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Investment
Management

**China in 2012:
Seeing the Forest
for the Trees**

Introduction

As the driving force of global growth, China represents the key concern for the global economy. China is the biggest risk because not only is it the most debated, but it also has become the driver of global growth. If growth expectations for China are unsustainable, negative consequences for growth in the rest of the world may be severe and enduring.

Anxiety over China's growth prospects relates to perceptions of overinvestment in general and in real estate, in particular. Further, the argument goes, much of this excessive investment has been undertaken on credit—corporate, household, and government. Hence, a rapid accumulation of debt in China's banking system is a ticking time bomb. Without disputing the excessive buildup, some argue that China's political leadership values economic stability and has enough means to ensure such an outcome.

The development challenges facing China are real. Transitioning investment away from transport infrastructure and real estate construction toward mechanized industry capable of producing high-value-added products without exhausting global resources, to say nothing of the accompanying changes in the country's financial markets and social infrastructure, is unlikely to be smooth. While many observers are debating the likelihood

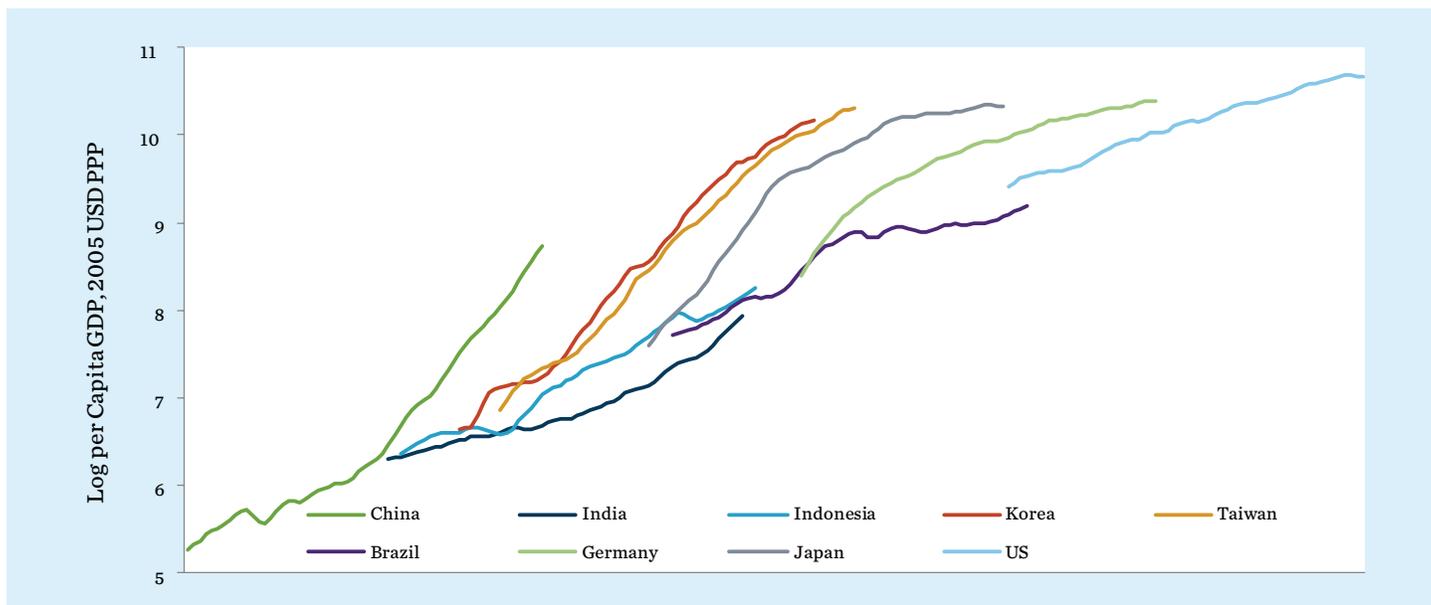
of imminent government actions, the direction and scope of the next round of reforms are crystallizing, and many are already being implemented.

China has grown at or near double-digit rates for three decades. Whether for bulls or bears, the central questions are, when should we expect growth to moderate and how sharp of a slowdown is likely? What follows is our attempt to quantify China's growth prospects in the current decade. We conclude that China is not overinvested; this analysis is presented in section 2. Similarly, China's housing stock construction is far from complete, as shown in section 3. We conclude with a discussion of the government's emerging reform agenda to unlock the scope for further sustainable growth and address the real concerns of over-indebtedness and intensifying demographic headwinds.

1. China's Growth Is Set to Moderate

Chart 1 shows GDP/capita, expressed in logarithmic form—known as the S-Curve in economic development literature—for a select group of countries over a 60-year period, 1950-2010. The slope of an individual curve corresponds to a country's growth rate. China's growth trajectory parallels those of Korea, Taiwan, and Japan.

Chart 1: Real GDP/Capita Growth, 1950-2010



Sources: World Bank, World Development Indicators Database, 2010; author's calculations

When comparing absolute levels of real GDP/capita, the Four Asian Tigers' growth trajectory suggests the midpoint of the current decade for China's slowdown. Using GDP/capita as a proxy of China's distance from technology frontier economies, such as the United States and Germany, indicates that China's growth may remain strong to the end of the current decade. Furthermore, the results presented in table 1 suggest that a slowdown in the fast-growing Asian economies occurred at vastly different points in their economic development. Inherently, several decades of rapid growth do not precipitate a slowdown.

Demographic developments in China also point to slowing growth. Chart 2 shows that China's population bonus—defined as a ratio of working-age population to dependents—will peak in the next couple of years. Demographic changes are both the result of rapid development and cause for slowdown. Opportunities outside subsistence agriculture in effect postpone childbearing and reduce fertility rates. Over time, lower fertility rates mean fewer adult workers, especially relative to the older cohort, contributing to the decline in population bonus. Improvements in nutrition and living standards further contribute to an increase in the older population as a share of the total population.

In China, the relationship between demographic changes and GDP growth changes over time, as shown in chart 3. In the 1970s, a rapidly growing population bonus did not lift GDP growth. However, an increase in the late 1990s through the middle of the last decade appears to have pushed GDP growth higher. China's own experience suggests that demographic changes will lead to slower growth over the current decade, but also that there is more to growth than favorable demographics.

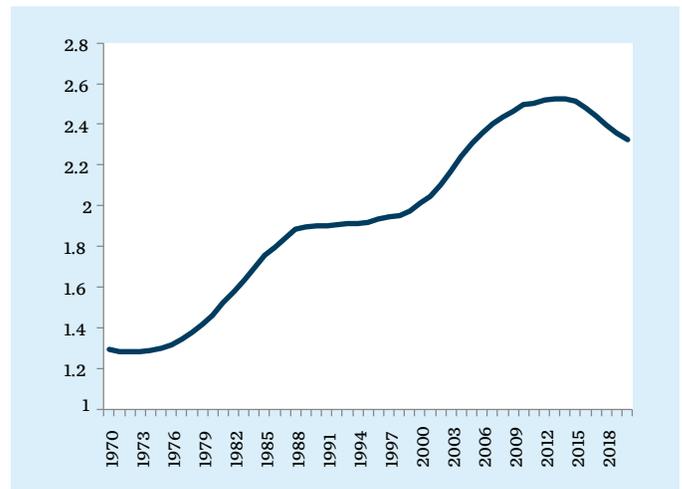
Ultimately, GDP growth is the sum of two factors: labor input and productivity gains. Table 2 details China's GDP growth since the beginning of its remarkable transformation in the early 1980s. Labor input is a function of not only the working-age population (total potential pool of workers), but also average hours worked and employment rate, or those actually engaged in productive employment. Changes in these three variables add up to the total change in labor input.

Table 1: When China's Growth Is Likely to Slow

	GDP/ CAPITA	YEAR SLOWDOWN COMMENCED	GDP/CAPITA AS % OF OECD	
			Germany	U.S.
Japan	13K	1971	80	61
Taiwan	13K	1990	53	40
Korea	10K	1989	42	32
China 2010	6.8K			

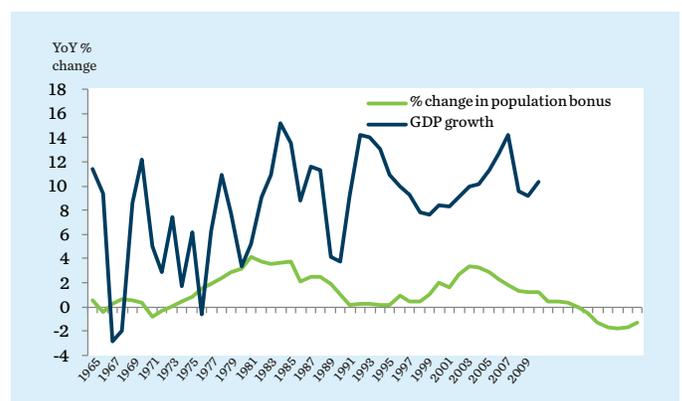
Sources: Maddison, *Historical Statistics of the World Economy*, IMF World Economic Outlook database, April 2011, author's calculations

Chart 2: Population Bonus



Sources: CEIC and UN Population Projections, October 2011

Chart 3: GDP Growth and Population Changes



Sources: CEIC and U.S. Census Bureau

Table 2: GDP Growth Decomposition

	GDP	PRODUCTIVITY	LABOR INPUT	EMPLOYMENT RATE	WORKING AGE POPULATION	AVERAGE HOURS
1980-1984	10.2	4.8	5.4	0.4	2.9	2.2
1985-1989	8.9	4.1	4.8	0.4	2.2	2.2
1990-1994	12.6	8.7	3.9	-0.3	1.3	2.9
1995-1999	9.1	5.0	4.1	-0.1	1.3	2.9
2000-2004	9.7	6.7	2.9	-0.5	1.6	1.9
2005-2009	10.7	8.4	2.3	-0.4	1.0	1.6
2010-2014	8.4	7.0	1.4	-0.5	0.4	1.5
2015-2019	6.0	6.0	0.0	-0.7	-0.3	1.0

Sources: Penn World Table, 6.3; FactSet; U.S. Census Bureau; National Bureau of Statistics; author’s calculations

Any GDP growth that cannot be accounted for by changes in labor input must come from productivity advances. In theory, economists distinguish among labor productivity, capital productivity, and efficiency gains from combining capital and labor, known as total factor productivity, or TFP. In practice, these concepts cannot be measured accurately or timely. For this reason, we will focus on overall productivity gains, regardless of how they originate.

Table 2 summarizes China’s economic performance over the past three decades. In the early stages of transition, both demographics and productivity gains contributed evenly to China’s advancements. Gradually, demographic tailwinds have been fading: in the last decade, labor input contributed about one-third to overall growth, while productivity gains became the driver of overall growth. By the end of the current decade, demographic tailwinds will turn to headwinds, as the working-age population will begin to decline. However, there is more to labor input than favorable demographics: how labor is utilized, i.e., how many hours people work and employment rate are at least as important.

As table 2 makes clear, our projections of future structural growth in China assume continued rapid productivity gains—on the order of 6% per year on average by the end of the decade. The scope for further productivity gains is far from exhausted: at the end of 2011, nearly 35% of population was employed in the traditional agricultural sector, compared with 5% typical for advanced economies. Growth projections for the current decade assume steady reforms and no major shocks, i.e., they relate to the underlying structural growth rate and do not incorporate

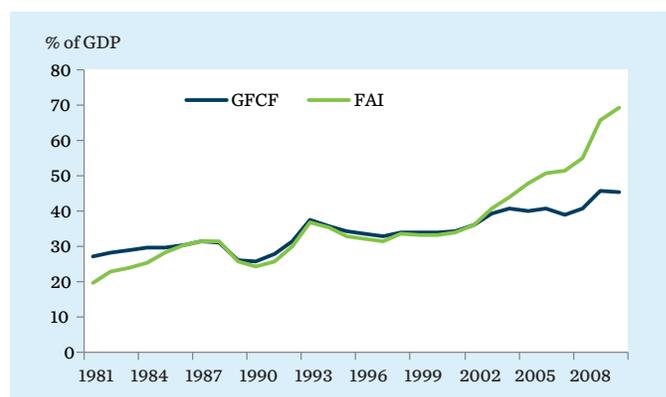
cyclical factors that will obviously affect quarterly and annual outcomes.

2. China Is Not Overinvested

The question of excessive investment is at the heart of the issue of sustainability of China’s growth. The question of overinvestment relates to the size of a country’s capital stock relative to its GDP. Excessive investment usually manifests itself in a sustained rise of a country’s capital stock relative to its GDP, suggesting that ever-more investment generates the same amount of economic growth, or income.

High-frequency economic data series, such as the monthly Fixed Asset Investment, or FAI, reached 69% of China’s GDP in the final quarter of 2011. Not only is it exceptionally high, but it is rising quite rapidly. This is the main support for those who argue that China is in the final stages of a massive investment bubble. Yet monthly FAI data overstate actual investment in China, because this series excludes the appropriate discount for land prices, which do not add to the

Chart 4: Fixed Asset Investment and Gross Fixed Capital Formation Are Diverging

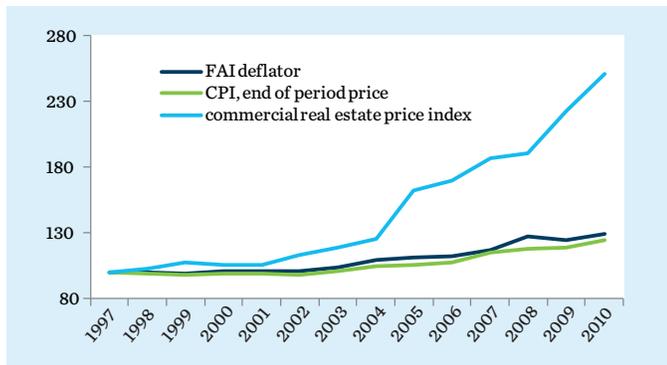


Sources: CEIC, Maddison, IMF WEO database, own calculations

country's capital stock but have risen rapidly since the real estate market was liberalized in the early 2000s.

Investment can be divided into three categories: infrastructure, machinery and equipment, and real estate. The FAI measure includes so-called “land transaction costs” (i.e., land prices in China speak); however, investment—measured as gross fixed capital formation in national accounts—does not. Land prices have been rising rapidly in China since it created a real estate market in the early 2000s, and indeed that is exactly when the two measures of investment began to diverge, as chart 4 shows. Furthermore, real estate construction has grown as a share of overall investment, compounding the problem of overstating actual investment. Chart 5 highlights the different price indices used to adjust the investment series, and offers support that land prices are not reflected accurately in the FAI calculation.

Chart 5: FAI Price Index Does Not Account for Rapid Real Estate Price Appreciation

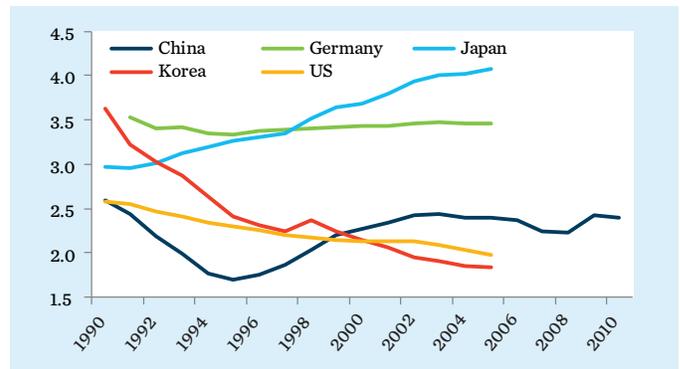


Source: CEIC

China publishes figures for gross fixed capital formation as part of its national accounts, but only on an annual basis, so they receive little notice by the markets in comparison to the FAI measure, which is published monthly.

Using a properly adjusted measure of investment, it is possible to approximate the size of China's capital stock and relate it to GDP. China's capital-stock-to-GDP ratio is shown in chart 6. This ratio is remarkably stable over time, suggesting that at the country level, there is little to no evidence of deterioration in efficiency of investment. China's capital-to-output ratio is also broadly in line with

Chart 6: Capital-Output Ratio Is Stable

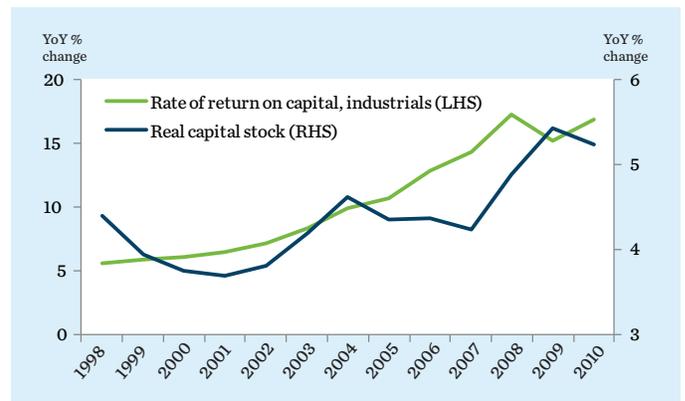


Sources: CEIC, Maddison, IMF WEO database, own calculations

international norms, although this ratio is quite country-specific, and cross-country comparison is of little value.

Chart 7 shows that return on capital among industrial firms is rising in line with capital stock, suggesting that gains from incremental investment are not diminishing. It declined slightly during the massive investment push of 2009-2010, but recovered last year.

Chart 7: Return on Capital Is Increasing in Line With Capital Stock



Sources: CEIC, Maddison, IMF WEO database, own calculations

We now examine China's investment and its efficiency from the perspective of individual companies. Comparing companies' pretax return on capital employed—calculated as operating income/(debt + equity)—to domestic interest rates has the following rationale. Although the cost of capital is elusive, it is bounded below by the cost of debt: if a

firm cannot earn at least the local currency interest rate on its total capital, it must be destroying value.

So, return on capital employed (ROCE) less local interest rate is a rough proxy for whether economic value is likely being destroyed. This analysis illuminated what seemed puzzling at the time: the East Asian financial crisis of 1997-1998 was most severe in the countries that had been growing most rapidly. Results presented in table 3 suggest that this growth in the five years preceding the crisis was in fact value-destroying in aggregate. By this measure, Chinese industrials and publicly traded companies generated positive economic value, despite large investments, every year since 2000.

Table 3: ROCE-Lending Rate, Percent

	1992	1993	1994	1995	1996	AVERAGE
Philippines	-13	-8	-8	-7	-10	-9
Indonesia	-12	-10	-7	-8	-9	-9
Thailand	-9	-9	-7	-8	-7	-8
Korea	-3	-3	-1	0	-1	-2

Source: Pomerleano, M., "The East Asian Crisis and Corporate Finances: The Untold Micro Story," 1998.

To summarize, neither the size of China's capital stock relative to its GDP nor corporate earnings, adjusted for capital employed, suggests a systemwide overinvestment at this point.

3. China's Housing Market

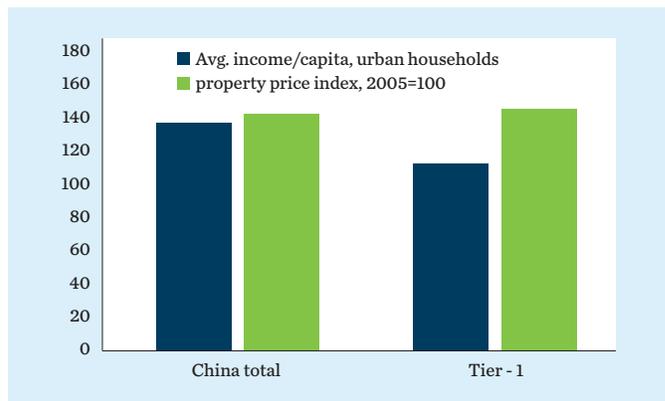
China's real estate market is immature, heavily influenced by government policy, and prone to high price volatility. At the same time, the country's stock of residential housing is far from complete. We estimate that at the end of 2011, China had more than 70 million urban households without proper housing, as annual commercial housing supply began to outstrip incremental demand only in the last few years. Our estimates of sustainable annual demand for housing in China are broadly in line with last year's supply of urban housing. China still needs a decade or longer to build up its stock of residential housing.

A Word on Affordability

Traditional measures of housing affordability do not apply in China context, and cross-country comparisons are of limited value. One of the most widely used measures of whether real estate prices are rising too rapidly or are too high is the price-to-income ratio. In the OECD, it is typically about 4-5, meaning that real estate prices are 4 times average incomes. In China, this measure has been in the double digits for as long as anyone tried to measure it.

In the late 1990s, China created its residential real estate market by transferring more than one-third of its entire housing stock to households in what amounted to the largest one-time wealth transfer in modern history. To be sure, these were old and often rundown apartments, but they were usually large and in prime locations. At a national level, government subsidies have been the single biggest driver of home ownership since mass privatization. By the end of the last decade, nearly 60% of urbanites owned or rented housing units acquired from public sector entities at below-market prices and still more have upgraded to apartments financed by the sale of properties bought at a subsidized price. To this day, state-owned enterprises (SOEs) continue to build and distribute housing units to their employees at below-market prices. This store of wealth largely explains the persistent, gravity-defying price/income ratios across China.

Chart 8: Affordability Is Not Deteriorating



Sources: CEIC; author's calculations

Chart 8 highlights that nationwide affordability has not deteriorated over the past several years. Since 2005, growth in incomes has broadly kept pace with property price appreciation. Tier-1 cities are the exception; property prices increased by nearly 50% since 2005, while average incomes grew by less than 15%. Double-digit earnings growth provides ample scope for further gradual property price appreciation.

A Story of Supply and Demand Mismatch

In China, as elsewhere, incremental demand for housing is driven by new household formation. Growth of the adult population and family/household size determine new household formation. Household size in China has been steadily declining in line with increasing urbanization and growing incomes. In the late 1990s, a household in China averaged 3.6 people, a figure that declined to 3.1 by the end of 2011. As a result of ongoing reduction in the average household size, there were nearly 60 million additional households in China at the end of 2011 compared with what would have been if household size remained constant since 1997.

With the creation of a functioning real estate market in the late 1990s, the number of real estate developers quadrupled between 1997 and 2010, and the supply of properties increased steadily. Newly available commercially built properties catered to urban replacement demand, as those SOE employees who received their large, centrally located state units could now extract significant value when these old units were demolished, in a bid to reorganize China's cities away from Soviet-era urban planning legacy. As a consequence, the commercially built housing supply consisted primarily of large, expensive units at a time when household size and SOE employment (and the associated housing subsidies) declined precipitously. The result was a widening mismatch between commercially available supply and the demand for relatively small, inexpensive units.

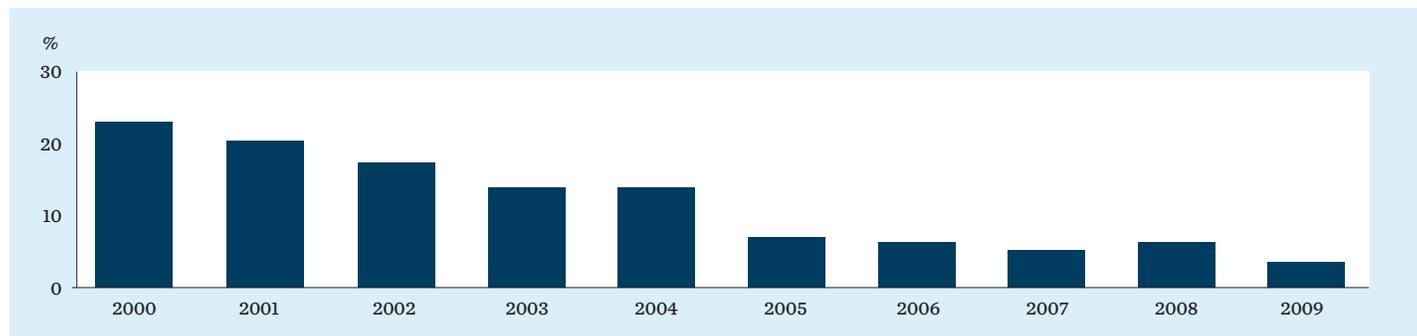
In the first decade of China's functioning property market, government policies only exacerbated this mismatch, as much social housing was owned and could be sold at market prices after five years of ownership. People with access to social housing then could get on a property ladder similar to SOE employees, as they had a similar housing wealth subsidy that they could apply toward a commercial

property after living in social housing for a specified period. As a result, the stock of social housing declined, as highlighted in chart 9.

Today, there are about 70 million urban households without proper housing. While government policies to suppress property price appreciation below nominal income growth will improve affordability over time, the need for affordable housing is acute. To alleviate the present shortage and cater to future demand from urbanization, China's cities can absorb as many as 10 million units of additional housing annually for years to come.

In table 4, we break down the components of the annual housing supply, which is likely to be absorbed annually over the next several years. Using a variety of metrics, we estimate that China's urban housing stock amounted to about 140 million units in 2011. Housing stock in China is of poor quality and therefore has a much shorter lifespan than most developed economies. For example, a residential building in the United States or Europe has a life span of about a century, while in China it is only 30 years. Thus, rebuilding accounts for 0.6%-0.7% of housing supply across the OECD, but makes up a whopping 2%-3% (estimates vary) in China. Assuming a 2% rebuild rate (the lowest of all the estimates out there) gets us to 2.5 million units or 270 million square meters annually. According to the latest census estimates, new households add another 3.4 million units annually, and we assume that only 75% of new households are urban. According to government projections, China's share of urban population will rise by about 2% in the 12th five-year plan. This translates into demand for another 4.7 million units annually until 2015 or so. Together, these three components of demand add up to about 10 million units of residential real estate annually.

Chart 9: Economic Housing as a Share of Commercial Housing Sold



Source: CEIC

Table 4: Sustainable Annual Demand for Real Estate in China

	MN M ²	MN UNITS
Urban residential housing stock	15000	140
Rebuilding, 2%	270	2.5
New households	268	2.6
Urbanization, households	494	4.7
Underlying demand	1031	9.8
Social housing	420	7.2

This figure does not include upgrading demand, which is real but highly sensitive to property prices. This estimate also excludes all the social housing construction that will take place over the next three to four years. The government’s announced target of 36 million units by the end of 2015 translates into 7.2 million units per year and 420 million square meters per year, assuming average apartment size of just under 60 square meters. Incidentally, urban housing supply in 2011 was about 1.3 billion-1.4 billion square meters, or 12 million-13 million units. Our analysis suggests that the underlying sustainable annual demand for housing is not far off the 2011 supply figure, so any shortfall in demand in 2012, which results from decelerating or outright falling prices, will be made up for with social housing.

The ongoing weakness in China’s housing market is driven primarily by government policy. The government aims to

curb speculative demand and reduce price growth, and these objectives are unlikely to change this year or in the medium term. At the same time, the government is likely to respond quickly with policies to stimulate first-time buying and upgrading demand, in the event that market activity declines dramatically from current levels.

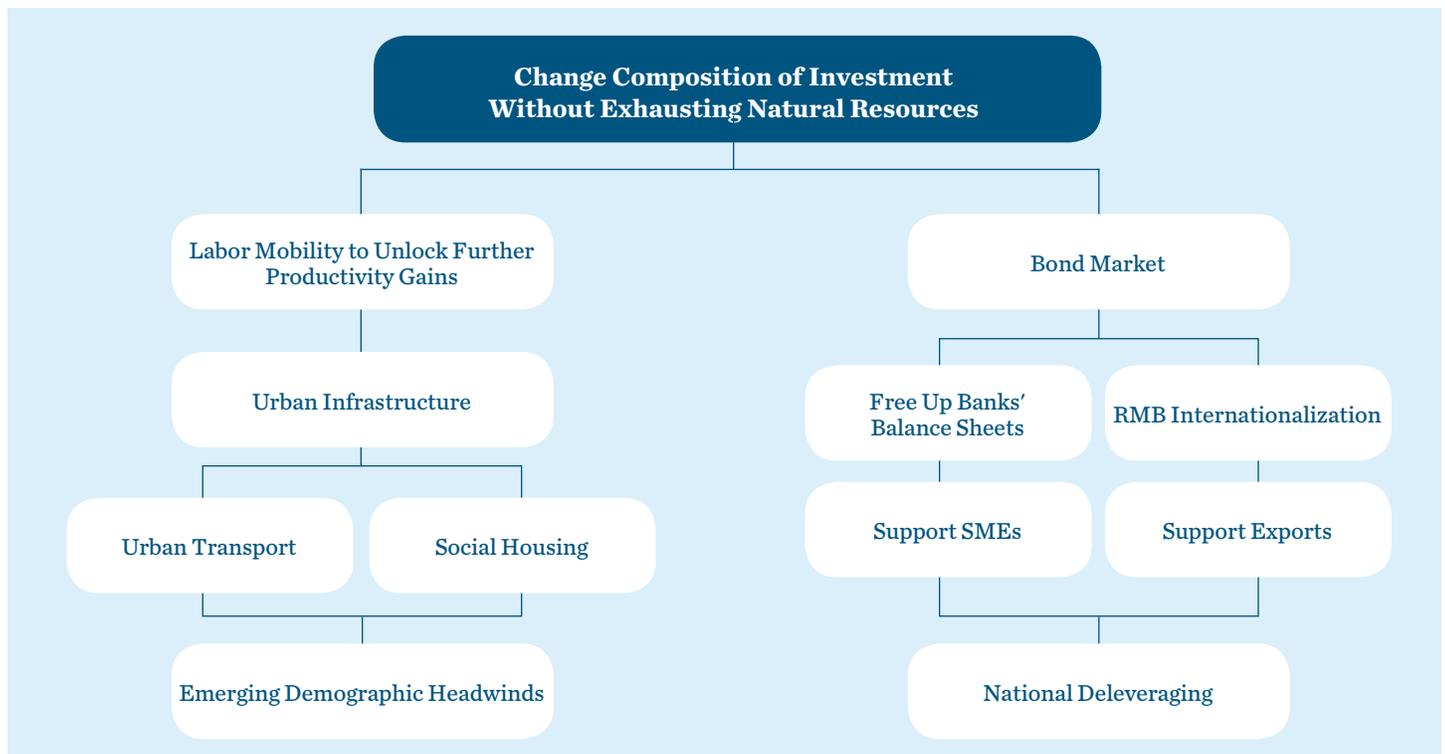
4. Next Round of Reforms

The development challenges facing China are real, and realizing the potential for ongoing rapid growth is far from certain. Transitioning investment away from transport infrastructure and real estate construction toward a mechanized industry capable of producing high-value-added products without exhausting global resources, to say nothing of the accompanying changes in the country’s financial markets and social infrastructure, is unlikely to be seamless. At the same time, it may be premature to discount the economic growth collapse in China, as reforms to propel further rapid productivity gains are crystallizing.

Given the large imbalances (high indebtedness, massive strain on global resources) and emerging demographic headwinds, the required changes to sustain high growth are immense and interlocking: it took the World Bank and China’s Development Research Center 468 pages to go through them all in a recent report.

China’s reform path has been built on incrementalism and pragmatic willingness to experiment, and has been seldom kicked off with big dramatic moves or announcements. This process is known in China as “crossing the river by

Chart 10: China’s Challenges and Its Reform Path



feeling the stones.” This pattern will continue. In the midst of concerns that the reforms required to unleash the next phase of growth will have to wait until the political transition is completed are misplaced, as many of the necessary reforms have been agreed upon and commenced over the past two to three years.

Chart 10 outlines the emerging reforms within a holistic framework to be able to see what the government is trying to do and why.

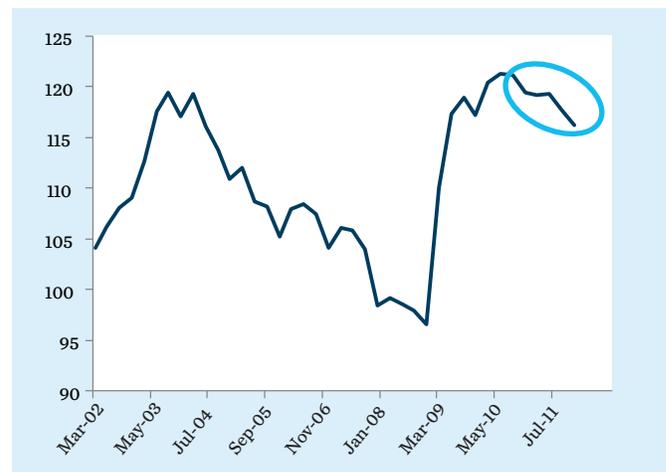
Despite a labor force that is aging and no longer growing like it used to, there is still much room for labor productivity gains, as traditional agricultural sector employees represent nearly 35% of the population, compared with 4%-6% in typical advanced countries. Unleashing the untapped potential of this large human resource will require increasing labor mobility. A relaxation in the hukou, or residence permit system, will improve labor mobility and transform urban migrants into active consumers, but it requires infrastructure readiness (notably housing). So, the current policy—constraining speculative demand for high-end housing, while boosting supply at the low end—is, in effect, about resource reallocation more than just about affordability.

Although there is broad agreement on the need to deleverage, relatively high growth can be sustained during a time of deleveraging only by increasing the private sector’s share of investment. For banks to provide more credit to the private sector, their role as fiscal agents of government investments must be reduced. Given that China still has a massive need for public infrastructure projects, the more appropriate way to finance them is through the bond market. Thriving exports will also help support growth, and the best way to support exporters is to reduce costs (of hedging) and risks associated with trading, i.e., increase the use of local currency as the currency of trade invoicing. This strategy, too, necessitates the development of a deeper bond market, as counterparties must be able and willing to hold RMB in instruments other than cash.

Indeed, progress has been made on each of these reform planks. National deleveraging is under way, as the stock of nonfinancial credit fell last year by about five percentage points, as seen in chart 11. At the same time, credit is priced more rationally, as effective lending rates have risen, as shown in chart 12.

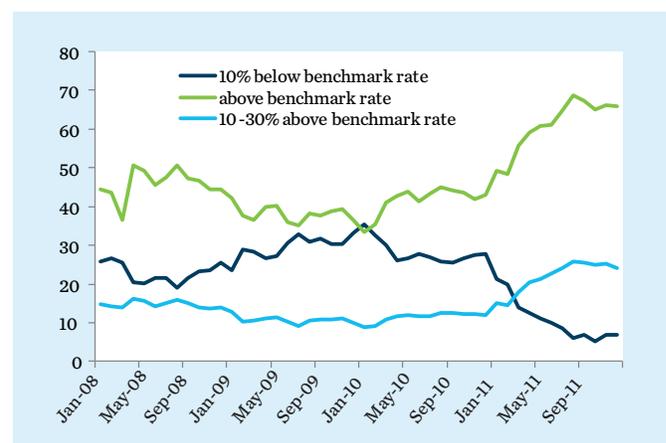
The structure of the local bond market has already started evolving to meet its role of financing long-term strategic projects such as railway investment and housing buildout. As highlighted in chart 13, the proportion of bonds with duration of less than three years dropped from 80% before

Chart 11: Loans Outstanding



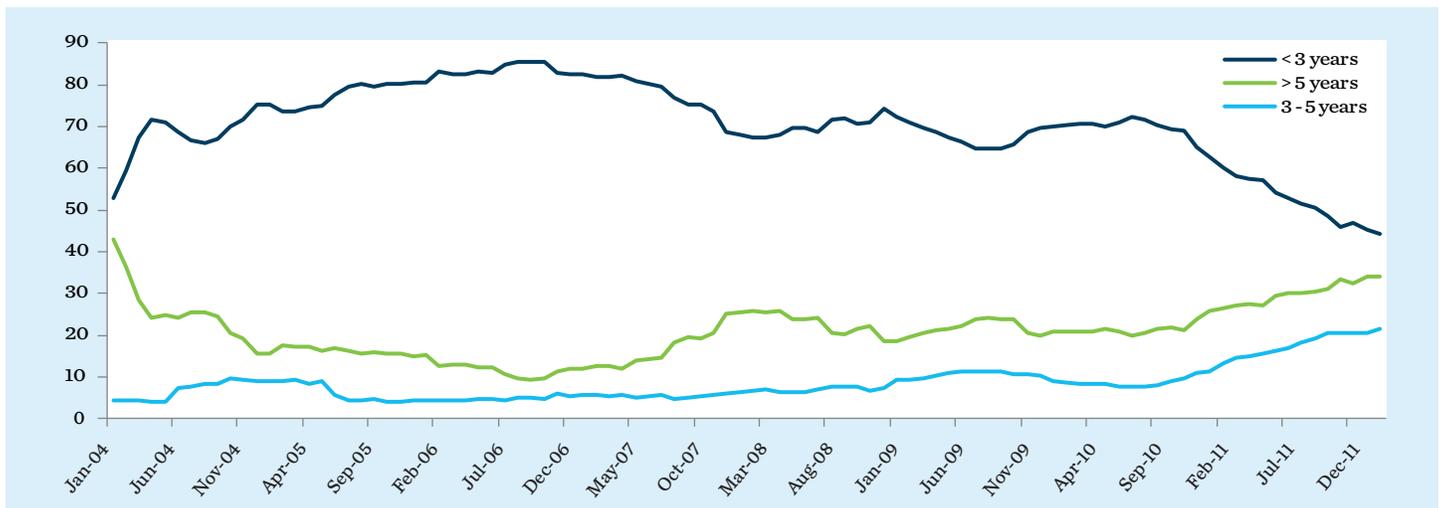
Sources: CEIC, Bloomberg

Chart 12: Distribution of Lending Rates



Sources: CEIC, Bloomberg

Chart 13: Bond Issuance – % of Total by Length of Maturity



Source: CEIC

2007 to 45% by the end of 2011. Last autumn, in a pilot scheme (a typical way of approaching reform in China), two coastal provinces and two large cities were explicitly allowed to issue bonds to fund local infrastructure projects.

RMB internationalization is also proceeding quietly. Since late 2008, The People’s Bank of China (PBoC) entered bilateral currency swap agreements with 16 countries, and several of these agreements have been renewed with much-increased amounts. This suggests that this is gaining traction and that demand for RMB under these schemes is growing. For this policy to be successful, monetary policy needs to be sufficiently tight to gain the credibility of both domestic and international bondholders in the long-term value of China’s currency. This, in effect, anchors China into a commitment of real, gradual deleveraging instead of simply inflating its way out of debt.

5. Conclusions

As China has become the driver of global growth, expectations for a further rapid growth trajectory affect every major economy, whether developed or emerging: they fuel capital-expenditures plans of commodity producers in Brazil and Australia; machinery and high-tech exporters from Germany, Korea, and Japan; and luxury consumer brands all over the world. Extensive analysis of China’s capital stock formation, its returns on capital, and corporate profitability suggest that China’s capital stock building—whether in infrastructure, real estate, or industrial mechanization—is far from complete, providing scope for ongoing rapid growth. At the same time, high indebtedness and intensifying demographic headwinds underscore the enormity of the challenge to transition investment away from transport infrastructure and real

estate construction toward mechanized industry capable of producing high-value-added products without exhausting global resources.

Quietly, China is pursuing this transition gradually, as it has done for the past three decades. National deleveraging is under way, as the stock of nonfinancial credit fell by about five percentage points from the peak. At the same time, credit is being priced more rationally, as effective lending rates have risen. The structure of the local bond market is evolving to meet its role of financing long-term strategic projects such as railway investment and housing buildout. RMB internationalization is gaining traction, as PBoC bilateral currency swap agreements suggest that demand for RMB is growing.

To unleash further labor productivity gains, the government has been improving labor mobility. A relaxation of the residence permit system—which effectively turns rural migrants into urban second-class citizens—will improve labor mobility and make new urban residents more active consumers. Infrastructure readiness, notably housing, is a prerequisite for successful transition. The government’s plan to build enough social housing for 15%-20% of the urban population to end the present shortage and cater to future demand will do much to aid further urbanization and labor productivity gains.

While the transition path is unlikely to be smooth, it may be premature to discount the end of China’s rapid economic growth.

About the Author



Olga Pomerantz joined William Blair & Company in 2009. She is responsible for economic research across all regions and sectors. Before joining the firm, Olga was a senior economist at the National Institute of Economic and Social Research in London, U.K., where she was responsible for macroeconomic forecasting and thematic research projects for international organizations and government bodies. Education: B.A., University of Chicago; M.S.c in economics, London School of Economics and Political Science.

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