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**CHINA'S INVESTMENT RECORD AND ITS FISCAL  
STIMULUS PACKAGE**

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## **Executive Summary**

1. Investment has been a major contributor to China's sustained economic growth. Between 1981 and 2007, investment grew by an average of 21% year.
2. The first wave of the investment boom took place immediately after the adoption of the economic reform programme in the early 1980s, as liberalisation policies led to a rapid expansion in township and village enterprises (TVEs).
4. The second wave was triggered by the "Southern Tour" of former leader Deng Xiaoping in 1992, while the third wave occurred with China's accession into the WTO in 2001.
5. China has accumulated the largest foreign reserves in the world. It has also undertaken capital-intensive projects such as the Three Gorges Dam (costing about \$200 billion) and hundreds of other infrastructural projects.
6. Gross capital formation (GKF) as a proportion of China's GDP has maintained a robustly high level. The overall average in 1978-2007 was 37.5% as China's real GDP per capita rose from just under US\$200 to about US\$2,000.
7. Compared with other economies at a similar stage of development, investment in China has been much more. The ratio of investment to incremental GDP in 1978-2007 averaged about 36%.
8. Whether such investment was utilized efficiently can be examined through a parametric efficiency measurement approach, Stochastic Frontier Analysis (SFA), which grants 1, or 100% for the fully efficient observations. The result showed that the overall weighted mean level of capital efficiency of China is about 66%.

9. This implies considerable scope for further improvement in the performance of China's investment. In general, the coastal regions are the most efficient, with a mean score of 71% -- 12% and 28% higher than the central and western regions.
10. In general, infrastructure development, economic reform and participation of foreign investment have positively affected the performance of capital.
11. China's heavily investment-dependent growth model has resulted in major problems, including weak domestic consumption and a heavy dependence on exports, which makes it extremely vulnerable to an international economic slowdown.
12. Responding to the present global economic downturn beginning in 2008, Beijing has again resorted to vigorous fiscal stimulus methods, notably with a RMB 4 trillion stimulus package.
13. Given China's performance record, the emphasis on infrastructure may be helpful for longer-term growth, while investments in the fledgling healthcare and pension systems might help boost domestic consumption.
14. Such effects may however take a few years to realise. In the short term, large capital flows channelled through government institutions may lead to corruption, while the fund inflows in low capital-efficiency regions may result in waste.
15. With local governments competing to propose major projects to secure central government's funding, serious institutional reforms must be undertaken in order for these investments to achieve their intended economic outcomes.

## **China's Investment Record and Its Fiscal Stimulus Package**

Yanrui Wu, Zhengxu Wang and Dan Luo\*

### **China's Investment: How Efficient?**

- 1.1 China is now the world's third largest economy, after the size of its gross domestic product (GDP) surpassed that of Germany in 2007.<sup>1</sup> Its economic growth over the last 30 years has largely been achieved through heavy investments made possible by huge domestic savings and foreign direct investment (FDI). This makes China a unique case among developing economies which in general are often handicapped by a shortage of investment capital.
- 1.2 China's investment record has been exceptional. During the last 30 years, three waves of investment can be observed. The first started immediately after China's adoption of the economic reform programme in the early 1980s when investment of rural surplus funds boosted development of township and village enterprises (TVEs). The second wave was triggered by the "Southern Tour" of former Chinese leader Deng Xiaoping in 1992. The most recent wave of investment occurred with China's ascension into the World Trade Organization (WTO) in November 2001.
- 1.3 While China's economic model has successfully boosted growth, its heavy reliance on investment is a cause of several major problems. The most serious are weak domestic consumption and the heavy dependence on exports, which results in the economy's extreme vulnerability to an international economic slowdown, as the world has witnessed since 2008. To ensure sustainable growth, China needs to boost domestic consumption. Policymakers in Beijing have been seeking to shift the main driver of

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<sup>1</sup> Ariana Eunjung Cha (2009) "China passes Germany with 3rd-highest GDP", Washington Post Foreign Service Thursday, January 15, 2009; Page A16, Available at: <http://www.washingtonpost.com/wp-dyn/content/article/2009/01/14/AR2009011401456.html>.

economic growth from external demand to domestic demand although their efforts have so far seen very limited results.

- 1.4 More importantly, China's investment seems to vary greatly in terms of capital efficiency. Data from 1993 to 2006 show the coastal regions demonstrating much higher capital efficiencies (with a mean score of 71%) than central and western regions (whose mean efficiency scores are 59% and 43% respectively). The overall weighted mean rate of capital efficiency for China is about 66%, indicating considerable scope for further improvement.
- 1.5 Several factors are responsible for regional disparities in capital performance. In general, infrastructure development, economic reform and participation of foreign investment have positively affected the performance of capital. Thus, improvements in these areas have the potential to narrow the efficiency gap between regions, especially between the coastal and western areas. In the meantime, economic openness and production technology are not explicitly related to regional capital performance.
- 1.6 Responding to the current global economic downturn that has also affected China since 2008, Beijing has again resorted to vigorous fiscal stimulus methods. In the later half of 2008, the government cut the interest rate on three consecutive occasions, scrapped quotas for bank lending and unveiled measures to help homebuyers and exporters. On 9 November 2008, it further unveiled a RMB 4 trillion stimulus package focused on financing a wide range of social welfare and infrastructure projects over the next two years.
- 1.7 The record sum of RMB 4 trillion is large by any measure. It amounts to about 16% of China's GDP in 2007 and a third of its fixed-asset investment last year, and is also roughly equivalent to the total of all central and local government spending in 2006.<sup>2</sup> Substantial emphasis was put on upgrading China's infrastructure, such as building high-speed railways. There is a strong focus on improving the living standards of disadvantaged groups such as rural and minority people through the building of social security and social welfare systems.

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<sup>2</sup> Andrew Batson (2008), "China sets big stimulus plan in bid to jump-start growth", *Wall Street Journal (Eastern edition)*, Nov 10, pg. A.1.

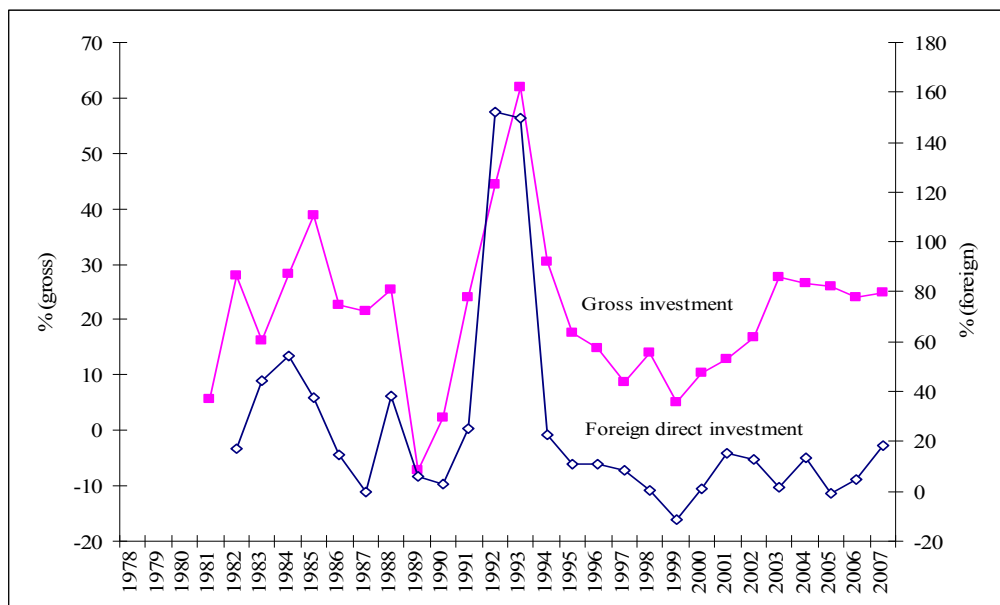
- 1.8 Although it will take two to three years to see the full effects of this package based on analysis presented in this paper, some of the emphases of this package might have been misplaced. Focusing on infrastructure may be helpful for longer-term growth only. Investing in China's fledgling healthcare and pension systems might boost domestic consumption, as increased social security would reduce people's tendency to save. But such an effect may also take a few years to actualise.
- 1.9 In the short term, large capital flows channelled through government institutions may lead to corruption, while fund inflows in low capital-efficiency regions may result in wastes. Within one month of the plan's release, more than RMB 10 trillion worth of investment proposals have been drawn up by provincial governments, far exceeding the central government's initial programme. The flood of these ambitious proposals has raised the need for stricter regulations to ensure the effectiveness of fund utilisation. Serious institutional reforms must be undertaken in order for the investment to achieve intended economic outcomes.

### **Investing for Growth**

- 2.1 While less developed economies have often been hampered by a shortage of funds in the course of economic development, China seems to be an exception. Within three decades, China has accumulated the largest foreign reserves in the world, and undertaken many ambitious capital-intensive projects such as the Three Gorges Dam (costing about \$200 billion), the Hangzhou Bay Bridge (spanning about 36km across the sea) and the extravagant Beijing Olympic Games. The appearance of many new highways and buildings across the nation gives the impression that the country is flooded with money.
- 2.2 In order to promote economic growth, China has invested substantially over the past few decades. Figure 1 demonstrates that, with an average rate of growth of 21.2% in the period of 1981-2007, investment has undergone several waves of rapid growth.

2.3 The first wave of growth took place immediately after the adoption of the economic reform programme in the early 1980s. Liberalisation policies boosted rural growth and income and hence led to a boom in township and village enterprises (TVEs) due to investment of rural surplus funds. In the meantime, foreign direct investment (FDI) increased rapidly, though from a low basis (Figure 1). According to official records, China’s FDI totalled about US\$1.8 billion from 1979-1982, reaching US\$1.4 billion in 1984 and US\$2 billion in 1985 (National Bureau of Statistics 2008).

**Figure 1 - Growth Rates of Gross Investment in Fixed Assets and FDI**



**Source:** National Bureau of Statistics (2004, 2007).

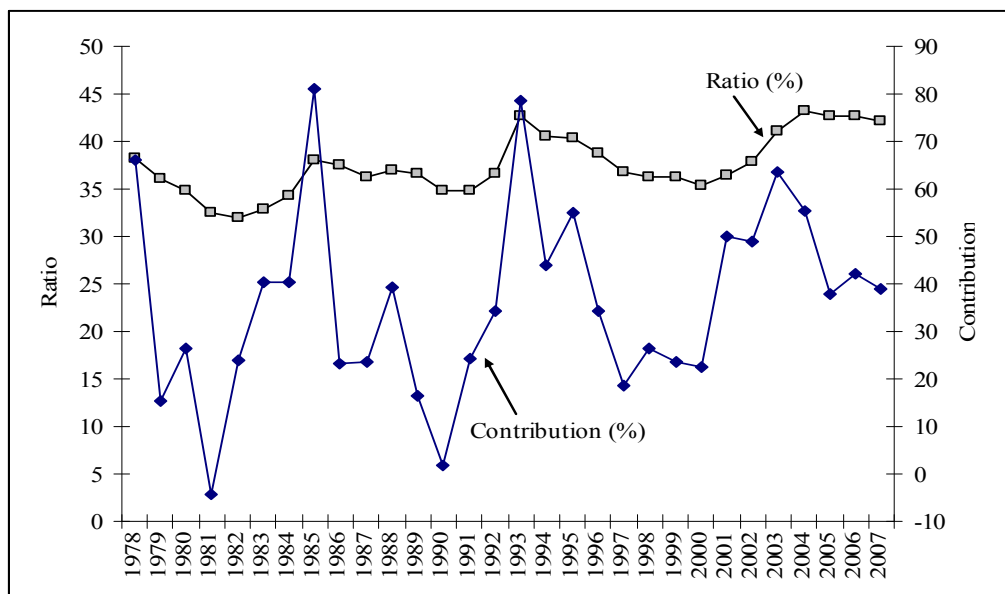
2.4 The second wave of investment was triggered by the “Southern Tour” of former Chinese leader Deng Xiaoping in 1992. During his tour of southern China, Deng encouraged more economic openness and introduced more radical reform policies. The consequence was a surge in both domestic and foreign investment in 1992-1993, as shown in Figure 1.

2.5 The most recent wave of investment occurred with China’s ascension into the WTO in November 2001. Since then, both domestic and foreign direct investments have maintained strong growth. This investment wave was also

spurred by China's launch of the western development programme in 1999 and preparation for the 2008 Olympic Games in Beijing.

2.6 Due to continued growth in investment, gross capital formation (GKF) as a proportion of China's GDP has remained at a robustly high level since 1978 when economic reform was initiated. The overall average in the period 1978-2007 is 37.5% according to Figure 2. In the same period, China's real GDP per capita rose from just under US\$200 to about US\$2,000.

**Figure 2 - Gross Capital Formation over GDP (%), 1978-2007**



**Source:** National Bureau of Statistics (2008).

2.7 At a similar income level, gross capital formation as a share of GDP amounted to 35.8% in Japan (1961-1970), 29.0% in South Korea (1969-1983), 21.4% in Brazil (1962-1979) and 29.5% in Thailand (1970-1992).<sup>3</sup> By comparison then, China has invested more than any other economies at a similar stage of development. In the meantime, though extremely volatile, incremental investment as a share of incremental GDP in 1978-2007 averaged about 36% according to Figure 2. However, whether the funds had been used effectively remains uncertain.

<sup>3</sup>These numbers are calculated using data from the World Development Indicators online database: [www.worldbank.org](http://www.worldbank.org).

## **Capital Efficiency and the Regional Investment**

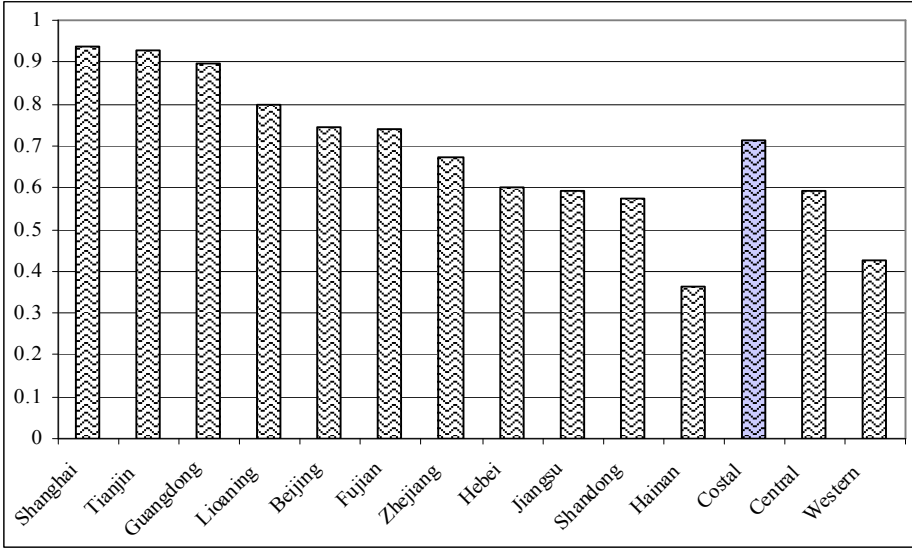
- 3.1 Despite considerable variations, investment is high among all Chinese provinces. In general, the investment ratio is high in regions which are less export-oriented and hence experience net imports. They are mainly located in western China, which has also enjoyed an investment boom due to the central government's western development programme since 1999.<sup>4</sup>
- 3.2 In order to measure the performance of fund utilization in Chinese regions, this paper adopts the stochastic frontier production function (SFPF) and employs the panel data of China's thirty-one administrative regions in the period of 1993-2006. It had been found that efficiency performance varies substantially across regions (Figure 3-5). In general, coastal regions have been more efficient (with a mean score of 71%) than their central and western counterparts (where mean efficiency scores of 59% and 43% respectively are recorded). The overall weighted mean rate of capital efficiency for China is about 66%<sup>5</sup>, implying considerable scope for further improvement.

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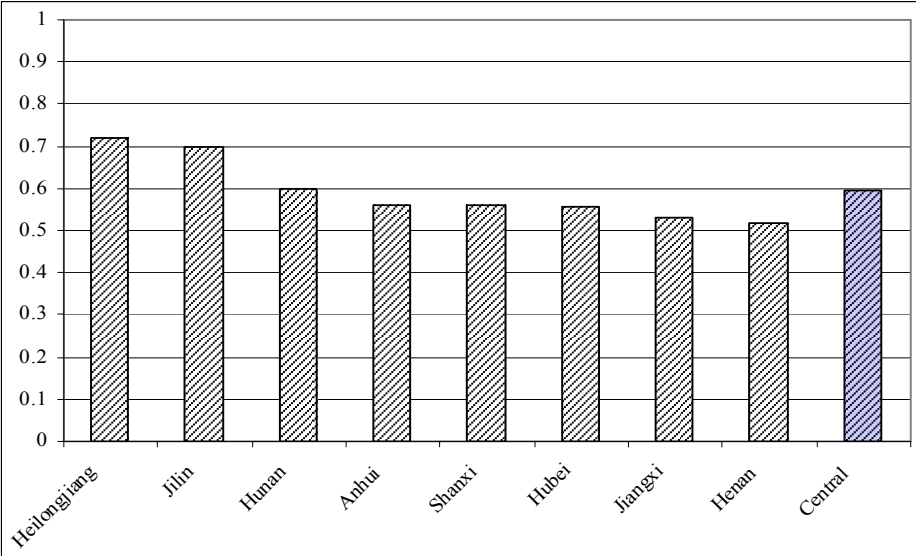
<sup>4</sup> China's western development or "go-west" programme was initiated in 1999 and covers five autonomous regions (Guangxi, Inner Mongolia, Ningxia, Tibet, and Xinjiang), six provinces (Gansu, Guizhou, Yunnan, Qinghai, Shaanxi, and Sichuan) and one autonomous municipality (Chongqing). This classification is slightly different from the traditional, official grouping according to which Guangxi belongs to the coastal region while Inner Mongolia is a middle or central region.

<sup>5</sup> The weights are regional shares of capital stock in 2006.

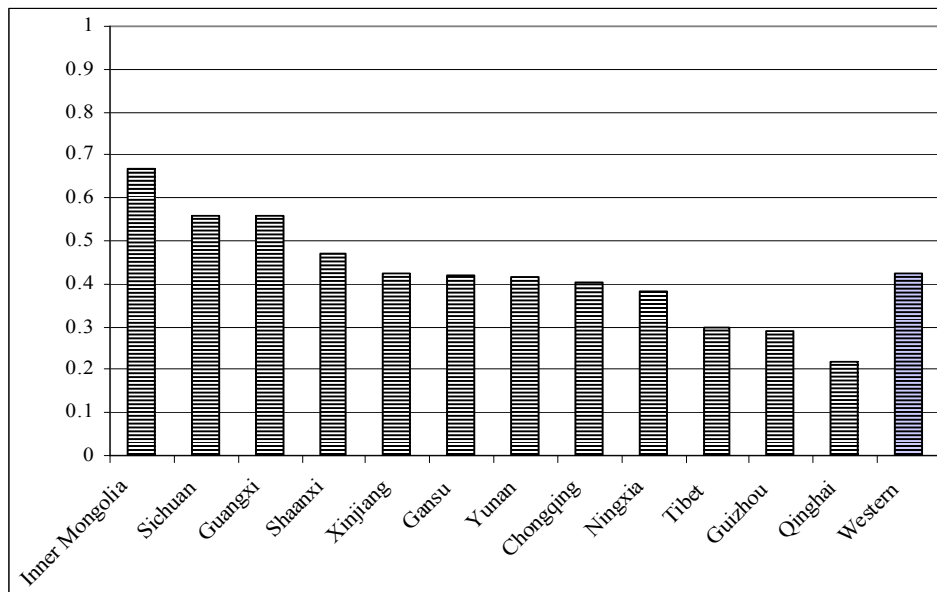
**Figure 3 - Mean Scores of Capital Efficiency (Costal Provinces)**



**Figure 4 - Mean Scores of Capital Efficiency (Central Provinces)**



**Figure 5 - Mean Scores of Capital Efficiency (Western Provinces)**



- 3.3 This result is consistent with the findings of other studies. For example, Qin and Song<sup>6</sup> found that coastal regions are generally more efficient than western regions in terms of "capital productivity." In recent years, more funds have been allocated to western regions due to the western development programme. Therefore, drastic policy changes may be necessary to improve investment efficiency in these regions.
- 3.4 In analyzing the determinants of capital efficiency, we found that it is positively related to the level of infrastructure development, degree of economic reforms and FDI participation. Better infrastructure help reduce the cost and time of business transactions, hence contributing to higher returns to capital.
- 3.5 Institutional reform is also critical in improving capital efficiency. Our analyses indicate that the private sector as a proportion of the overall economy is positively related to capital efficiency. This suggests that the private firms are more efficient than the public sector or state-owned enterprises (SOEs), probably due to their stronger abilities to generate internal finance and raise

<sup>6</sup> Qin, D. and H. Y. Song (2007), "Sources of investment inefficiency: The case of fixed-asset investment in China", Working Paper No.584, Department of Economics, Queen Mary University of London.

funds from informal channels. Privatising state firms and creating a supportive environment for private business should therefore continue to be a focus for China's institutional reform.

- 3.6 Finally, technology level as measured by the capital to labor ratio generates a negative but insignificant effect on the efficiency level. Investing heavily in capital-intensive projects in China may not result in higher efficiency. Guangdong, for example, is the most export-oriented regional economy in China, yet it has achieved relatively high investment efficiency despite having a capital-labor ratio of 1.943 in 2006, well below the national average of 3.357.

### **China's Economic Stimulus Package**

- 4.1 In November 2008, China unveiled a massive fiscal stimulus package worth RMB 4 trillion (US\$586 billion). Four trillion is a large number, amounting to 16% of China's GDP in 2007. At a time of global financial crisis and economic slowdown at home, this announced package signals the Chinese government's continued belief in boosting economic development via heavy investment. In the two months that followed (November and December 2008), the Central Government announced an additional RMB 100 billions of investment.<sup>7</sup>
- 4.2 The analysis of China's past investment record in this paper provides a preliminary assessment of this huge fiscal stimulus plan. The targets of this stimulus plan include transport and power infrastructure (railroads, roads, airports, and power grids), reconstruction of the earthquake-hit region Sichuan, rural infrastructure, environmental investment and natural areas, affordable housing, technological innovation, health and education.
- 4.3 The new package puts substantial focus on railway investment. Over the next two years, a previous RMB 300-billion railway expansion plan will be expanded to RMB 500 billion. The centrepiece will be a new high-speed

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<sup>7</sup> National Development and Reform Commission (2008), "Jinnian xinceng 1000 yiyuan zhongyang touzi jihua yi quanbu xiada" [This year's 100 billion RMB increment to the central investment plan has already been fully promulgated], 18 December, Available at: [http://www.ndrc.gov.cn/xwzx/xwt/t20081218\\_252365.htm](http://www.ndrc.gov.cn/xwzx/xwt/t20081218_252365.htm).

- passenger line running from Beijing through central cities to Guangzhou.<sup>8</sup> In addition, rural and minority interests have been taken into account in the new fiscal package. By developing a better social welfare system and safety net for disadvantaged groups, domestic consumption might be boosted.
- 4.4 China's past investment record shows that infrastructure development can positively affect the performance of capital. By emphasising railway and other infrastructure developments, this current stimulus package has the potential to narrow the efficiency gap between the regions, especially between coastal and western areas. Focusing on rural infrastructure may have similar effects. But recipients of these funds will mostly be in western and inland areas, which in the past have had low capital performance. In this regard, the investment on rural infrastructure might turn out to be wasteful, although it may help create employment opportunities.
- 4.5 Overall, China's western development programme has diverted funds towards its western regions. The latter should adopt policies focusing on improving capital efficiency. Investing in China's fledgling healthcare and pension systems might help boost domestic consumption, as enhanced security will reduce the people's tendency to save. Investment in affordable housing in the cities may create jobs, while at the same time release a fraction of the purchasing power of urban residents who have so far been prevented from housing ownership due to high real estate prices. But all these effects may take a few years to realise.
- 4.6 In the short term, large capital flows channelled through government institutions may lead to corruption, and the huge fund inflows in low-capital-efficiency regions may result in waste. Within one month of the plan's release, more than RMB 10 trillion investment proposals had been drawn up by provincial governments, far exceeding the central government's initial programme. This has raised the need for tighter regulations to ensure the effectiveness of fund utilisation. Serious institutional reforms must be

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<sup>8</sup> David Dollar (2008), "China's stimulus plan also aims to improve quality of life", China Daily, Nov 12, Available at: <http://eapblog.worldbank.org/content/chinas-stimulus-plan-also-aims-to-improve-quality-of-life>.

undertaken in order for the investment to achieve its intended economic outcome.