterprise breaks up into a nation of enterprises.

1. The government breaks up the nation-enterprise across the seams of production, taxes, subsidies, and finance. This breakup is track-specific, sector-specific, region-specific, locality-specific,[48] and, ultimately, enterprise-specific. The government sets restrictions on lending and non-lending specific to tracks, sectors, banks, and, by extension, enterprises. (a) Within the first track, the four big

[46]See documentation and discussion in Chapter 1 of *From Predation to Prosperity* and "The Roller-Coaster of the Russian Economy," especially figures 6, 7, and 8. For an early notice of this process, see David Malpass, "The Man Who's Saving China from Soviet-Style Disaster," *The Wall Street Journal*, July 29, 1993, p. A11. In Canto XXX *of Inferno*, Dante treats debasement of money as counterfeiting. Master Adam of Brescia was "coining florins, // Which had three carats of impurity." "There is Romena, where I counterfeited // The currency imprinted with the Baptist, // For which I left my body burned alive." And recollect where Dante meets him.

[47]Various hybrids developed in between, in Poland and elsewhere. Additional paths were possible after the abolition of central planning. For example, the government can sequester enterprise receivables in arrears every month-and-a-half or two months on a consignment basis, dispose of them through factoring agencies which mark them to market, and remit the proceeds to creditor enterprises. Soon, enterprises will start operating as separate units disconnected from a network of enterprises and arrears. They will sell output in quantities and at prices that buyers will pay in full and on time. This procedure will also work as a national auction settling the producer price level and quashing inflationary expectations. Marking trade arrears to market will mark the beginning of a market economy. The nation-enterprise will evolve into a nation of enterprises, a value-added chain of separate firms. This path is still possible, indeed necessary in Russia to shift it towards a market economy.

[48]See Gregory C. Chow, *China's Economic Transformation*; Lawrence J. Lau, Yingui Qian, and Gerald Roland, "Reform Without Losers: An Interpretation of China's Dual-Track Approach to Transition," *Journal of Political Economy* 108, no. 1 (February 2000): 120-143; and Yuanzheng Cao, Yingui Qian, and Barry R. Weingast, "From Federalism, Chinese Style, to Privatization, Chinese Style," *Economics of Transition* 7, no. 1 (February 1999): 103-131.

state banks can lend only to the inherited state enterprises of the first track. Loans carry subsidies by the virtue of being guaranteed and carry restrictions imposed by credit ceilings. Constrained subsidies pit enterprises in rivalry against one another and state enterprises as a whole against other tracks. This financial separation and the cap imposed by credit ceilings blocks any opportunity for enterprises to extract an open-ended monetary (quasi-fiscal) subsidy from the central bank for paying off trade arrears and for remitting taxes, to enforce monetization of enterprise debts. Banks of the first track cannot act as the agents of networking enterprises and must and do act as the agents of the government. (b) Banks of the first track cannot lend to the new-entrant enterprises of the second track, such as township and village enterprises of local governments, cooperative enterprises, joint ventures, foreign ventures, and private firms. The second-track enterprises have to rely on self-finance and/or uninsured commercial banks and non-banks of the second track such as ITICs, urban cooperative banks, credit unions, and the 11 joint-stock banks. All the second-track financial institutions and their owners, especially local governments, cannot support any risky attempt of any enterprises on their track to join a potential network of trade arrears and forced government subsidies. Here every enterprise is for itself to live or to die.

Restrictions and incentives work together. An enterprise network is blocked on both sides. (1) The government does not allow it and (2) enterprises, both old and new (and local government behind the latter), have no incentives to participate in the network, and the banks seal its fate. State enterprises of the first track have both restrictions and incentives against acting as a network. They earn individual profits and receive individual subsidies. They furthermore have no incentives to coopt the new-entrant enterprises into a network. The latter would mean extending trade credit which would fall into arrears. But, unlike Russia, these arrears will not be accommodated by the government through the banking system. Tolerating arrears sans a compensatory, self-enforceable subsidy ensues that state enterprises would provide free inputs to the new-entrants—a self-defeating proposition. This disincentive against forming the network symmetrically constrains the second-track enterprises. The new-entrant enterprises of the second track have both restrictions and incentives against conjoining a latent network. Local government owners of township and village enterprises and other owners of market new entrants on the second track do not allow their enterprises to build up payment arrears and risk cash flow shortfalls and potential bankruptcy. Banks can extend credit for investment only, not for overdue payments and subsidy extraction.

The banking system on all tracks can neither accord nor afford to serve as a subsidy transmission from the monetary authority to enterprises. This conjunction of restrictions and incentives renders the network dead on arrival.

2. State banks of the first track act as the agents of the government and enforce tax remittance and profit remittance on the part of state enterprises. Symmetric state ownership of banks and enterprises serves a systemic function of preventive custody against the latent network. Inherited state enterprises cannot initiate tax non-remittance as a means for extracting fiscal and quasi-fiscal

(monetary) subsidy. Then they are not interested in overcharging invoices and building up payment arrears. Network arrears do not emerge. The network is not born out of physical and juridical remnants of central planning by inherited enterprises.

Absence of network arrears and the presence of credit ceilings lead to downsizing of those old enterprises that do not reform to meet emerging market conditions. The breakup of agricultural communes into individual farms with tenure rights on state-owned land pares off a large bloc from the inherited state sector. Lack of restrictions apart from restricted lending, controlled liberalization (this is not an oxymoron) phases-in the new-entrant enterprises on the second track. Phasing-in new enterprises and downsizing old, state enterprises automatically phases out the old enterprise sector. This is the evolutionary dynamics of the multi-track economy. This process has transformed the nation-enterprise into a nation of separate enterprises bypassing the network.

3. Separation of credit from payments follows from the above. On the side of borrowers, when the windows of tax non-remittance and monetization of trade and tax arrears are closed, enterprises cannot sustain payment arrears and build up their network. On the side of lenders, banks face disincentives to issue credit for payments, save under political duress. Credit for payments ensues high transaction costs and prohibitively high risks of default. Enterprises continuously borrowing for payments exhibit cash flow deficits. They are illiquid and—unless their network forces monetization by the central bank through banks to enterprises for paying off arrears—hover on the verge of technical bankruptcy. Bankrupt enterprises can pull down banks along with them into bankruptcy. This is why Western financial markets developed a special facility for factoring receivables (purchasing them at discount, advancing cash to enterprises, and collecting from delinquent payers), which is separate from quintessential banking.[49] A multi-track economy erects additional lines of separation. On the first track, credit ceilings not only bloc any emergence of an open-ended credit for payments forced by the enterprise network, but also create trade-offs between payments and investment in allocation of credit. Under credit ceilings, both state enterprises and state banks choose credit for investment. On the second track, local governments, depositors of credit unions, foreign ventures, and other owners cannot allow their uninsured banks to engage in risky lending for payments. They are free to lend by the virtue of being free to fail. Moreover, their very raison d'etre is to finance specific investment projects established by their owners and co-owners, especially local governments and township and village enterprises. This is why the second-track banks replaced self-financing of TVEs and other second-track enterprises.

4. Separation of the monetary authority from payments follows from the above. State banks of the first track have neither a mandate (like under central planning) nor incentives (like under Enterprise Network Socialism) to provide credit for payments to enterprises. All banks of both tracks—state

[49]The best known factor was the Count of Monte Cristo. Modern factoring agencies make money, not revenge.

banks of the first track and various commercial banks and credit unions of the second track—have no opportunity to transmit central bank credit to enterprises for payments of trade arrears and remittance of taxes. In the absence of network arrears and, hence, in the absence of tax non-remittance, the central bank is not forced to monetize enterprise debts and gives banks no facility to transmit this monetary subsidy. This combination (no mandate, no incentives, no opportunity, and no facility) separates the monetary authority from enterprise payments. This evolution marks a fundamental separation of the monetary authority from enterprises.

5. Integration of credit and investment follows from the chain of separations unwound in the preceding paragraphs. The first-track banks have both a government mandate and incentives to channel credit to investment. The second-track banks have incentives exclusively to issue credit for investment. The third-track banks, rural credit cooperatives, follow suit, and their forthcoming consolidation will only reinforce this adaptation. Incentives for credit for investment are a mirror-image of disincentives for credit for payments in paragraph 3. Lending for payments carries prohibitive risks and high transaction costs. Lending for investment carries manageable risks and transaction costs. In the absence of a systemic mandate for credit for payments under central planning and a systemic, self-enforceable subsidy for credit for payments under Enterprise Network Socialism, banks adapt and their incentives evolve to channel credit to investment. Banks cannot live off subsidy transmission and recycling of enterprise deposits through loans for payments. They can make profit by making credit into profitable investment. China's banks of all three tracks function in the same vein as deposit money banks in Western market economies since the Financial Revolution in England in the 18th century: they issue credit for investment.

Second, the chain of financial separations and integrations in Russia. It evolved in the direction opposite to China's. The nation-enterprise transformed into an enterprise network. Fiscal and monetary authority was devolved to the enterprise network and its enforcing banks. The following points recapitulate an earlier discussion.

1. The enterprise network was ready-made. Enterprises as inherited units of the nation-enterprise immediately adapted to liberalization of transactions by overcharging invoices, building up payment arrears, non-remitting taxes, and forcing subsequent monetization. Privatization of enterprises sealed this process. Banks became vehicles of transmission of quasi-fiscal subsidy from the monetary authority to enterprises. Banks help enterprises to enforce the tax subsidy determined by the enterprise network through accumulation of arrears and tax non-remittance. Banks act as the collective agent of the enterprise network.

2. The difference between the newly spawned commercial banks and deactivated branches of the defunct State Bank is that banks do not have to enforce tax remittance by enterprises. Through non-remittance of taxes collected from workers and consumers, the enterprise network took over the fiscal authority. Banks took passive part in this takeover by forfeiting tax remittance and active

part by re-intermediating non-remitted taxes in enterprise deposits as loans to other enterprises.

3. Banking transmission of monetary subsidy for the purposes of tax remittance and paying off arrears kept credit inseparable from payments. As we cited the evidence earlier, 80 to 95 percent of total loans in 1992-98 and 70-80 percent in 1999-2004 were short-term loans for payments, continuously recycled.

4. It follows that non-separation of the monetary authority from payments and, ultimately, from enterprises remained intact.

5. Confinement of credit to payments left investment to self-financing. Investment is not connected to payment arrears and tax non-remittance and thus does not influence the quasi-fiscal (monetary) forced onto the monetary authority and transmitted through the banking system. Banks are not interested in issuing credit for investment, which is a riskier and less rewarding proposition than transmitting the central bank subsidy and re-intermediating between enterprise deposits and payments. This leaves investment to self-finance by enterprises. Inseparability of credit from payments separates credit from investment.

The first five propositions in table 2 summarize these contrasting chains of separations and integrations in China and Russia. The last two columns of table 1 incorporate them to complete a historical and cross-national comparison of banking systems. The next section moves to proposition 6 in table 2—to the system-defining and epochal question of financial intermediation in banking or lack of thereof.

Financial intermediation in China vs. re-intermediation in Russia

There is always saving[50] and there is always investment but investment does not necessarily create productive capital. Investment may be channeled into consumption infrastructure, such as pyramids,

[50]Saving is unique to the evolution of human species. Humans exhibit variable productivity of resources and, as a consequence, variable life expectancy. See Michael S. Bernstam, *The Wealth of Nations and the Environment*. All motivations for saving follow from this premise. An incomplete list of motivations includes (1) "to build up a reserve against unforseen contingencies" (the precautionary motive); (2) "to provide for an anticipated future relationship between the income and the needs of the individual" (the life-cycle motive); (3) "to enjoy interest and appreciation" (the intertemporal substitution motive); (4) "to enjoy a gradually increasing expenditure" (the improvement motive); (5) "to enjoy a sense of independence and the power to do things" (the independence motive); (6) to secure a masse de manoeuvre to carry out speculative or business projects" (the enterprise motive); (7) "to bequeath a fortune" (the bequest motive); (8) "to satisfy pure miserliness" (the avarice motive); and (9) to accumulate deposits to buy houses, cars, and other durables (the downpayment motive). Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Micro Facts," *Journal of Economic Literature* 34, no. 4 (December 1996): 1797-1855, the list is on p. 1797; the nomenclature in quotation marks reproduces the formulae of John Maynard Keynes, *The General Theory of Employment, Interest and Money* (London: MacMillan, 1936).

palaces, and cathedrals[51], or in foreign exchange and assets abroad as has been Russia's trend. In the latter case investment is reclassified as capital outflow and enters national accounts as net exports.

Under central planning, the government controlled and confiscated household saving through suppressed wages, suppressed agricultural procurement prices, and forced subscription to bonds. Forced saving was channeled to investment by the government directly, bypassing financial intermediation. Additional, voluntary saving (including temporal saving for sporadic purchases of goods in short supply and high saving for durables in the absence of consumer credit) was pooled by the state banking system for government use in investment. This was a contract between households and the government, not financial intermediation between households and enterprises. These systemic fixtures complement separations of credit from investment, deposits from credit, and credit from currency, which we dissected above. Exceptionally high rates of saving forced or induced under central planning were behind high rates of investment in productive and human capital. They explain the success of central planning in industrialization for several decades, until diminishing returns to capital without incentives for technological innovation retarded economic growth.

In the market economy, the nexus of household saving and banking credit for investment leads to capital formation. Milton Friedman summarizes this systemic link:

> "Banks [are] producers of money (...) The existence of banks enables productive enterprises to acquire money balances without raising capital from ultimate wealth-owners [the households]. Instead of selling claims (bonds or equities) to them, it [the enterprise] can sell its claims to banks, getting money in exchange: in the phrase that was once so common in textbooks on money, the bank coins specific liabilities into generally acceptable liabilities."[52]

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[51] "I wonder whether undue attention has not been given to the magnitude of the savings ratio at the expense of the form that savings take. Savings may well have been at least as large a fraction of income in the Middle Ages as in modern times; they then in considerable measure, perhaps in major part, took the form of cathedrals, which, however productive of ultimate satisfaction and of social security in more than one sense of that term, were not productive of worldly goods. I understand that budget studies for India, which at first sight seem to give very different results from corresponding studies for the United States, are found largely to duplicate the latter if the category 'ornaments' is interpreted as savings or, in the jargon of budget studies, as 'net changes in assets and liabilities.' The East was for long regarded as a 'sink' for the precious metals, surely evidence both of substantial savings and of the particular form that it took. Perhaps the crucial role that has been assigned to the savings ratio in economic development should be assigned instead to the factors determining the form in which wealth is accumulated: to the investment rather than savings process, as it were." Milton Friedman, *A Theory of the Consumption Function* (Princeton, N.J.: Princeton University Press, 1957), p. 236.

[52] Milton Friedman, "The Quantity Theory of Money—A Restatement," in Milton Friedman, ed., *Studies in the Quantity Theory of Money* (Chicago: University of Chicago Press, 1956), p. 14.

Financial intermediation allocates household savings deposited with the banks to the most productive enterprise investment, creating money in the process.[53] This allocation of capital derived from saving is the ultimate function of banking in the market economy.

China has been rapidly converging with the financial system of Western market economies.

- Total deposits denominated in national currency increased from 33 percent of the value of GDP in 1985 to 67 percent in 1991 to 100 percent in 1997 to 146 percent in 2002.[54] This pattern of financial deepening is the source of expansion of loanable funds documented in figure 3.

- Household deposits have become a growing proportion of total deposits. In 2002, about two-thirds of total deposits were household deposits such as "urban and rural saving deposits," "agricultural deposits," "trusted deposits," etc., and only one-third were enterprise deposits.[55]

- Deposits as a proportion of the money stock M2 increased from 80 percent in 1985, and probably less before that, to 90 percent in 2003. Figure 4 shows the trend in decomposition of monetary aggregates in selected years after 1985, the first year for which these data are available. This seemingly modest change is profound. It indicates vigorous money creation by the banking system in the process of financial intermediation between household saving and enterprise investment. To put the data in reverse, the proportion of money created by the Central Bank in the money stock declined by half from 20 percent in 1985 to 10 percent in 2003. Figure 4 yields that the ratio of the monetary aggregate M2 to currency (the aggregate M0) doubled from five to ten. It reached the magnitude of the most advanced Western market economies. The implied money multiplier, the ratio of M2 to the monetary base (currency outside banks plus reserves, which sum up to the money printed by the central bank), increased accordingly.[56] By any measure, the relative share

[53]For clarity and sharp distinction, specialists call the money created by deposit money banks "inside money," as opposed to "outside money," such as currency and specie printed and minted by the government or the central bank. Outside money forms the monetary base, which sums up currency outside banks and reserves held by the banking system with the central bank. The money multiplier acquires a literal meaning. It indicates the multiplier of money creation by the banking system, the ratio of the total money stock (the sum of inside money and outside money) to the stock of outside money.

[54]Calculated from IMF, *International Financial Statistics Yearbook 1995* (Washington: The IMF, 1995), pp. 292-295; IMF, *International Financial Statistics Yearbook 2003* (Washington: The IMF, 2003), pp. 223-224. The earliest data on deposits by maturity and the composition of the money stock in these series are for 1985.

[55]Calculated from China Ministry of Finance, *Finance Year Book of China 2002* (Beijing: Zhongguo Cai Zheng Za Zhi She, 2002), p. 468; and National Bureau of Statistics of China, *China Statistical Yearbook 2003* (Beijing: China Statistics Press, 2003), p. 705.

[56]Due to high reserve requirements and especially semi-voluntary excess reserves held by banks with the central bank—which is a prudent restriction in view of non-performing loans of the first-track banks and uninsured

of money creation by the banking system in the process of financial intermediation doubled in 20 years. Figure 4 demonstrates this systemic evolution.

- Non-transaction deposits ("fixed deposits," in the Chinese vernacular), such as savings and time deposits, increased as a ratio of total deposits in national currency from 61 percent in 1978 to 70 percent in 2001. They actually stood at 83 percent of total deposits in 1990.[57] For a comparison, in the U.S. in 2004, 87 percent of total deposits were non-transaction deposits.[58] Figure 4 shows that the share of non-transaction deposits in the monetary aggregate M2 in 2003 in China, 58 percent, was twice as high as Russia's 29 percent. Non-transaction deposits, which underwrite the core of long-term investment, dominate the money stock and banking activity in China.

Russia moved in the opposite direction. It forfeited financial intermediation between household saving and productive investment through the banking system.

- Total deposits denominated in national currency collapsed from 55 percent in relation to GDP in 1991 to 10 percent in 1993-1997 and then recovered slightly to 12 percent in 2002[59] and 15 percent in 2004. This is another mind-boggling statistic, which becomes grotesque when compared with the 146 percent ratio of total deposits to GDP in 2002 in China.

- Household deposits declined from 63 percent of total deposits in 1990 to 15 percent in 1992. Household deposits partially recovered their share and held steady at about 50 percent of total deposits from 1994 to 2004.[60] Enterprise deposits made up another 50 percent of total deposits

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deposits of the second-track banks—the ratio of M2 to the monetary base (money issued by the central bank) was about 5 in 2004. See IMF, *International Financial Statistics May 2004* (Washington: The IMF, 2004), pp. 276-277. In the U.S., given low reserve requirements and low excess reserves, the ratio of M2 to the monetary base in 2004 stood at 8.3 and the ratio of the monetary aggregate M3 to the monetary base reached 12.0. See Federal Reserve Board, tables H.3 (502) and H.6 (508) at http://www.federalreserve.gov/releases/h3/Current/ and http://www.federalreserve.gov/releases/h6/Current/.

[57] *Finance Year Book of China 2002*, p. 463. One reason why non-transaction deposits declined in the last decade might have been the broadening of the deposit base with the rise of the second-track banks, which carry no deposit insurance. Their depositors may prefer transaction deposits ("current deposits" in the Chinese vernacular, corresponding to demand deposits and checkable deposits).

[58] Calculated from The Federal Reserve Board, "Assets and Liabilities of Commercial Banks in the United States," May 7, 2004, at http://www.federalreserve.gov/releases/h8/Current/ .

[59] Calculated from IMF, *International Financial Statistics Yearbook 2003*, pp. 500-502, except the data for 1991 derived from national statistics. For more detailed annual data and sources, see *Fixing Russia's Banks*, p. 35, figure 5.

[60] Derived from Central Bank of Russia, *Biulleten Bankovskoi Statistiki* (Bulletin of Banking Statistics), monthly, 1992-2004. For the latest data series, see no. 4 (2004), pp. 39, 89 at http://www.cbr.ru/BBS/BBs0404r.pdf .

since the mid-1990s. Thus household deposits make up a paltry 8 percent of GDP.

- The central bank rather than banks invariably dominated money creation in Russia in 1991-2003. Figure 4 shows that the proportion of currency in the money stock M2 doubled in the 1990s from 17 to 35 percent and continued to increase in the 2000s. The proportion of deposits declined from 83 percent in 1991 to 64 percent of the money stock in 2003. The ratio of M2 to M0 fell from almost six in 1991 to 2.8 in 2003, that is, more than halved. The implied money multiplier of M2 to the monetary base declined accordingly. This signifies the collapse of money creation by the banking system.

- Non-transaction deposits such as savings and time deposits staggered from 25 percent percent of total deposits denominated in national currency in 1991 and 22 percent in 1992 to 52 percent in 1997 to 32 percent in 1998 to 47 percent in 2003.[61] Except for 1997, the majority of deposits were transaction deposits, primarily demand deposits. Figure 4 shows that in 2003 the share of non-transaction deposits in the money stock M2—investment-ready deposits, as it were—was twice as high in China (58 percent) as in Russia (29 percent). Ironically, on this score Russia ended in 2003 where China started in 1978 when it abolished central planning. In 1978, the fraction of non-transaction deposits in M2 in China stood at 32 percent.[62] This backward comparison corresponds to the finding in figure 3 that the overall ratio of broad money (standing for loanable funds) to GDP in Russia in 2004, slightly under 30 percent, is at the level from which China took off in 1979-80.

- The low demand for deposits underlies financial shallowing in Russia depicted in figures 2 and 3 as the high demand for deposits underlies financial deepening in China. Russian saving found an alternative channel. Russian households hoard foreign currency, primarily dollars, outside of the banking system. Retail trade in foreign exchange makes up banks' major activity and profits. It is impossible to estimate foreign exchange cash balances but it is possible to evaluate their order of magnitude relative to household deposits with the banks. Recent time series of the Central Bank of Russia evaluate net capital outflow by enterprises and households during 1994-2003 as $168.3 billion.[63] Household deposits with the banking system stood in 2004 at R1,075 billion,[64] which is equivalent to $37 billion at the current exchange rate. If any amount greater than 22 percent of the net capital outflow of the last decade is held by households in foreign cash balances (that is, if up

[61] Calculated from IMF, *International Financial Statistics Yearbook 2003*, p. 500, except the data for 1991 derived from national statistics.

[62] IMF, *International Financial Statistics Yearbook 1995*, p. 292.

[63] Central Bank of Russia, *Biulleten Bankovskoi Statistiki* (Bulletin of Banking Statistics), no. 4 (2004), p. 16.

[64] Ibid., p. 89.

to 78 percent of the new capital outflow purchased real and financial assets abroad), Russian households trust the Federal Reserve more than they trust Russia's banking system. Their hedge is prudent. Two devastating defaults of the banking system on the real value of deposits within one decade, in 1992 and 1998, precipitated by fiscal defaults, reveal systemic failure and the inherent serial nature of defaults. Deposit insurance can guarantee nominal, not real (inflation-adjusted) value of deposits. Russian savers collectively know, and reveal in their asset allocating preferences, that what we said about Russia's banking system is consistent with the facts. It does not intermediate and households do not trust it to intermediate, which forms a feedback loop.

- These facts and figure 4 unveil the nature of banking in Russia. In accordance with the low demand for deposits in Russia, figure 4 implies that the money multiplier, the ratio of the money stock M2 to the monetary base printed by the central bank, is systematically low. This multiplier fell from about 5 in 1991 to about 3 in mid-1992 and hovered under or around 2 in 1993-2004.[65] This seemingly obscure technical indicator points to a systemic feature. It shows that the demand for deposits in this system is the technical demand for the volume necessary to make payments. Not only enterprises but also households hold deposits in national currency with the banking system primarily in order to make payments such as rent for municipal housing, condominium fees (which in Russia are on par with subsidized municipal rent), and utilities. Credit for payments matches deposits for payments, and vice versa, both quantitatively and in the nature of the system.

  A persistent money multiplier around 2 indicates that banks chiefly recycle payments by connecting deposits kept for payments with credit for payments. The central bank monetizes the enterprise network subsidy for paying off trade arrears and remitting taxes. Banks transmit monetized loans by adding to enterprise deposits, make payments, and re-deposit payment amounts less currency withdrawn. If little else happens in the banking activity, the resulting multiplier, after monetary subsidy transmission, depositing, re-depositing, meeting reserve requirements, and cash withdrawals, would spin around twofold of the monetary base printed by the central bank. The money multiplier hovering around two in the ratio of M2 to the monetary base over a long period of time is (1) a subtle, or perhaps not so subtle, indicator of this subsidy transmission to the enterprise network in arrears. (2) It also indicates that what follows this subsidy transmission is re-intermediation between payers and payees, both enterprises and households, but primarily enterprises. This is re-intermediation between payers and payees who continuously trade places and, in the case of enterprises, are both depositors and borrowers—in short, re-intermediation

[65] Calculated from national statistics for 1991-92; for 1993-2004, see IMF, *International Financial Statistics Yearbook 2003*, p. 500 and IMF, *International Financial Statistics May 2004*, p. 276. The difficulty in comparing this indicator between China and Russia concerns inclusion of foreign exchange deposits in fractional reserve requirements in Russia after the default of August 1998 but not before that and not in China. This is an unusual but prudential policy of the Central Bank of Russia. It is concerned with potential illiquidity of Russian banks not only on domestic currency but also on foreign policy account, given overexposure of Russia's banking system to foreign exchange contracts under exchange rate volatility.

between payments. This is not financial intermediation, not capital formation, not allocation of capital, but only recycling of the government subsidy.

Two different banking systems arise from these comparisons and from figure 4. China's banks are engaged in investment, financial intermediation, and extensive money creation. Russia's banks are engaged in credit for payments, re-intermediation between payers and payees, primarily between enterprises, and in transmission of the Central Bank monetary subsidy instead of money creation. The sixth line-item and the bottom line in table 2 summarize this stark contrast.

"Of what is past, and passing, and to come"[66]

One little-noticed systemic invention of the Financial Revolution in England in 1688-1756 was the separation of credit from payments. It marked the rise of financial intermediation through the system of deposit money banks, which guided credit to investment in productive assets.[67] Financial markets, through bank and non-bank intermediaries, created impersonal investment pools. Financial depth expanded investment from agricultural (e.g., land and livestock) and trade assets (e.g., vessels and colonial plantations) to capital stock. Thus Europe crossed the bridge from the Commercial Revolution to the Industrial Revolution.

In instrumental terms, one can think of the leap from gold coins and bills of exchange to money created by the banking system, along with stocks and private bonds operated by non-bank intermediaries.[68]

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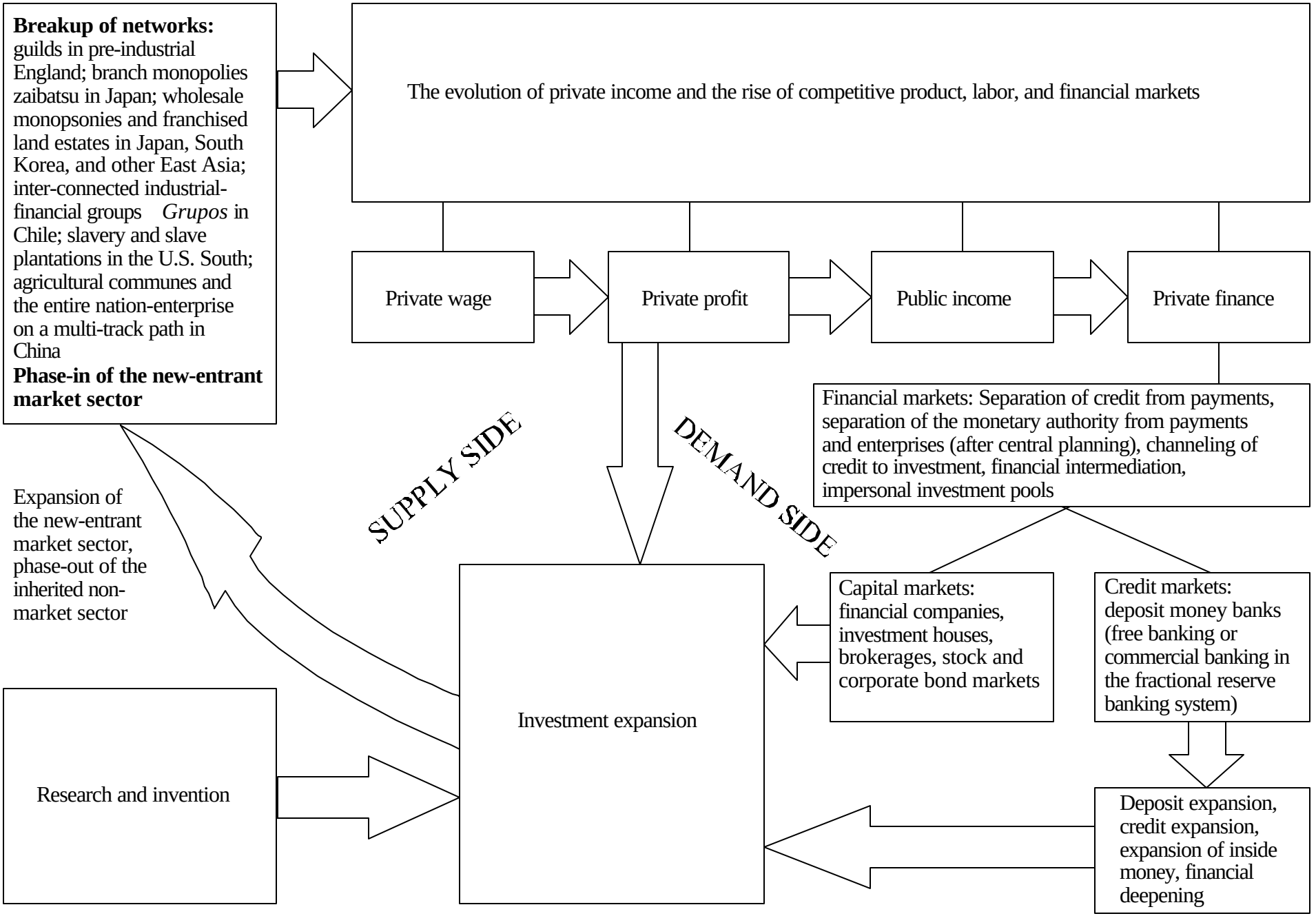
[66]W. B. Yeats, "Sailing to Byzantium."

[67]For a broad treatment, see Peter G.M. Dickson, *The Financial Revolution in England: A Study in the Development of Public Credit, 1688-1756* (London: Macmillan and New York: St. Martin's Press, 1967); Henry Roseveare, *The Financial Revolution, 1660-1760* (London: Longman, 1991); Stephen Quinn, "The Glorious Revolution of 1688" (2003), *EH.Net Encyclopedia*, at http://eh.net/encyclopedia/quinn.revolution.1688.php , and Chapter 4 of *From Predation to Prosperity*.

[68]Frequent debasement testifies to the fact that gold coinage and other metallic specie constituted a technical limit to economic development before the invention of deposit money banking. An increase of production on the supply side due to trade expansion, e.g., in Byzantine in the 11th century and in Venice, Genoa, and the rest of Europe thereafter, led to an increase of transactions on the demand side, which, in turn, for the lack of other options, chipped in currency debasement. But debasement eventually limits, not expands, transactions. This is a negative feedback loop. Continuous wars for resources, which accompanied European-cum-global trade before the rise of domestic production and resource efficiency during the industrial era, also fueled currency debasement. See an account in Costas Kaplanis, "The Debasement of the 'Dollar of the Middle Ages'," *The Journal of Economic History* 63, no. 3 (September 2003): 768-801. Mercantilism, like every economic species, was an end, not a stage. Only the breakup of merchant and trade guilds and the invention of free banking (printing private monies) as an early type of deposit money banking broke out of the above technical limit to the road to financial and industrial expansion. For a discussion of institutional evolution of money and banking, see Milton Friedman and Anna J. Schwartz, "Has Government Any Role in Money," *Journal of Monetary Economics* 17, no.1 (January 1986): 37-62.

Figure 5. A SELF-REINFORCING SYSTEMIC EVOLUTION TOWARDS THE MARKET ECONOMY, WITH THE EMPHASIS ON FINANCIAL ADAPTATIONS



In broad societal terms, European cities transformed themselves from independent centers of specialized wholesale trade and its finance (this non-fiscal origin made them unique in the world and epitomized the Commercial Revolution) to territorial units of the national value-added chain of mass production. Institutionally, this marked a move from the trade and craft guilds and local marketplace to impersonal and competitive product and labor markets. Operationally, the landscape shifted from artisan and putting-out workshops to the mechanized factory. Technologically, the world switched from the windmill to the steam engine.[69] Humankind reinvented itself.

Separation of credit from payments and channeling credit to investment in the process of financial intermediation enabled individual invention to be applied to mass production. Figure 5 summarizes this evolution preceding the Industrial Revolution in England and rapid economic progress in various parts of the world during recent decades, including post-central plan China.[70] On the supply side, market incentives merged the escalated invention and productive investment opportunities. On the demand side, financial intermediation and expansion of money creation by the banking system enabled expansion of productive investment.

Invariably, the initial step was the breakup of inherited networks. After the network breakup, old enterprises were phased out and the new-entrant firms phased-in. The short list of network extirpation includes:

- the breakup of guilds in pre-industrial England;[71]
- the breakup of industrial branch monopolies zaibatsu in Japan after World War II;
- abolition of wholesale monopsonies and franchised land estates with financial privileges during land reform in Japan, South Korea, and other East Asian countries;[72]
- the breakup of inter-connected industrial-financial groups *Grupos* in Chile in 1982-83;[73]

[69]Vertical windmills were invented in Europe in the 12th century but horizontal windmills existed in Persia in the 7th century A.D. and water wheels in ancient Greece. Vertical windmills were the first widespread prime movers (transformers of natural resources into energy). They increased efficiency of food production, which enabled cities to exist, grow, and spread as unique settlements not originating in governmental storage of food and fiscal collection (see Chapter 5, Section A of *From Predation to Prosperity)*. The steam engine constituted the first prime mover which was a generator of energy as an input in other value-added output. This technological revolution enabled industrial specialization.

[70]The upper rows of figure 5 draw on the evolution of private income discussed in Chapter 4 of *From Predation to Prosperity*. The rest of figure 5 incorporates this addendum.

[71]See, e.g., Mancur Olson, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (Hew Haven and London: Yale University Press, 1982), pp. 121-129, 147-150.

[72]Rene Dumont with Marcel Mazoyer, *Socialisms and Development* (London: Andre Deutsch, 1973).

[73]See George A. Akerlof and Paul M. Romer, "Looting: The Economic Underworld of Bankruptcy for Profit," *Brookings Papers on Economic Activity*, no. 2 (1993), pp. 18-23, 59; James Tybout, "A Firm Level Chronicle of Financial

- abolition of slavery and the phase-out of plantations in the U.S. South;[74] and
- the breakup of agricultural communes and of the entire nation-enterprise on a multi-track path in post-Communist China.

Adaptation of the financial system followed. Separation of credit from payments and channeling credit to investment through financial intermediation, which integrates deposits with investment, can be viewed as a universal necessary condition for a market economy. This is a simple empirical rule readily refutable by counter-examples. In addition, in post-central plan economies, separation of the monetary authority from payments and from enterprises stands as a necessary condition for a market economy. This empirical premise also can be repudiated by evidence to the contrary.

As this addendum laid out, China went through all adaptations depicted in figure 5, one by one, deliberately and thoroughly. Russia had none of them. In the process, China created a multi-track economy with the predominant market sector which is relatively or largely non-free from government restriction—in short, an illiberal market economy. Russia created a free non-market economy, liberal socialism. Russia will need to undergo the evolution that England underwent in the 1700s and China in the 1980s-2000s if it is to move from Enterprise Network Socialism to a market economy.

Judging by economic performance, global experience has shown that free market economies invariably work best. The Soviet Union, Nazi Germany, Communist Eastern Europe, and Communist China demonstrated that socialism can work only if superimposed with forced production under central planning. But its performance is vastly inferior to free markets and functions only for a transient period of time. Over the long run, (1) all market economies outperform all socialist economies, *but* (2) central planning outperforms a less governmental socialism in historical and developing economies.[75] It is an empirical law, newly reinforced by Russian experience, that less statist and non-state species of socialism perform worse than total state socialism of industrial central planning. Forced production under central planning partly substitutes for the missing productive incentives of the market.

Apart from non-systemic—institutional or policy—failures exemplified by the Great Depression, there has been no exception to the law that free markets beget long-term prosperity. There is considerable

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Crises in the Southern Cone," *Journal of Development Economics* 24, no. 6 (December 1986): 371-400; and, Raphael Bergoeing, Patrick J. Kehoe, Timothy J. Kehoe, and Raimundo Soto, "A Decade Lost and Found: Mexico and Chile in the 1980s," *Review of Economic Dynamics* 5, no. 1 (January 2002): 166-205.

[74]For the importance of the legacy of plantations in Latin American falling behind the North America, see Kenneth L. Sokoloff and Stanley L. Engerman, "Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic Perspectives* 14, no. 3 (Summer 2000): 217-232.

[75]William J. Baumol, "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show," *American Economic Review* 76, no. 5 (December 1986): 1072-1085, especially a telling empirical diagram on p. 1080.

uneasiness, though, lack of clarity, perhaps even reluctance to confront the question as to which part of this conjunction of free markets works: Is this that markets are free? Or that this is a market economy as opposed to socialism defined as income redistribution? Or, are both components of free markets inseparable and work only in tandem?

Russian and China contribute new experience and a sharp systemic contrast to address these questions. Judging by their economic performance since the abolition of central planning, an illiberal market economy in China works, whereas liberal socialism in Russia does not. Non-free markets generate long-term economic growth on the path to prosperity on par with free market economies and liberalize thereafter. Free non-markets beget economic failure. These are all forever-testable propositions. They are measurable, verifiable, and falsifiable by past, current, and future evidence across world economies.