Citi GPS

CHINA & EMERGING MARKETS

China is about to rebalance. How will EM be affected?

Citi GPS: Global Perspectives & Solutions

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CHINA & EMERGING MARKETS

China is about to rebalance. How will EM be affected?

The increase in the world's China–dependence in the past few years suggests that the imminent rebalancing of the Chinese economy will have highly visible consequences for many countries. Perhaps the central defining feature of China's economy is its dependence on investment spending. Last year the investment/GDP ratio reached 50%, a record not only for China but also, as far as we know, for any other major economy ever. However, this extraordinary investment-orientedness is about to end, and China's rebalancing will shift the economy away from investment spending and towards consumer spending. That's partly for 'natural' reasons, to do with the decline in the efficiency of China's investment spending, the fall in the return on capital, and the changing dynamics of China's labour market. But in addition, we think that Chinese policymaking will help to accelerate the rebalancing process, even though it's true that in recent years Chinese governments have promised more re-balancing than they've delivered. Pension reform, price reform, interest rate liberalization and other measures are now helping to raise the disposable income of Chinese households and reduce their incentives to save heavily.

China's investment-driven growth model has had a decisive impact on emerging economies in the past 10 years. It has defined the rapid growth of Asia's regional integration: China has absorbed capital goods from Asia both as part of manufacturing production chains, as well as to satisfy China's domestic demand. And it has helped to form a 'China-commodities complex', creating a high level of China-dependence for commodities exporters worldwide. The metals-intensity of China's investment-driven growth has been particularly unique.

China's rebalancing will certainly come along with weaker growth, and this could contain a number of threats for emerging markets, in particular. These will come in three forms: i) threats to the commodities-exporters who fail to benefit from the weaker growth of China's commodities demand and its changing composition; ii) threats to countries who lose out in China's pursuit of vertical integration, by which China replaces foreign-supplied inputs to the production process with its own; and iii) threats to a broader group of commodity-importing countries if it turns out that a weaker, more balanced Chinese growth has a bad effect on global risk appetite.

The threat to EM from a slower-growing, more consumer-driven China will depend largely on whether the rebalancing process is benign (more consumption) or not (less investment). The experiences of Japan in the 1970s and Korea in the 1990s are not encouraging in this respect: rebalancing in both these economies relied more on a fall in investment than a rise in consumption. In the longer term, the new shape of China's links to EM will depend on i) which countries have a chance of supplying more consumer goods and services to China; ii) which countries have a chance of winning out as global production capacity relocates away from a more expensive China; and iii) which countries can withstand China's emergence as a global competitor.

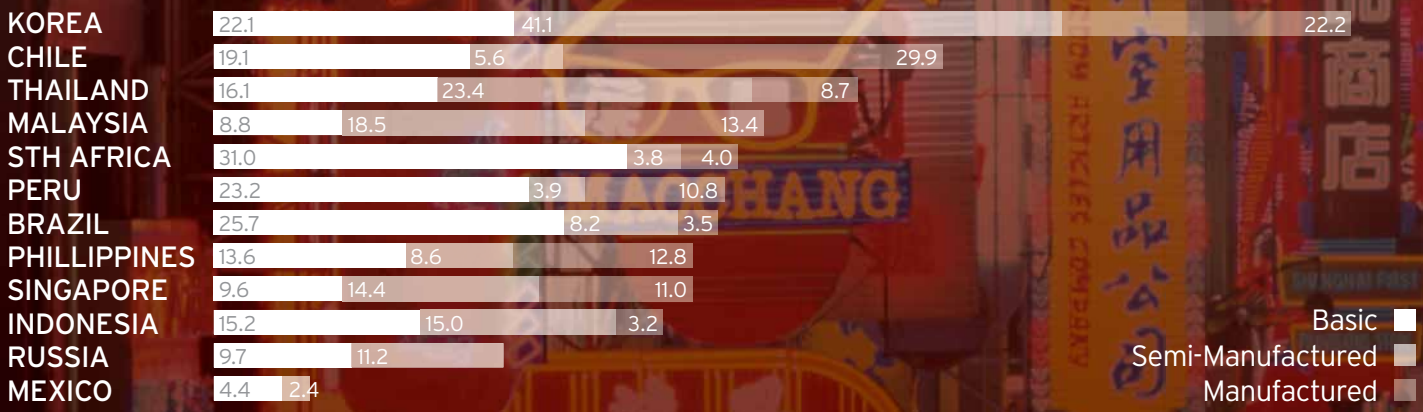
Our analysis of these trends suggest that Asia is by far the best-placed to take advantage of a new pattern of Chinese growth, even if it may also be the region most at risk of a fall in Chinese investment demand. South America, by contrast, will face an adjustment process that could be painful given the appreciation of real exchange rates that the region has seen in its membership of the 'China-commodities complex'. Mexico, Turkey, Hungary, Romania, Poland, Israel, Czech, Egypt, Ukraine and others all have a chance of surviving well.

Who Depends on China?

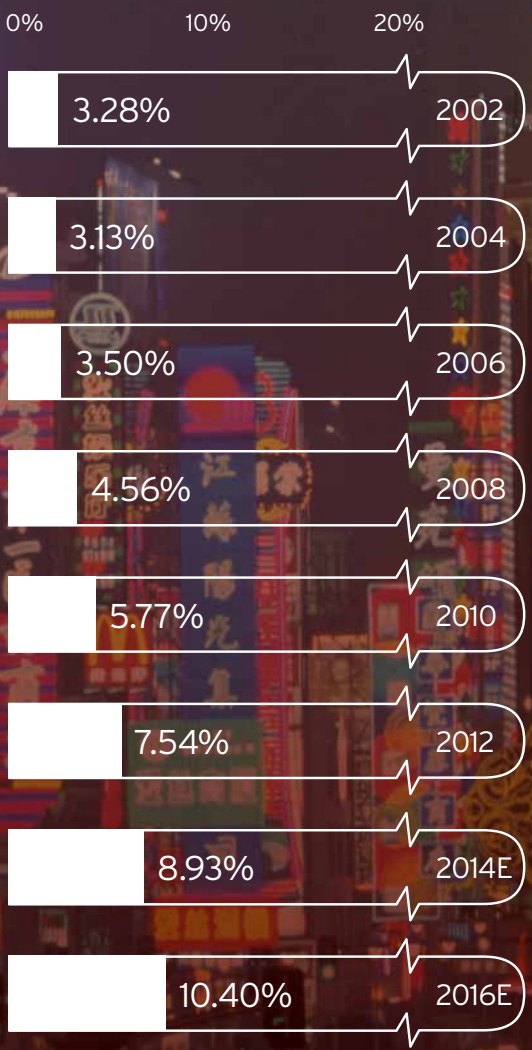
CHINESE IMPORTS BY REGION (2011)

DEVELOPED MARKETS	ASIA PAC	CEEMEA	LATAM
45%	36%	13%	6%

EXPORTS TO CHINA AS % OF TOTAL EXPORTS PER CATEGORY



CHINA'S SHARE OF GLOBAL CONSUMER SPENDING %

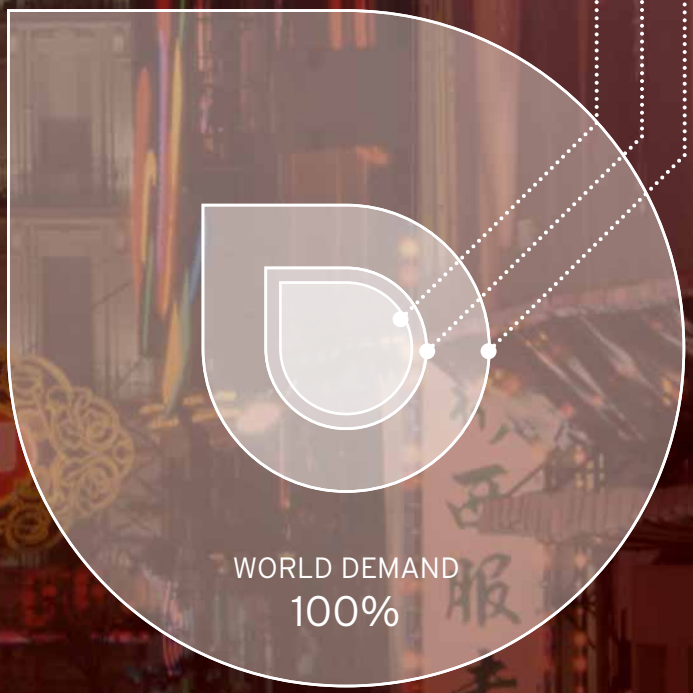


THE CHINA-COMMODITY COMPLEX - BIG DRIVER OF WORLD DEMAND

43% OF BASED METAL WORLD DEMAND

24% OF WORLD MAJOR AGRICULTURE CROPS

20% OF NON-RENEWABLE ENERGY RESOURCES



Contents

1. The current pattern of Chinese growth

We start by trying to explain the imbalanced nature of Chinese growth and its consequences. The lack of balance in the Chinese economy is simply measured by the economy's exceptional dependence on investment spending: consumers so far have played a rather minor role in China's growth story. Imbalanced growth isn't unique to China of course: plenty of other countries have relied heavily on investment spending in the early stages of modern industrial development, and this seems a natural consequence of large productivity differentials across different sectors. But the investment/GDP ratio has reached levels in China which are unprecedented: either in China itself or anywhere else. Why is China's investment-dependence so stretched? We think the main causes lie in the structure of China's labour market; the pricing of factor inputs; China's savings behaviour; and, post-Lehman, the size and nature of the credit-stimulus that China's policymakers have delivered. In recent years, though, the sustainability of this kind of growth has become questionable: the efficiency of investment spending has fallen, the return on capital has declined; and labour costs have risen. These are precisely the trends that set the stage for Japan's rebalancing in the early 1970s.

China's dependence on investment spending has become a defining feature of the economy

Perhaps the central defining feature of China's economy these days is its dependence on investment spending. Investment spending was already high in the earliest days of China's economic transition under Deng Xiaoping, and hovered at a level around 30% GDP during the 1980s. Since that time, though, several big shocks occurred which helped to shift the investment/GDP ratio to its 2011 level of 50% GDP. Among these shocks were, first, Deng Xiaoping's 'Speech in the South' in 1992, which invigorated China's commitment to accelerated economic reform; second, a major round of SOE reforms in late 1990s which hardened budget constraints and boosted the (investment-oriented) output of SOEs; and third, China's accession to the WTO in 2001, which stimulated investment in export-oriented capacity. A fourth shock to China's investment-dependence was the government's response to the Lehman crisis in late 2008, to which we'll return below.

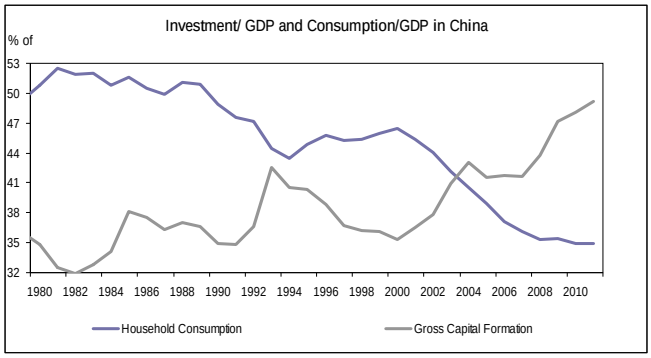
Figure 1. China's investment and consumption ratios are highly stretched by comparison with other countries' experiences

	China	Japan	US	Korea	Taiwan	Thailand	Indonesia	India
Investment/GDP ratio								
2011	49.7	19.9	15.9	29.5	21.1	26.6	32.7	35.7
Historical peak		36.4	23.2	38	30.9	41.6	32.2	35.8
Year of historical peak	2011 (so far)	1973	1943	1991	1975	1991	2010	2007
Consumption/GDP								
2011								
Historical trough		52.3	49.5	49.1	47.2	53.2	56.7	61.7
Year	2011	1970	1944	1988	1986	1995	2010	2009

Source: Adapted from Fukumoto and Muto (2011); Citi Research

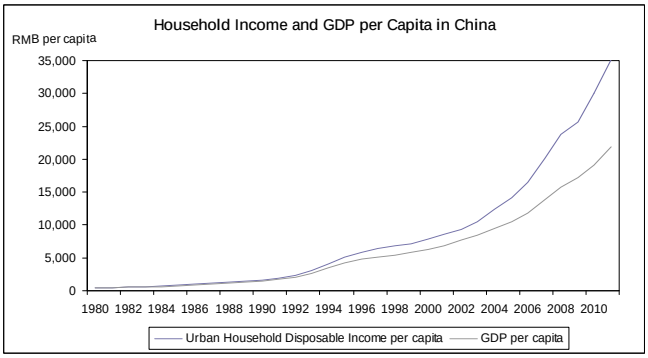
The result of these factors driving China's investment spending is that China's investment/GDP ratio is not only, as far as we know, the world's highest; but is also considerably higher than any other country has known in recent history. Figure 1 sets out some comparative data which makes the point that even among newly industrializing Asian economies, China's investment/GDP ratio dwarfs the peak levels that other countries have reached.

Figure 2. The investment share of GDP in China has reached unprecedented proportions...



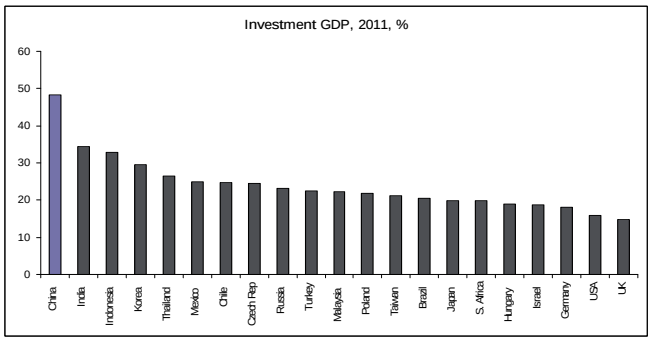
Source: CEIC, Citi Research

Figure 3. ...so that household income has risen much more slowly than GDP per capita over the past 20 years



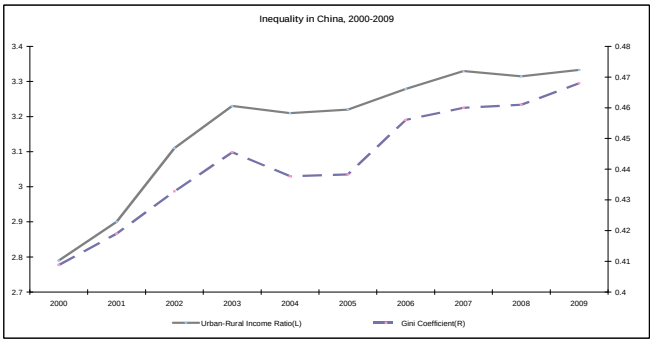
Source: CEIC, Citi Research

Figure 4. This has produced an outcome in which China invests more than any other country globally...



Source: Haver Analytics, Citi Research

Figure 5. ...and may also help to explain rising inequality in China



Source: Deer and Song (2012), Citi Research

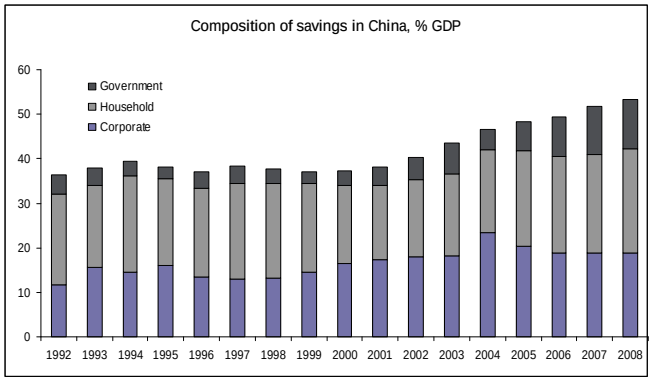
Imbalanced growth is nothing new – and may even be intrinsic to rapid industrial development

The concept of 'imbalanced' growth is certainly nothing new, even if China has stretched this to levels unseen in other countries. At some level, imbalanced growth – or growth concentrated in one area of activity – might even be intrinsic to the development process: at low levels of labour cost and high levels of labour supply, the return on capital is likely to be supported, and so investment-centred growth is an almost automatic result. Yet there are also some China-specific characteristics that have helped to boost China's investment-orientedness to exceptional levels. These include China's unique demographic endowment; and the lack of reform in the markets governing key inputs to the production process (land, energy, labour, capital).

The pricing of land, labour, capital and environmental resources in China are widely thought to have supported the return on capital during the past 20 years. The *hukou* system of labour registration denies migrant workers access to social welfare benefits that their urban-born counterparts receive, and are paid less. The cost of capital is kept low thanks to (albeit diminishing[1]) financial repression: the central bank sets a ceiling on deposit rates, for example, as well as a floor on lending rates, which on the one hand keeps the banks profitable, but on the other hand acts as a tax on households, who provide the banks with their main source of funding. And Chinese firms have benefited from sub-market oil prices and land transfer fees.

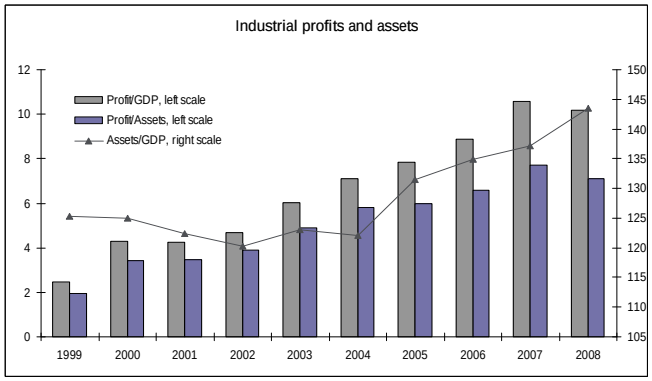
[1] See Citi's China Macro View, 'Interest Rate Liberalisation May Beat Low Expectations', 16 May 2012

Figure 6. The flipside of high investment in China is a high savings rate, since that has eliminated any need for reliance on external financing…



Source: PBOC, Citi Research

Figure 7. …and corporate savings in particular have been boosted by the rise in industrial profitability



Source: Ma and Yi, 2010; Citi Research

High Chinese savings has helped to finance domestic investment spending without creating any of the vulnerabilities that, say, Korea became victim of in the late 1990s

The flipside of this 'imbalanced growth' is the high level of Chinese savings. That's not *necessarily* the case, of course: a country can have high levels of investment even with a low level of domestic savings, as the difference between investment and savings is simply the current account balance. As high as China's investment spending is, its savings are even higher: hence its current account surplus. What makes China unusual is that this high level of domestic savings means that the economy's investment-orientedness can't easily be derailed by any 'sudden stop' in capital flows: as was the case in Korea, for example, in 1997. So it makes sense to assume that China's high investment ratio has at least been facilitated by its high savings ratio; and because Chinese investment is (in the aggregate) domestically financed, it follows that the economy's investment-dependent model can only be dismantled by *domestic* factors. As we'll show below, these domestically driven changes in China's savings-investment behaviour are indeed likely, whether that's because Chinese *policy* will change; or simply because Chinese savers and investors begin to do things differently.

While households account for the biggest share of China's domestic savings (Figure 6), it is corporate savings that have grown the fastest in recent years, from around 12% of GDP in 1992 to 19% in 2008. The factor-subsidies discussed above have supported corporate savings, of course, but so has the process of corporate restructuring, which has seen a sharp rise in the profitability of Chinese state-owned enterprises (SOEs) (Figure 7) as well as a fall in their number (Figure 8). Policies introduced in the mid-1990s restricted the ability of Chinese companies to pay dividends, and so the growth of corporate savings was at least for a time boosted by specific policy measures (which have been eased in the past five years). Moreover, the growing profitability of Chinese companies, and the rise in retained earnings, created a kind of virtuous circle: as the net debt of these companies fell, so did the cost of servicing that debt, and so retained earnings – savings – were boosted further.

Figure 8. Chinese SOEs have become more profitable, lifting corporate savings

	1998	2003	2007
Number of SOEs, '000	238	146	112
of which:			
central	23	19	22
local	215	127	90
Profit making SOEs/total %	31	47	51
Return on assets %	0	2.4	4.8
Profit margin on sales %	0	3	9
State- and collective-owned share of urban employment %	51	30	23.1
State- and collective-owned share of total employment%	15.6	10.7	9.5

Source: Knight and Ding, 2010, Citi Research

There are plenty of possible sources of China's high savings rates: corporate restructuring, cultural factors, the legacy of the Asian crisis, pension reform, and the emergence of private home ownership…

Corporate restructuring between 1995 and 2005 meant that the cradle-to-grave social safety net shrank rapidly, as employment in state-owned companies almost halved. This change had a big effect on the behaviour of households, who could no longer rely on their state-owned employers to provide housing or social benefits. So, household savings grew. Other factors help explain high household savings as well. The Governor of the People's Bank of China, for example, has emphasized cultural factors as a way of explaining high propensities to save among Chinese households, as well as a 'defensive reaction' to the legacy of the Asian financial crisis of the late 1990s (Zhou, 2009). Pension reform has also played a part: the 1997 pension reform replaced the pay-as-you-go system with a partially funded three-pillar system with lower benefits.

Another element in China's savings story is the way in which the decline in employment by state-owned enterprises affected the property market. China's housing boom is partly as a result of the corporate restructuring process: Chinese workers found themselves less able to rely on employer-provided accommodation. So, with the introduction of private home ownership amidst limited mortgage availability, housing-related savings among households grew. Indeed, the huge increase in residential floor space in China during the past 30 years helps explain why it is construction and services that have shown the biggest rise in the share of GDP rather than manufacturing (Figure 9).

Figure 9. How the structure of China's economy changed

	As a percentage of GDP				As share of total population		
	Primary sector	Manufacturing	Construction	Services	Agricultural share in employment	Urban share in population	Working-age share in population
1980	30.2	43.9	4.3	21.6	68.7	19.4	59.7
1990	27.1	36.7	4.6	31.5	60.1	26.4	66.7
2000	15.1	40.4	5.6	39.0	50.0	36.2	68.4
2008	10.7	41.1	5.4	41.8	39.6	45.7	74.3
2011	10.1	40.0	6.8	43.1	34.8	51.3	74.4

Source: Ma and Yi, 2010; Citi Research

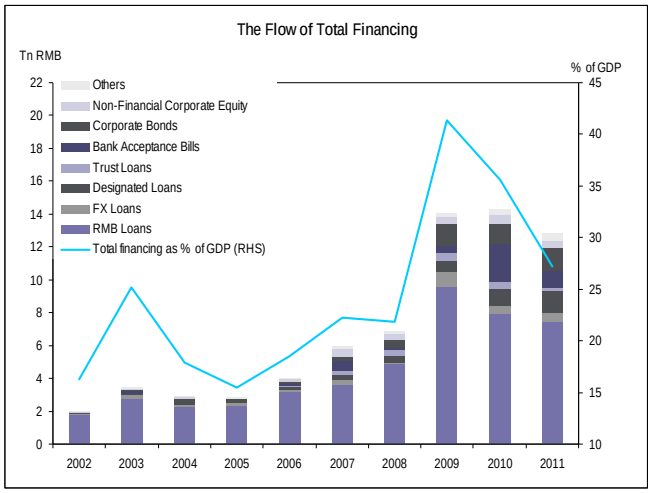
…but whatever the source, the result is the same: high Chinese savings have facilitated the rise of China's investment-orientedness – especially since capital controls prevent savings from going abroad

So the persistent rise in China's investment-orientedness has some connection with the change in China's savings behaviour: domestic investment spending has been easy to finance with domestic sources. And since capital controls have limited the ability of Chinese firms and households to deploy domestic savings abroad, a high investment ratio has resulted.

Chinese policymakers have committed themselves to a rebalancing process for years, but these commitments have borne little fruit

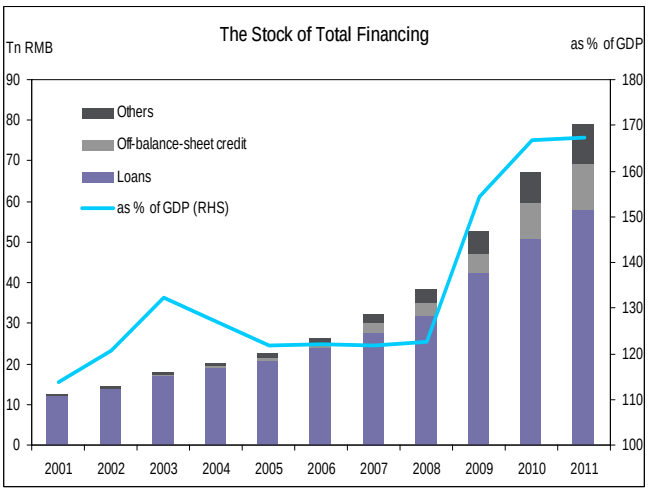
Even as the investment/GDP ratio has climbed, Chinese policymakers have made a number of commitments to rebalancing in recent years, with the aim of increasing the consumer share of GDP at the expense of the investment share. These commitments seem to have borne little fruit. The 11th Five Year Plan (2006-2010), for example, was guided by the principles of building 'common prosperity' and a 'harmonious socialist society', phrases which were widely understood to require a bias towards reducing overall savings in the economy, and boosting domestic spending – by consumers in particular. But the period of the 11th Five Year Plan saw no change in the direction of the investment/GDP ratio, which has continued inexorably upwards. Why? An important part of the answer has to do with the government's response to the Lehman crisis, which was centred around a significant credit stimulus. Since that stimulus was largely directed towards infrastructure, the investment-orientedness of China's economy was further reinforced.

Figure 10. The flow of credit to the Chinese economy picked up sharply in 2009 and remained very strong through 2011...



Source: PBOC, Citi Research

Figure 11. ...helping to boost the credit/GDP ratio from 122% in 2005 to 167% in 2011



Source: PBOC, Citi Research

The credit stimulus that was implemented after the Lehman crisis helped to intensify China's investment-dependence…

The scale of the post-Lehman credit stimulus is visible in Figures 10 and 11, which show 'Total Social Financing', China's broadest measure of credit extension. The flow of credit extended to the Chinese economy rose substantially in the wake of the Lehman crisis (Figure 10), from an average of 20% GDP 2002-2007, to 41% GDP in 2009. Although the flow of credit diminished in 2010 and 2011, it remained high compared to pre-Lehman levels. And the impact of this lending activity on the *stock* of credit is visible in Figure 11: in the three years 2008-2011, the stock of credit rose from 122% GDP to 167%.

The impact of all this lending is clear: it helped to intensify China's dependence on investment spending (Figure 2), simply because the lion's share of the credit that was extended was aimed at infrastructure. But at the same time, we think this post-Lehman rise in investment spending has helped to sow the seeds of the end to China's investment boom. This is largely because the recent surge in investment spending has – almost inevitably – sacrificed the profitability of that spending. One way of seeing this is to consider China's Incremental Capital-Output Ratio (ICOR), a measure of investment efficiency, which shows that, in recent years, China has needed more units of investment to generate a given unit of GDP (Figure 12). The rise in China's ICOR – from an average of 3.9 in 2002-2008 to 5.3 in 2011 – indicates a loss of investment efficiency.

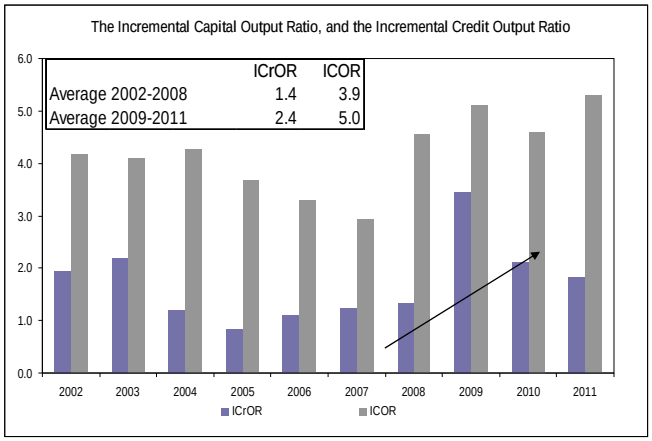
…but the stimulus helped to reduce the efficiency of China's investment spending, and increase its dependence on credit

But we think that this loss of efficiency is partly connected to the rise in the economy's credit-dependence. That credit-dependence can be captured in a concept we've labeled the Incremental Credit-Output Ratio, or '*ICrOR*'. This ratio, analogous to the ICOR, measures the amount of *credit* needed to generate a given unit of GDP, and it shows a rising credit-dependence in the wake of the post-Lehman stimulus. We think the rise in the ICOR and the rise in the ICrOR are related. Why? Because efficiency is certain to be higher when an entrepreneur says 'I have a project; find me some credit' than when a bank says 'I have some credit; find me a project'. China's post-Lehman credit stimulus was, of course, a bank-driven mode of delivering spending into the economy, and so it is the latter of these two conversations that's likely to have been more common. This decline in efficiency is also at the root of another characteristic of recent economic performance in China: the decline in the return on capital (Figure 13). And we think that a decline in the return on capital is almost a necessary prelude to a rebalancing of China's economy, away from investment spending and toward consumer spending.

> "Our view is that China's investment/GDP is close to its peak and that a rebalancing of China's economy — in which consumer spending will play an increasingly dominant role — is by far the most likely outcome in the next few years"

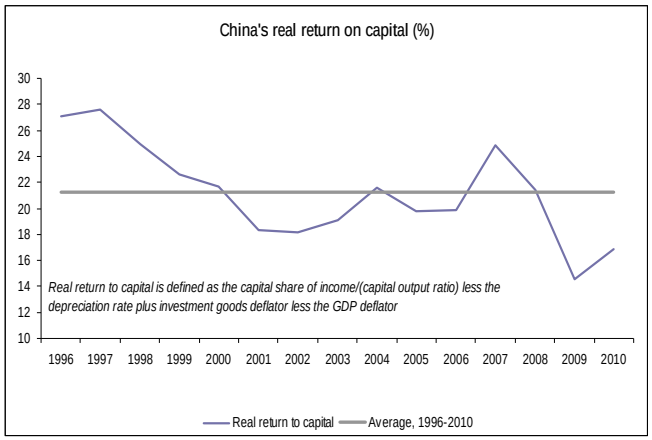
Our view is that China's investment/GDP is close to its peak, and that a rebalancing of China's economy – in which consumer spending will play an increasingly dominant role – is by far the most likely outcome in the next few years. To be sure, we run a risk of 'crying wolf' in making this assertion: as we indicated above, Chinese policymakers have promised rebalancing towards consumer spending in the past few years without delivering it. But why should declining investment efficiency and a declining return on capital necessarily lead to rebalancing? As the return on capital declines, it makes less sense to devote resources in that direction.

Figure 12. Investment efficiency has fallen amidst a rise in credit-dependence…



Source: Citi Research. ICOR is the investment/GDP ratio divided by GDP growth; 'ICrOR' is the credit/GDP ratio divided by GDP growth.

Figure 13. …helping to push down the real return on capital deployed in the Chinese economy

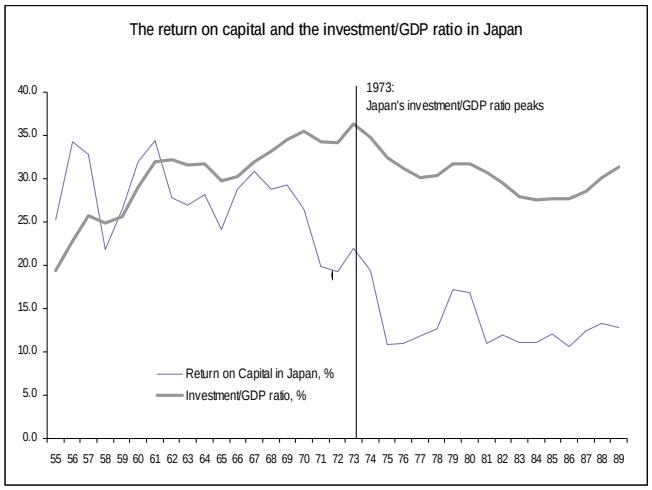


Source: NBS, Citi Research

Japan seems to be a precedent: a falling return on capital helped to bring Japan to its peak investment/GDP ratio in 1973

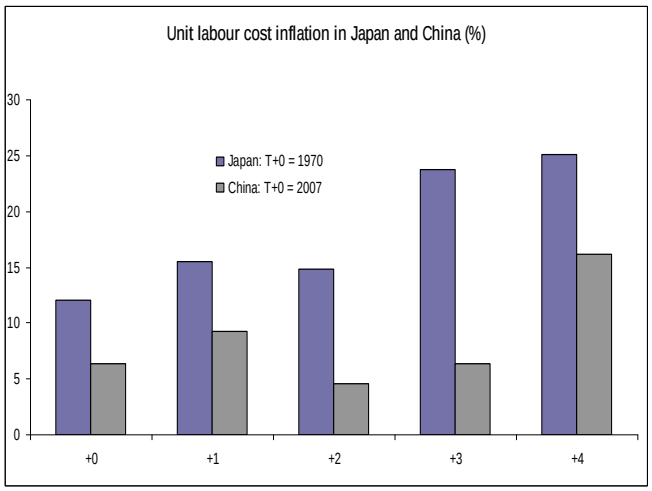
There is some historical precedent for what we're trying to describe here. A declining return on capital – relative to the cost of capital – was instrumental in producing a rebalance in Japan during the 1970s[2]. This decline in Japan's return on capital was caused essentially by a fall in the productivity of capital, and this eroded the incentive to devote resources to capital-intensive economic activity. A decline in the investment/GDP rates (which peaked in 1973) coincided to some extent with the decline in Japan's return on capital (Figure 14).

Figure 14. A declining return on capital set the stage for a decline in Japan's investment/GDP ratio



Source: Fukumoto and Muto, 2011, Citi Research

Figure 15. Unit labour cost inflation was high in Japan in the run up to its peak investment/GDP ratio; and has been rising in China too



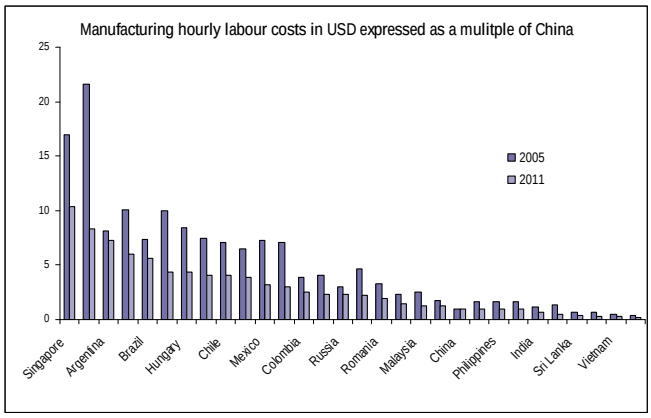
Source: Haver Analytics, EIU, Citi Research

[2] Fukumoto and Muto, 2011

Developments in the Japanese labour market also helped to end the rise in its investment/GDP ratio

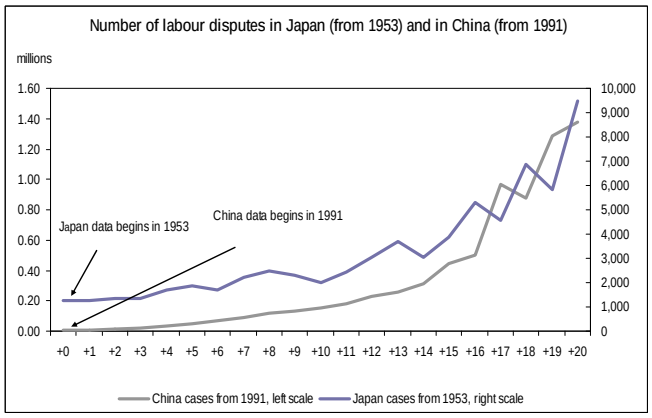
One of the mechanisms by which the return on capital declined in Japan is the disappearance of the surplus of rural labor. In Japan's case, the consensus view these days is that Japan's rural labour surplus disappeared sometime in the late 1960s, setting the stage for the 1973 peak in the investment/GDP ratio (Japan's dependency ratio reached its trough in 1970 at 45%). There are a couple of different ways of thinking about how labour market changes can affect the rebalancing process. First, the decline in the labour surplus helps to raise the cost of labour, of course; as it did in Japan (Figure 15). And it certainly seems to be the case that Chinese labour costs have risen faster than many other EMs. Figure 16 shows that although most countries pay a manufacturing wage that is some multiple of China's, that multiple has declined sharply in recent years. The biggest beneficiary of this trend is probably Korea. In 2005, Korea had manufacturing wage costs that were 22 times higher than China's. By 2011, though, that multiple had fallen to 8. India, Ukraine, Thailand have moved since 2005 from having higher labour costs than China to having lower costs. By contrast: Brazil, Russia and Argentina have seen the smallest change in their wage cost differential compared to China, which reflects a theme that will feature in later sections of this paper.

Figure 16. Every country here has seen its wages decline as a multiple of China's...



Source: EIU, Citi Research

Figure 17. ...and that process could be accelerated by growing Chinese labour assertiveness, if Japan's experience is anything to go by



Source: China Labornet, Citi Research

But that increase in labour cost can also be accelerated by a political process: namely, labour assertiveness. Workers' sense of entitlement is a function of their scarcity, and it certainly seems true that labour assertiveness rose in the years preceding Japan's peak investment/GDP ratio (Figure 17), reinforced by the shock to real incomes that was delivered by the oil crisis-induced inflation of the early 1970s.

There is certainly evidence of rising labour assertiveness in China, as Figure 17 suggests. One reason for this is legal. A new Labour Contract Law went into effect in January 2008 which, among other things, i) gives employees of 10 years' standing a contract which protects them from dismissal without cause; ii) requires employers to contribute to employees' social security accounts and iii) sets wage standards for workers in probation periods or doing overtime. But even without the new legal framework governing Chinese workers' rights, there is another factor which argues in favour of more labour assertiveness leading to a more visible rebalancing of the Chinese economy towards the consumer: demographics.

China's extraordinary demographic transition also helps point to an end in the rise of China's investment/GDP ratio

There is a great controversy among economists about whether or not China has reached the 'Lewis turning point' at which an economy runs out of surplus rural labour that's able to move to the industrial sector without creating any upward wage pressure in agriculture. Yet it's clear that China's demographic transition will be exceptionally important in shaping a consumer-driven economy. In the first place, fertility rates in China have collapsed: from around 5.8 children per woman in the 1950s and 1960s to around 1.5 now (Figure 18). And it is worth noting that this decline wasn't solely due to China's one-child policy: the total fertility rate had fallen to 2.8 in 1979, the year before the one-child policy was formally announced and widely implemented.

Figure 18. China's demographic transition has seen a collapse in fertility rates, largely thanks to a big fall in infant mortality

	1950	1970	1980	1990	2000	2005
Population	552	829.9	987.1	1143.3	1265.8	1307.6
Birth rate per 1000	37	33.4	18.2	21.1	14	12.4
Death rate per 1000	18	7.6	6.3	6.7	6.5	6.5
Natural increase per 1000	19	25.8	11.9	14.4	7.6	5.9
Total fertility rate (births per mother)	5.8	5.8	2.3	2.3	1.6	1.5
Life expectancy, male (years)	45.6	63.2	69.3	70.5	73.3	74.5
Life expectancy, female (years)	42.2	61	66.4	66.8	69.6	70.7
Infant mortality rate, female	130.2	48.6	33.7	33.5	33.8	22.3
Infant mortality rate, male	145.9	54.2	35.6	32.4	23.9	18.5

Source: Wang Feng, 2011, Citi Research

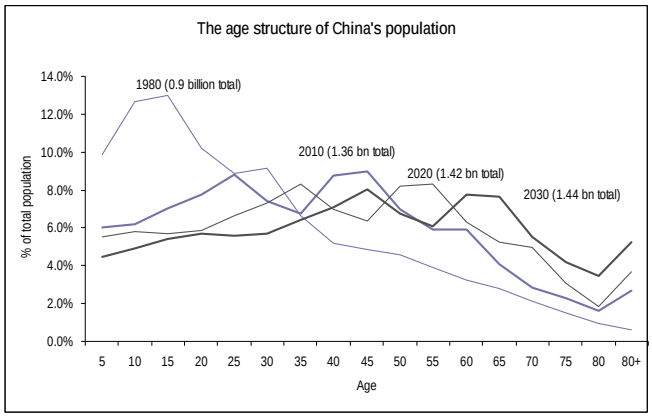
The collapse in fertility rates means that the size of China's population has more or less stabilized; and that the Chinese population as a whole will get older. Two decades of very low fertility rates are shrinking China's young labour force, and will not only change the rate at which Chinese GDP can grow; but its composition too. The large birth cohorts of the 1960s and 1970s were at their peak productive age during the reforms of the past 30 years (Figure 19). But that will soon stop being true. The number of young workers aged 20-29 will peak over the next few years and drop precipitously from around 2025[3]. In the ten years between 2016 and 2026, the size of the population in this age range will be reduced by around one quarter, from 200 million to 150 million. For younger workers the decline will come sooner and will be even more dramatic: in the next ten years its size will halve. What all this means is that the ratio of workers to non-workers will fall. As Figure 20 illustrates, China's total dependency ratio – the young, plus the old, divided by the working-age population – will start rising from 2015 according to UN data. In other words, China's demographic dividend is effectively at an end.

[3] Wang Feng, 2011

To sum up: even without any change in Chinese policy, we think there are a number of natural forces – the falling return on capital and the changing nature of the labour market – that will help push China towards rebalancing

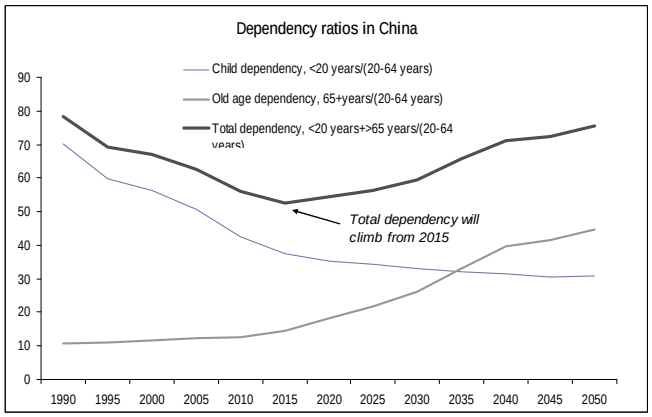
What all this means is that we think there are some autonomous, natural forces within the Chinese economy that will help to shape the rebalancing process in the next few years, even if Chinese policymakers do nothing themselves to stimulate the rebalancing process. The decline in the return on capital and the decline in the efficiency of investment spending will help, in the end, to push resources away from capital-intensive uses; and meanwhile the rise in wages and the prospect of more assertive labour will assist this process. And in the background is a fundamental change in China's demographic profile. All these factors will help declare an end to China's investment-heavy growth model. As we'll see, Chinese rebalancing won't just be the result of these 'natural' causes; we also think that Chinese policymaking will increasingly play a role in moving towards a more balanced pattern of GDP growth. Before we get there, though, it makes sense to ask the question: how has China's investment-heavy growth dynamics shaped the economies in the rest of the emerging world that have links with China?

Figure 19. Large birth cohorts in the 1960s and 1970s meant that young workers were plentiful during the reforms of the past 30 years…



Source: UN, Citi Research

Figure 20. …but change in the age structure of the population means that the dependency ratio will start to rise from 2015

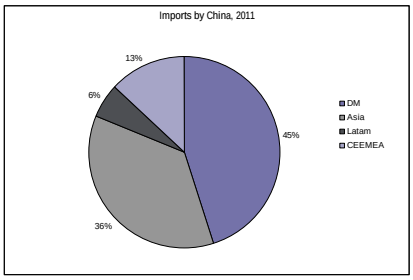


Source: UN, Citi Research

2. How China's growth has shaped EM so far

Here we aim to spell out the implications of China's investment-oriented growth for the rest of emerging markets (EM). China's unique pattern of growth has shaped its links with Asia, of course, by creating integrated trade and investment networks that supply capital goods to the Chinese economy – both for China's own use and as part of China's export sector. But perhaps the most significant impact of investment-oriented Chinese growth has been its impact on global commodities markets. China's growth has been commodity-intensive growth, and to a much greater degree than other country at its stage of development. A 'China-commodities complex' has been created in the past decade, which has produced a huge terms of trade gain for commodities exporters, as well as a lot of currency appreciation: many of the EMs that have seen the biggest real exchange rate gains over the past 10 years have been those most closely linked to the China-commodities story. But the China-dependence of emerging economies goes even deeper than this. Because 'risk appetite' seems so closely correlated to commodities prices, commodity importers in EM have also arguably become China-dependent.

Figure 21. China still gets a lot of goods from DM, but dependence on Asia is very high



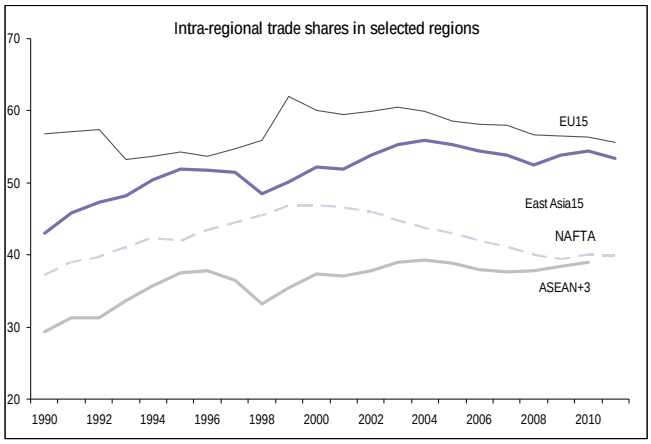
Source: UN Comtrade; Citi Research

By far, the most visible link between China and EM lies within the Asian region. Although China gets most of its goods the developed world outside Asia (Figure 21), China's economic relationships within EM are dominated by Asia. Indeed, intra-regional trade within East Asia has grown faster than any other regional collective in the past 20 years, and the scale of regional integration now falls just short of the EU (Figure 22). This high and rising intra-regional trade integration is closely linked with the development of manufacturing production chains, a trend which developed alongside a shift in downstream manufacturing activities from the more developed East Asian countries – Japan, eventually followed by the newly industrialized economies of HK, Korea, Taiwan and Singapore – to less developed countries in the region. Moreover, when we dissect the region's export pattern it seems true to say that trade integration in East Asia over the past decade appears largely driven by East Asia's trade with China (and Hong Kong) rather than rising trade with other parts of East Asia. In other words, China is at the heart of Asia's intra-regional trade (Figure 23).

China is at the heart of intra-Asian trade, and the region is, after the EU, the world's most integrated

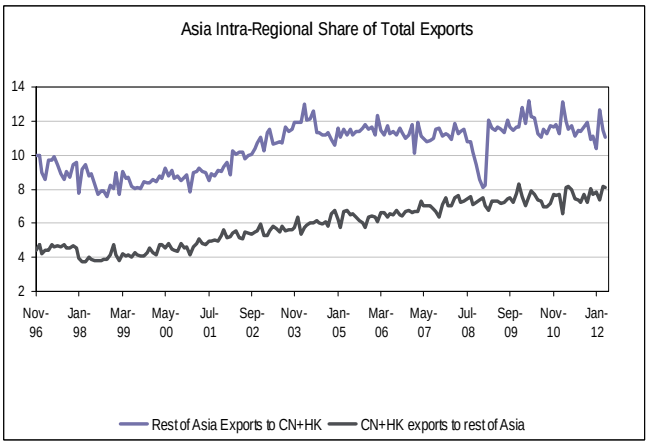
As a result of this, export shares to China relative to total exports tend to be very high among East Asian countries, with bigger shares among the more industrialized Asian countries: Korea, Taiwan and Japan that were the big drivers of this "downstreaming" of manufacturing. On average, we estimate that about 56% of Asia's exports to China are used for processing to re-export to other markets. However, we also think high trade shares in China were partly driven in recent years by the rising role of China's final demand growth, a trend that was probably intensified by the nature of China's post-Lehman investment boom discussed in Section 1 of this paper. Our analysis shows that the proportion of China's imports from East Asia that it uses for its own final demand bottomed at around 40% in 2005 and has risen gradually to about 44% share by 2011 (Figure 24).

Figure 22. Intra-Asian trade has grown fast, closing the gap with the EU, which remains the world's most integrated region...



Source: IMF, ADB, Citi Research[4].

Figure 23. ...and China is at the centre of the rise in intra-Asian trade dynamics



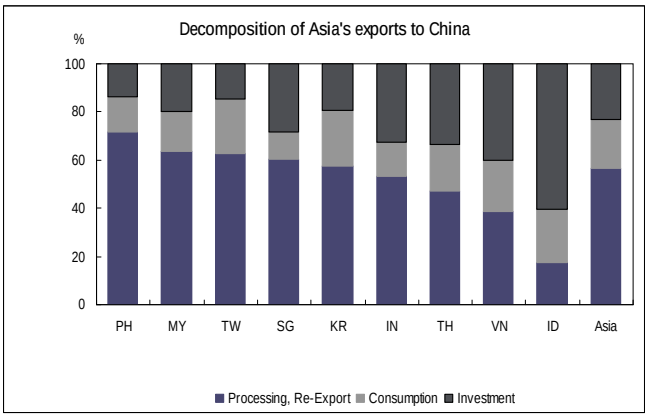
Source: CEIC, Citi Research. Note the data exclude India

Regional trade integration is also cause and consequence of intra-regional investment flows

Rising trade integration has been closely associated with rising intra-Asian investment flows. We compare intraregional foreign direct investment (FDI) positions across regions using the IMF's latest Coordinated Direct Investment Survey (for 2010, Figure 25). The picture it generates of regional investment flows is similar to the trade picture, namely that East Asia is, after the EU, the world's most integrated region. And looking closely at both inward and outward FDI flows with China, we find a rising share of intra-Asia flows. However, there are likely three important caveats to interpreting China's FDI data by geography. First, identifying nationality of FDI flows to and from China is significantly distorted by the use of offshore tax vehicles (e.g. Caribbean Islands). Second, there is likely significant "round-tripping" by Chinese corporates who set up offshore subsidiaries, mostly via Hong Kong, that may exaggerate the intra-Asia FDI flows. Third, we think given Hong Kong's continued role as a gateway to China for goods and services trade, many Western and Taiwanese companies have set up subsidiaries in Hong Kong which invest in the mainland. These latter two issues probably help explain why Hong Kong is such a dominant source and recipient of FDI flows to, and from, China.

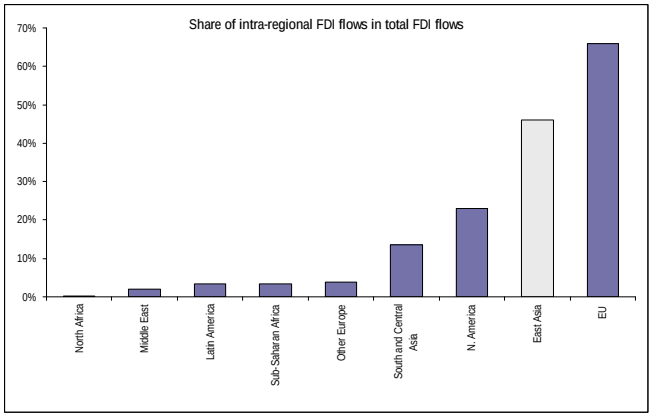
[4] Notes: (1) We measure intraregional trade (IT) share of region "i" as $IT\ Share_i = (X_{ii} + M_{ii}) / (X_i + M_i)$ where X_{ii} is exports from region i to region i, M_{ii} is imports from region i to region i, X_i is the total exports of region i and M_i is total imports from region i. (2) East Asia15 consists of the ten member countries of ASEAN+ China, HK, Korea, Japan and Taiwan; ASEAN+3 excludes Japan and HK.

Figure 24. Asia's China-dependence is partly built on its contribution to processing and re-export from China…



Source: Citi Research. Note that usage is based on our own analysis and assumptions. See *Asia Macro View – Who Benefits from China's Domestic Demand* (5 June 2009) for details on methodology.

Figure 25. …which has also led to regionally integrated FDI flows

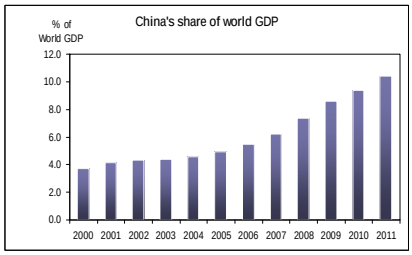


Source: IMF, Citi Research

Beyond the intra-Asian story, China's connectedness to EM is largely commodities-based: a '*China-commodities complex'* has evolved.

In addition to intra-regional trade, the second theme most apparent in China's links to EM is that a rapidly growing, investment-driven Chinese economy has had a decisive impact on China's demand for commodities; and on China's role in the global commodities market (although of course Asia includes some commodities exporters). And this in turn has shaped the way in which other emerging economies have benefited from China's rise. It's well-known of course that many of the biggest emerging markets gainers from China's rise have been commodities-exporting countries. In effect, and we have seen the creation of a '*China-commodities complex'* which links Chinese commodities demand with very substantial terms of trade gains in countries supplying those commodities.

Figure 26. China's growing dominance of commodities markets is driven by GDP



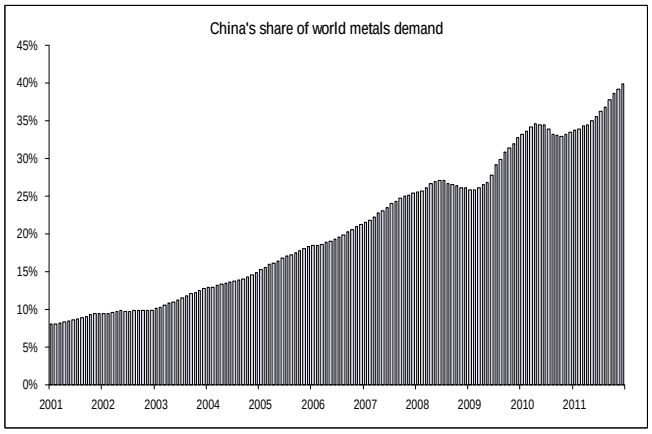
Source: Haver Analytics, Citi Research

How has this 'China-commodities complex' evolved? China's role in global commodities markets is now exceptionally important. China's consumption in 2011 accounted for around 20% of non-renewable energy resources, 24% of major agricultural crops, and 43% of base metals. These market shares have risen sharply in the past 10 years, in line with China's growing share of world GDP. This makes sense of course as investment-oriented growth is a commodities-absorptive kind of growth. But it is particularly worth noting that China's market share in global commodities has surged in the post-Lehman world – Figures 27 and 28 - for two reasons. The first is that China's share of global GDP growth rose sharply in the aftermath of the Lehman crisis: from 6.2% in 2007 to 10.4% in 2011, due to weak growth in the developed world. And the second is that, as we've shown in the previous section, the *composition* of China's growth in the post-Lehman period became even more investment-oriented than it had been previously. So, China's importance in global commodities markets results from the imbalanced nature of Chinese growth, and this has 'super-charged' its relevance for these markets in the past three years.

Figure 27. The post-Lehman period has seen a jump in China's share of world oil demand…

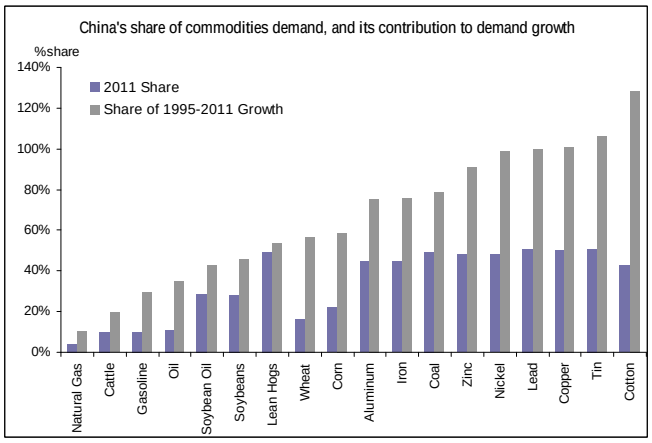
Source: Bloomberg, Citi Research

Figure 28. …and of world metals demand too



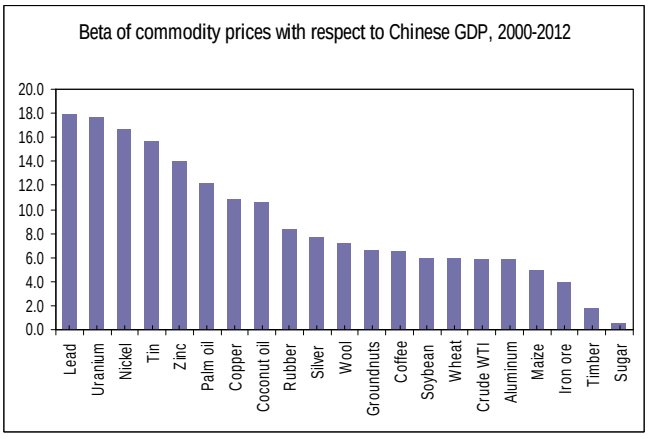
Source: Bloomberg, Citi Research

Figure 29. China's commodities demand growth has had a bigger impact on metals than on energy (except for coal)…



Source: Citi Research

Figure 30. …and it's metals prices that seem to be the most sensitive to Chinese GDP growth



Source: Citi Research

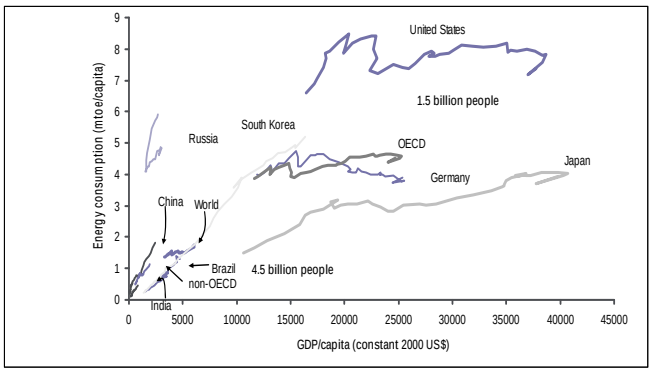
> "It seems clear that China's investment-orientedness has produced a much more significant impact on global metals than on global energy markets."

It seems clear that China's investment-orientedness has produced a much more significant impact on global metals markets than on global energy markets, in spite of the fact that China recently surpassed the US as the world's largest consumer of energy. Between 1995 and 2011, China accounted for 'only' 35% of the rise in global demand for oil; but China accounted for more or less the entire global increase in demand for zinc, nickel, lead, copper and tin (Figure 29). The notion that China's rise has been considerably more significant for metals producers than energy producers is reinforced by the calculations shown in Figure 30, which

suggest that metals *prices* have shown more sensitivity to Chinese GDP growth than energy prices. But as the Figures show, China's share of global commodities demand isn't limited to oil and metals: in 2011, China consumed an astonishing 45-50% of the world's production of coal, pork, cotton, and a wide variety of industrial metals such as iron, aluminum, copper, zinc, nickel, lead, and tin. China also is a significant consumer of such agricultural commodities as soybeans, beef, corn, wheat, and coffee.

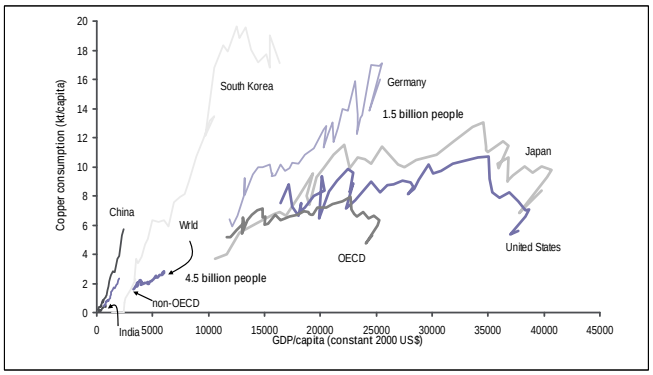
And since China's investment-orientedness has reached a level that is unprecedented, the commodities-intensity of China's growth is also unusual by any standards. This is illustrated in Figures 31 and 32, which show the relationship between per capita commodities consumption and per capita GDP for a few countries. China's energy consumption and its metals consumption are higher, for example, than Korea's or Brazil's at an equivalent level of per capita GDP. Figures 33 and 34 make a similar point in a slightly different way, by illustrating the share of GDP that China spends on copper and steel compared to other countries.

Figure 31. China consumes a high volume of energy given its level of per capita GDP…



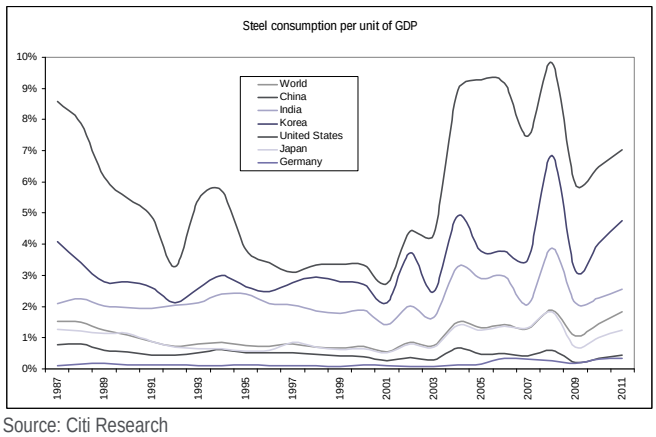
Source: Citi Research

Figure 32. …and the same is even more true of China's metals consumption



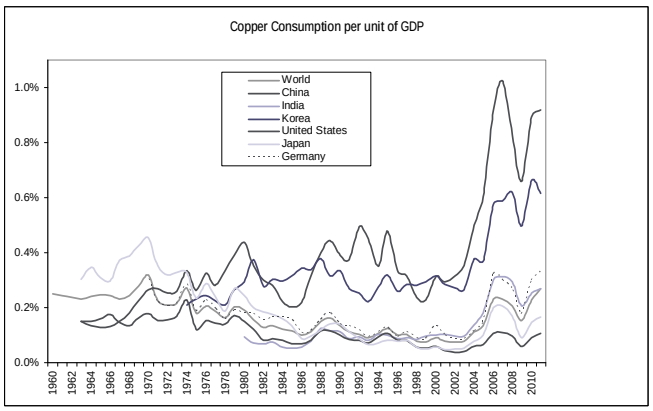
Source: Citi Research

Figure 33. Chinese GDP is heavily absorptive of steel by global standards…



Source: Citi Research

Figure 34. …and copper too



Source: Citi Research

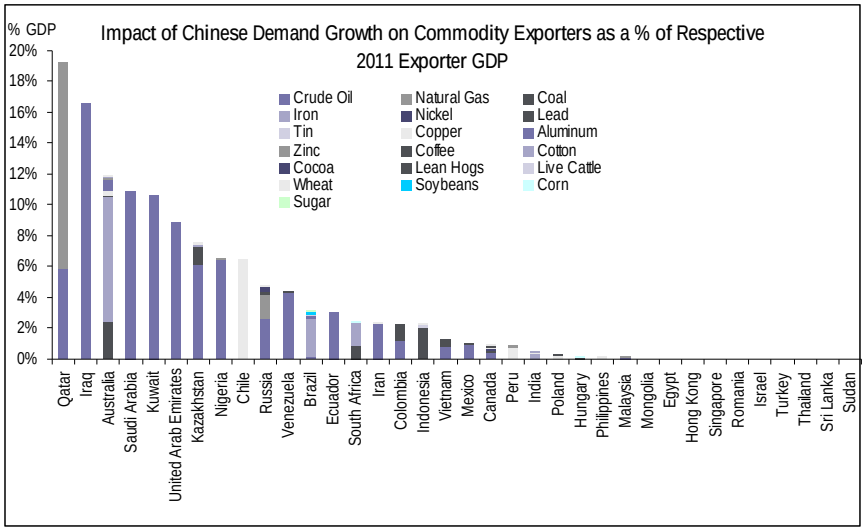
…largely thanks to the unusually high metals-intensity of China's investment-oriented growth

Although China's impact on global metals markets seems more decisive than on global energy markets, calculating the impact on different *countries* requires a slightly different exercise. To do this, we calculate the impact of Chinese incremental demand from 1995 to 2011 on the incomes of various commodity exporters through the commodity price channel. We first calculate China's share of demand growth for various commodities. Then we assess how much impact this demand growth from China has had on their respective commodity prices. Then we calculate the additional net revenues gained by the various commodity exporters due to this price increase, and finally we display this revenue impact as a % of the commodity exporters' respective GDP in 2011.

But it may be some of the oil exporters whose growth has been most shaped by Chinese demand – largely because of the absence of any other drivers in their economy

Figure 35 shows that Qatar leads the pack of beneficiaries with an estimated beneficial impact of nearly 20%, primarily through its exports of oil and natural gas. In other words, Qatar's GDP in 2011 is 20% higher than it otherwise would have been due to the price increases for oil and natural gas from Chinese demand growth. What Figure 35 demonstrates is that the way in which a country is affected by China's commodities demand depends on a lot on how dependent the economy is on that commodity. Members of the Gulf Cooperation Council (GCC) such as Qatar (+19.2% of GDP), Iraq (+16.6% of GDP), Saudi Arabia (+11% of GDP), Kuwait (+10.7% of GDP), and UAE (+8.8% of GDP) dominate the list, largely because of the relatively small size of their underlying non-hydrocarbon national income.

Figure 35. Chinese demand growth may have had a disproportionate impact on those countries with the fewest alternative sources of GDP growth



Source: Citi Research

Implicit in this calculation is the assumption that global commodity markets are globally integrated and fungible, and hence, an increase in demand from China would raise all prices evenly and therefore benefit all exporters evenly, regardless of whether the exporter actually physically exported to China or not.[5]

[5] The one exception to this assumption is Natural Gas, which does not feature globally integrated markets as of yet. For the purposes of this exercise, we assume that natural gas exporters sold at oil-linked benchmarks instead of natural gas spot prices.

Overall, EM's trade dependence on China confirms these two stories: it's about Asian integration and commodities-absorption

Although Figure 35 shows some surprising results, a more traditional way of looking at EM dependence on China (Figure 36) demonstrates clearly the two themes that link China to EM: commodity production and regional integration within Asia. Of the countries included in these data, four of the top seven – Angola, DR Congo, Sudan and Zimbabwe – are African; and Africa's set of relationships with China are the subject of the Box below.

Figure 36. Exports to China as a share of GDP: commodities exports and Asia have the highest levels of China-dependence

	Angola	DRC	Taiwan	Malaysia	Singapore	Sudan	Zimbabwe	Korea	Vietnam	Iraq	Thailand	Kazakhstan	Chile	Philippines	Peru	South Africa
2005	21.2	2.2	12.0	6.7	15.7	12.9	2.7	7.3	6.1	1.2	5.2	4.6	3.6	4.0	2.4	0.6
2006	23.8	3.8	13.8	7.4	18.2	12.1	2.4	7.3	5.3	1.3	5.7	4.0	3.2	3.8	2.5	0.8
2007	19.4	4.2	15.9	8.3	16.3	16.0	1.6	7.8	5.1	1.2	6.0	5.7	5.8	3.8	2.8	1.5
2008	24.2	12.4	16.7	8.5	16.4	10.7	1.9	9.8	5.4	1.4	5.9	5.2	5.0	3.2	3.0	1.6
2009	17.7	9.2	14.3	10.0	14.2	8.1	3.8	10.4	5.3	4.6	6.1	4.9	7.2	1.8	3.2	2.0
2010	25.1	17.1	17.8	10.5	16.1	9.3	9.0	11.5	7.1	7.0	6.7	6.8	8.0	2.9	3.6	2.9
2011	22.4	18.4	18.0	16.6	16.5	13.3	12.1	12.0	8.2	8.2	7.8	7.8	7.2	6.0	4.1	3.6

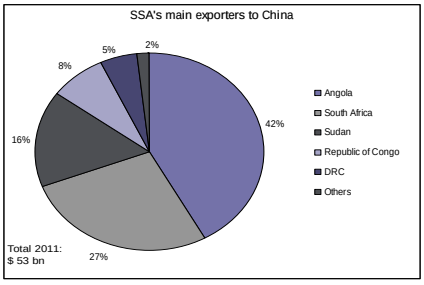
Source: UN Comtrade, Citi Research

Box: The rise of China's trade with Sub-Saharan Africa

Chinese growth is now probably more important than G7 growth in its impact on growth in Sub-Saharan Africa (SSA). Recent academic research seems to show that in 2000-09, a 1 percentage point change in Chinese growth having had a 0.34 percentage point impact on SSA growth[6].

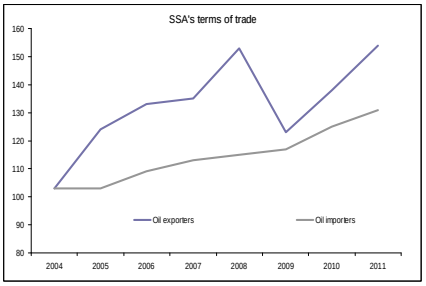
But China's trade with SSA is concentrated in a few countries. As Figure 37 shows, it is Angola that leads SSA's trade relationships with China: its exports to China account for 22% GDP. Two other oil exporters, the Republic of Congo and Sudan, are also crucial in this equation. Between them, these three countries account for around two thirds of SSA exports to China. Add in exports from the DRC and South Africa, which are commodity dominated but outside of oil, and these five countries account for around 95% of SSA exports to China.

Figure 37. SSA's trade with China is concentrated in a few countries…



Source: IMF, Citi Research

Figure 38. …and terms of trade gains have been bigger for the oil exporters



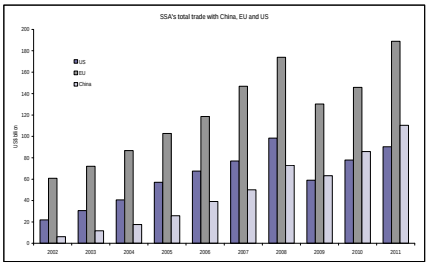
Source: Haver Analytics, Citi Research

But the relationship is complicated and the trade data are opaque; sometimes deliberately so. For example, direct investment in Angola's oil sector by Chinese oil companies is relatively limited. Instead, much of the Sino-Angolan oil trade is conducted by the Queensway Syndicate and the exact terms of trade deals will not see the light of day, but are based on long term oil supply contracts which include the building of infrastructure. Similar concerns were raised by the IMF over the exact terms of the Sino-Congolese Cooperation Agreement.

[6] See Levy Yeyati, On Emerging Markets Decoupling and Growth Convergence', Centre for Economic Policy Research.(2009) and Garroway et al, The Renminbi and Poor-country Growth, The World Economy (2011).

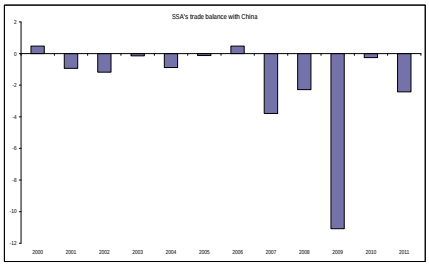
Another example of this opacity is Zambia. Zambia's exports are dominated by copper, and in recent years it has exported as much to Switzerland as to China. But the reality is that the copper sold to Swiss commodity trading companies is destined for use elsewhere, and probably never physically crosses a Swiss border.

Figure 39. China has overtaken the US as SSA's 2nd biggest trading partner…



Source: IMF, Citi Research

Figure 40. …but the region has a trade deficit with China



Source: IMF, Citi Research

Arguably, the relationship between China and SSA is deeper than indicated by the actual trade flows: elevated global commodity prices have created a very large positive terms of trade gain for many countries in SSA, notably for the sub-region's eight significant oil exporters. This indirect impact is arguably clearest in Nigeria. Although oil exports to China are small in relation to its overall exports, Nigeria's terms of trade have benefited markedly from high global oil prices in recent years. These high prices, of course, create a double-edged sword for SSA as a whole: Figure 38 shows that while terms of trade have risen for the whole continent, the rise has been most visible for the oil exporters, as oil importers suffer at the margin.

"Neo-colonialism" is a label often used to make the accusation that China's relationship with SSA is exploitative. The charge is that China exchanges raw materials for "shoddy" manufactured goods; indeed, Figure 40 shows that SSA has run a growing trade deficit with China in recent years. An additional charge is that the Chinese government's oft-stated policy, that it will not intervene in the internal politics of a country, in fact hides opaque investment arrangements that would not be approved by Western governments or corporates.

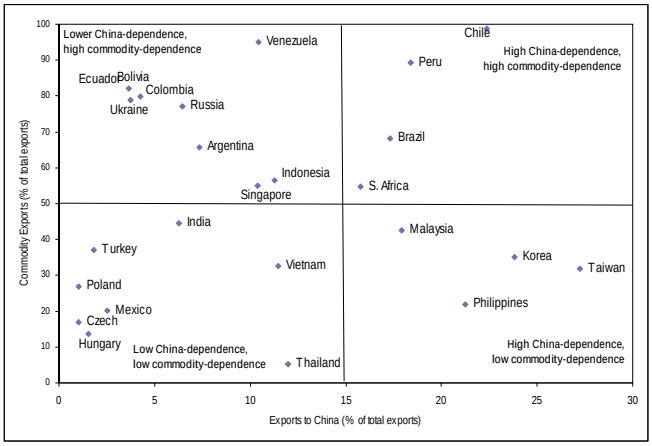
As with many caricatures, there is an element of truth in this description of China's involvement in SSA. For example, China's heaviest involvement is clearly greatest in a small number of countries: Angola, the Democratic Republic of Congo (DRC), the Republic of Congo and Sudan, which all combine high resource endowments with difficult operating environments. Moreover, one does not have to dig deep to find words in many local languages that imply that imported Chinese consumer goods are of poor quality.

Chinese trade with SSA is also emotive from the perspective of established investors in SSA, or existing local entrepreneurs, who feel that their previously privileged position is coming under a new competitive threat. Of these two groups, it is arguably local entrepreneurs who feel that they have come under most pressure from Chinese companies, notably when Chinese workers first come to SSA working on a formal project, but stay to set up small businesses once the initial contract has ended.

Finally, it is clear that the Chinese government and companies are re-thinking how to be involved in the SSA resource story. China's National Petroleum Company led the development of the Sudanese oil sector, for example, not only by being the main developer of the fields but also building the pipeline to Port Sudan. Now, 80% of Sudanese oil exports are sold to China. And other changes are likely: Chinese companies are increasingly buying into companies that operate in SSA. The most high profile example of this was in the financial sector rather than the resource sector, when the Industrial and Commercial Bank of China (ICBC) bought a 20% stake in Standard Bank of South Africa in late 2007. But the more active deals are probably in the resource sector and take two forms. First, Chinese companies become junior partners in joint ventures, such as membership of the Tullow consortium developing the Lake Albert oil find in Uganda. Second, Chinese companies buy into small resource companies such as Kalahari Minerals or independent oil companies.

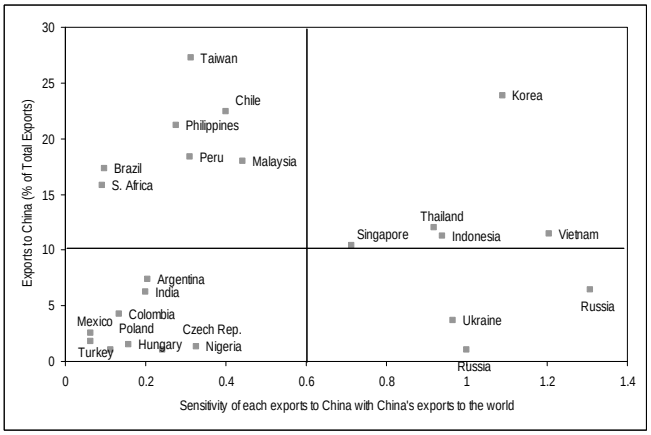
There's no summary statistic to illustrate the impact that China has had on different countries, but there are different ways of seeing it. As we've seen, 'China-dependence' in EM can be based either on commodities or regional integration, and this is summarized in Figure 41. And it's clear from Figure 42, for example, that it is Asia – thanks to the China-centric nature of regional integration – that seems to be most directly at risk if Chinese export growth slows.

Figure 41. Away from Africa, 'China-dependence' tends to be either an Asian or Latin phenomenon, as right-hand quadrants here show...



Source: Citi Research

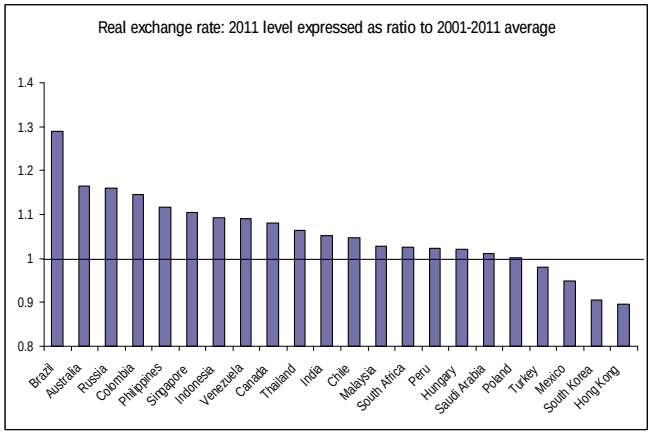
Figure 42 ...and given the nature of intra-regional integration, Asia seems to be most directly at risk if China's export growth weakens



Source: Citi Research

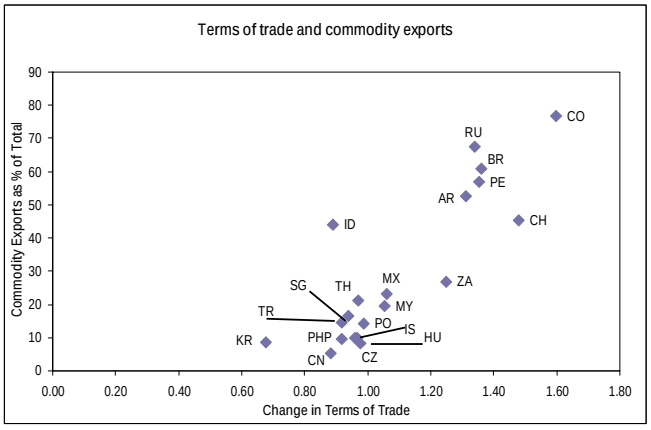
The creation of the 'China-commodities complex' has produced significant changes both in real exchange rates, and in terms of trade, for those economies that have benefited most. This is evident from Figures 43 and 44. The countries that have seen the biggest real exchange rate appreciation during the past 10 years are Brazil, Australia, Russia and Colombia: all, arguably, members of the 'China-commodities complex'. And viewed from the perspective of changing terms of trade, it's equally clear that the biggest gains in terms of trade have been seen in commodity exporting countries.

Figure 43. The biggest REER gains during the 2000s have been in the Asian and Latam economies that have benefited most from China...



Source: BIS, Citi Research

Figure 44. ...and for commodities exporters, rising Chinese demand has had a big impact on terms of trade



Source: Citi Research

> China's economic links with EM — and not just Asia — are increasingly driven by investment flows as well as trade flows.

It's not just trade that has deepened China's economic links to the rest of the emerging world; financial flows have become more important too, albeit that the absolute numbers are still pretty low in the context of China's size. Figure 45 shows the value of outward FDI flows from China. Once again, the two themes of Asian integration and commodities demand reveal themselves.

Figure 45. Chinese FDI outflows, while still small, are directed towards Asia and commodities exporters…

(cumulative; US$ billions)	HK	ZA	SG	RU	PK	NG	TH	ID	DZ	VN	BR	HU	KR	SD	PH	VE	TR	MY	
2004	2.6	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.6
2005	6.0	0.1	0.1	0.3	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.0	0.1	6.0
2006	13.0	0.1	0.2	0.7	-0.1	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.1	13.0
2007	26.7	0.6	0.6	1.2	0.9	0.6	0.1	0.2	0.3	0.2	0.1	0.0	0.7	0.4	0.0	0.1	0.0	0.0	26.7
2008	65.4	5.4	2.1	1.6	1.1	0.7	0.2	0.4	0.4	0.3	0.1	0.0	0.8	0.3	0.1	0.1	0.0	0.1	65.4
2009	101.0	5.4	3.6	2.0	1.2	0.9	0.2	0.6	0.6	0.4	0.2	0.0	1.1	0.3	0.1	0.2	0.3	0.1	101.0
2010	139.5	5.8	4.7	2.5	1.5	1.1	0.9	0.8	0.8	0.7	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	139.5

Note: HK – Hong Kong; ZA – S. Africa; SG – Singapore; RU- Russia; PK – Pakistan; NG – Nigeria; TH – Thailand; ID – Indonesia; DZ – Algeria; VN – Vietnam; BR – Brazil; HU – Hungary; KR – Korea; SD – Sudan; PH – Philippines; VE – Venezuela; TR – Turkey; MY – Malaysia.
Source: Citi Research

Data on China's outward M&A also show that Asia and commodities exporters have been the main recipients of Chinese financial flows. The data in Figure 46 suggest that while Hong Kong received the lion's share of cumulative M&A flows between 2002 and 2011 (37% of the total), M&A flows to commodities sectors overall accounted for 58% of the total; and 45% of the total flow went to commodities sectors in emerging economies.

Figure 46. …and so are China's cumulative M&A flows between 2002 and 2011

US$ bn	HK	AU	CA	BZ	ZA	SG	KZ	RU	NG	ID	HU	EC	TH	MY	PE	MG	EY
Chemicals	0.1										2.1		0.1				
Other energy and power	0.1			1.7													
Oil and gas	0.7	3.4	15.7	15.0			4.1	3.8	2.7	2.2		1.5			0.2	0.1	
Petrochemicals						2.2											
Metals and mining	3.6	19.8	7.3	2.1	2.5	0.1	0.1							0.4	0.1	0.1	
Telecommunications	2.4													0.1			
Wireless	33.8																
Transport and infrastructure	3.1					0.4											
Banks	9.1		0.1		5.6								0.5				
Other financials	4.1	0.4	0.1		0.2	1.3											
Power	0.6	0.2		0.1		3.1											
Machinery	0.5	0.1		0.1		0.0											0.1
Paper and forest products	0.1					0.2											
Agriculture and livestock																	
TOTAL	58.2	23.9	23.1	18.9	8.3	7.3	4.2	3.8	2.7	2.2	2.2	1.5	0.6	0.5	0.3	0.1	0.1

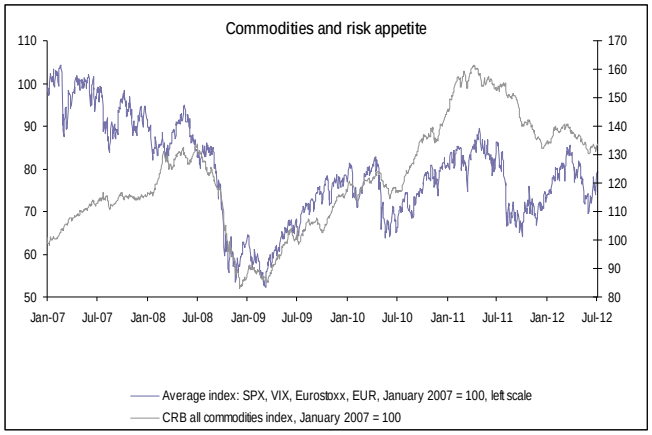
Note: HK – Hong Kong; AU – Australia; CA – Canada, BZ – Brazil; ZA – South Africa; SG – Singapore; KZ – Kazakhstan; RU – Russia; NG – Nigeria; ID – Indonesia; HU – Hungary; EC – Ecuador, TH – Thailand; MY – Malaysia; PE – Peru; MG – Mongolia, EY - Egypt

Source: Dealogic, Citi Research

And since commodities prices are so closely linked with risk appetite, it's not just Asia and commodities exporters who are China-dependent; commodity importers in CEEMEA with large external financing needs are also China-dependent.

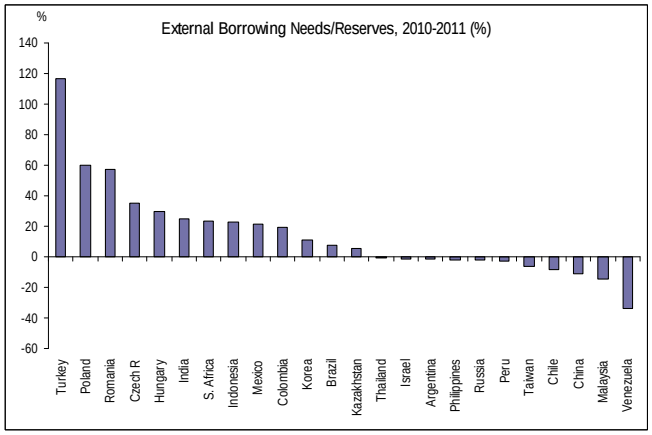
But the creation of the China-commodities complex doesn't just benefit commodities exporters; it benefits importers too. This seems paradoxical: in what sense can India or Turkey, for example – net commodities importers – benefit from higher commodities prices? The reason is the link between higher commodity prices and global risk appetite (Figure 47). Since that link seems to be positive, commodity-importers may lose on their current account balance when commodity prices rise; but they gain on capital account balances, because the combination of high commodity prices and strong risk appetite helps to deliver capital inflows to these countries. All in all: the 'China-commodities complex' has been good news for *all* EM, since China's rise has supported risk appetite.

Figure 47. Risk appetite indicators move together with commodity prices...



Source: Bloomberg, Citi Research

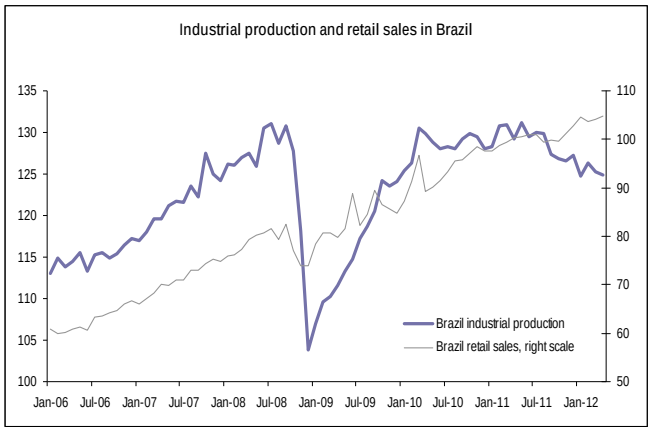
Figure 48. ...which means that even commodity importers who depend on capital flows are hostage to the 'China-commodities complex'



Source: Citi Research

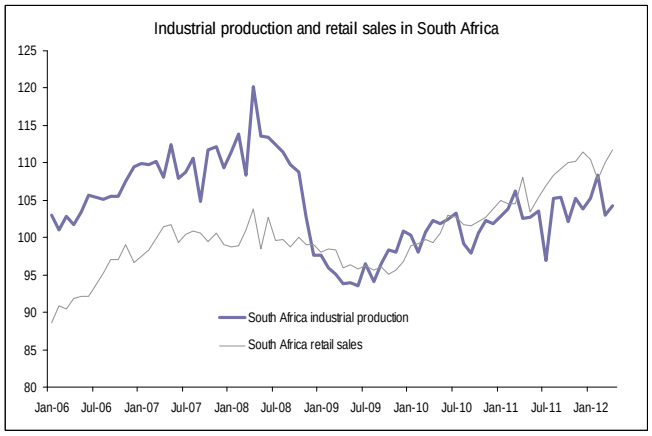
It follows from this that a Chinese slowdown and rebalancing might have some negative consequences for a broad range of countries, at least until the best of them can take advantage of new ways of trading with China – a theme we try to investigate in Section 4 coming up. But one issue that will feature in this process is the extent to which some of the most China-dependent economies have been catchers of a China-generated 'Dutch Disease', a decline in industrial competitiveness induced by the real exchange rate appreciation that follows from a sharp rise in commodities exports. Brazil is often discussed in this context, where the disconnection between the growth of retail sales and the growth of industrial production (Fig 49) is likely to have something to do with the large appreciation of the exchange rate that has taken place since 2002. Russia is also sometimes mentioned in this regard (IMF, 2007), and so to a lesser extent is South Africa. One of the problems in assessing Dutch Disease in each of these three economies is that all of them had exceptionally cheap currencies at the start of the 2000s, thanks to their painful experiences with financial and economic crisis in the late 1990s. So although their exchange rates have been boosted in the past 10 years by China-dependence, exchange rate appreciation would likely have occurred in any case.

Figure 49. 'Dutch Disease' risks seem alive Brazil, where industrial production has weakened relative to other sectors of the economy…



Source: Haver Analytics, Citi Research

Figure 50. …and a similar question can be raised regarding South Africa, where there is a growing gap between production and retail



Source: Haver Analytics, Citi Research

Figure 51. Who depends on China and how? The top 12 'China-dependent' economies in 3 groups of exports

Basic Exports to China
(as % of Total Basic Exports to World)

	2007	2008	2009	2010	2011
ZA	16.7	13.4	21.4	24.9	31.0
BR	n.a.	13.9	19.8	23.1	25.7
PE	n.a.	22.1	27.3	24.0	23.2
KR	22.6	22.9	21.8	22.3	22.1
CH	14.9	13.6	19.9	20.4	19.1
TH	13.9	11.7	12.9	14.2	16.1
ID	11.6	11.6	13.4	13.4	15.2
PH	11.0	7.2	8.9	14.2	13.6
RU	4.5	4.7	5.6	5.5	9.7
SG	6.7	6.9	9.0	10.0	9.6
MY	5.1	4.6	6.2	8.1	8.8
MX	n.a.	1.5	2.1	3.9	4.4

Semi-Manufactured Exports to China
(as % of Total Semi-manufactured Exports to World)

	2007	2008	2009	2010	2011
KR	42.0	40.0	42.8	41.0	41.1
TH	19.4	14.4	20.9	22.0	23.4
MY	19.3	18.3	19.5	17.6	18.5
ID	13.7	12.1	14.7	14.8	15.0
SG	10.5	11.0	12.0	14.7	14.4
RU	13.7	10.9	12.2	12.0	11.2
PH	4.9	5.6	7.6	10.8	8.6
BR	n.a.	7.5	8.4	8.8	8.2
CH	4.2	4.9	5.9	7.0	5.6
PE	n.a.	1.9	5.7	4.9	3.9
ZA	3.5	3.3	4.1	4.6	3.8
MX	n.a.	1.3	2.0	2.2	2.4

Manufactured Exports to China
(as % of Total Manufactured Exports to World)

	2007	2008	2009	2010	2011
BO	18.0	15.7	30.5	31.8	29.9
BR	19.5	19.1	21.8	23.4	22.2
CH	7.9	6.7	12.5	13.0	13.4
CO	11.8	12.1	7.5	10.9	12.8
ID	10.9	10.5	10.4	10.7	11.0
KR	n.a.	1.2	6.3	10.7	10.8
MY	3.6	6.8	7.8	7.8	9.0
PE	7.4	7.7	8.9	8.8	8.7
PH	5.6	2.9	5.6	6.4	5.3
SG	2.7	2.6	5.0	4.0	4.0
TH	n.a.	2.2	4.8	3.3	3.5
ZA	3.3	3.1	3.9	3.2	3.2

Source: UN Comtrade, Citi Research

Another way of looking at the way in which China has shaped EM is to consider the categories of exports that China has absorbed from different countries, and this is clear from Figure 51. For South Africa, Brazil, Peru and Korea, 'basic' exports – food, fuel, metals and minerals – make up over a fifth of their basic exports to the whole world. Korea, Thailand, Malaysia, Indonesia, Singapore, Chile, Philippines and Russia also all have highly elevated levels of China-dependence according to these data. What this means of course, is that a slowdown in China – and/or a rebalancing of the Chinese economy away from its historical investment-orientedness – could have unpleasant consequences for these groups of countries. Of course there will be opportunities created as well as threats as China rebalances, and in Section 4 of this paper we'll make an attempt to identify some of the countries that are best placed to take advantage of new patterns of Chinese growth. Before we get there, though, we need to say more about what Chinese rebalancing will look like, and that is the subject of the next Section.

3. What China's rebalancing will look like

We argued in Section 1 that there are good reasons for thinking that Chinese rebalancing will start soon: the decline in investment efficiency, the fall in the return on capital, emerging pressures in the labour market, and the impact of demographic change will all support a natural rebalancing process. We now take the argument a step further by suggesting that China's rebalancing will also be facilitated by the implementation of policy. We try to assess what Chinese rebalancing might look like, taking into account both the changing composition of Chinese growth and the slowdown in the growth rate that will inevitably be associated with rebalancing. The lessons from Japan in the 1970s and Korea in the 1990s suggest not only that rebalancing can sometimes come together with weaker growth, but also that rebalancing can sometimes be the result of an external shock. And we try to assess what a slower-growing, more consumer-driven Chinese growth model might do the growth of China's commodities demand; and to its composition.

We consider two things in this section. First, the role that policymaking will play in accelerating China's rebalancing process. And second, the lessons of Japan and Korea: that rebalancing can often be the result of external shock, and is difficult to achieve without a fall in growth

In the first section of this paper we argued that China's investment-orientedness could die slowly of natural causes: the decline in investment efficiency, the fall in the return on capital, emerging pressures in the labour market and the impact of demographic change. But there are two other factors to consider in thinking about why and how China will see the consumer share of GDP increase over the next few years. The first is Chinese policymaking; and the second is the apparent link that we've seen in other countries between growth slowdown and rebalancing.

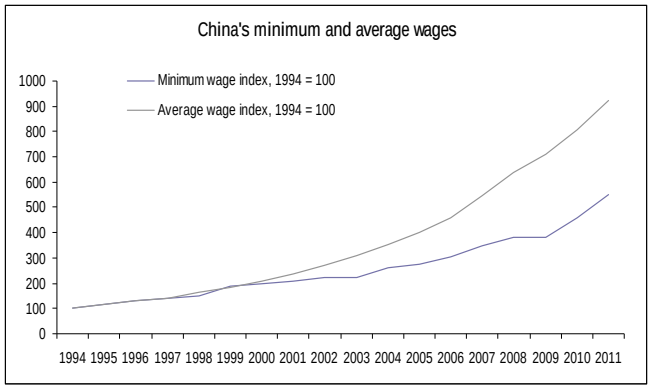
Chinese policymakers have been nominally committed to a rebalancing process for the past six or seven years, but as we've seen, little has come of this: the investment/GDP ratio has risen sharply in the post-Lehman world, with some dramatic consequences for Asian economies, for commodities exporters and even – because of the link between commodities prices and risk appetite – for commodities importers in EM.

That said, the Chinese authorities have put in place a policy framework that is aimed at stimulating the rebalancing process in pursuit of a 'harmonious society', and it is worth expecting these policies to have an increasingly visible impact on the composition of Chinese GDP. Among these policies a few are worth highlighting in particular:

- *Wage policy.* The 12th Five-Year Plan aims to increase household income per capita by at least 7% per year in real terms, and to boost the minimum wage by 13% per year (in nominal terms). The past two years have seen minimum wage growth at a visibly higher level than average wage growth, and so the gap has been shrinking recently in any case (Figure 52). Although this policy guidance isn't binding it probably has a role in setting wage expectations. And since the shortage of labour that results from China's demographics are likely to increase workers' bargaining power, it seems likely to us that wage pressures will move more and more in line with the aims set out in the 5YP.

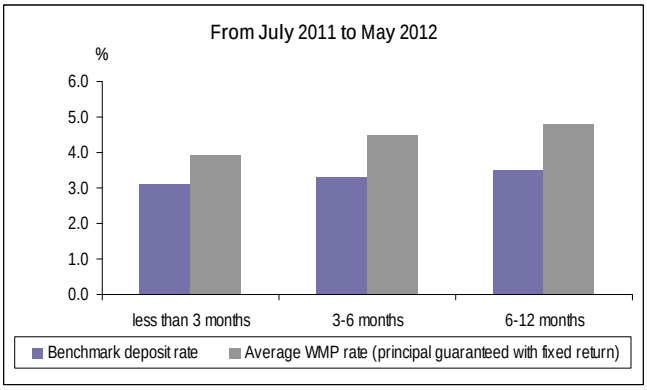
- *Tax policy.* The income tax reform introduced in 2011 has significantly reduced the tax burden on wage-earners by increasing deductible earnings. Further reform is likely to boost take-home pay further.

Figure 52. Minimum wages in China have started to catch up with average wages, and we think this process will continue...



Source: CEIC, Citi Research

Figure 53. ...while further interest rate liberalization is also likely to cause a rise in household disposable income



Source: Wind, Citi Research

- *Interest rate liberalization*. Interest rate cuts in 2012 have been accompanied by measures to increase the flexibility given to banks to set deposit and lending rates. In other words, interest rate reform appears to be gaining momentum. Deposits are the main financial asset of Chinese households, and so as rates become more liberalized their rise from sub-market levels will constitute a growing increase in disposable household income. The implicit subsidy that households have been providing to the Chinese economy is approximated in Figure 53, which shows the gap between policy-set deposit rates and market-set rates on Wealth Management Products. Equally: as rates rise to their market level, so does the cost of capital, and so any further liberalization is likely to tilt the economy away from investment spending.

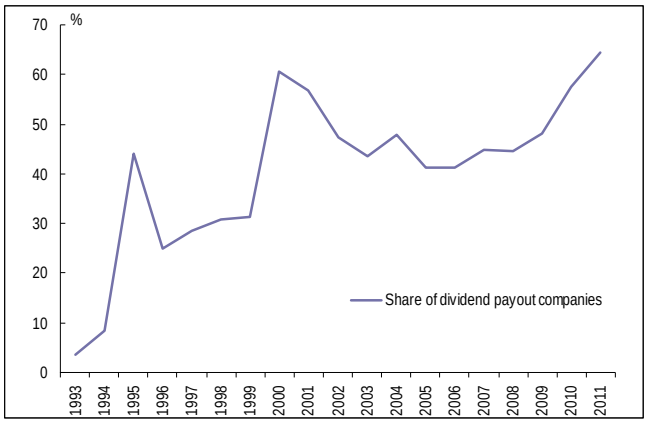
- *Dividend policy*. In addition, the China Securities Regulatory Commission has recently introduced new set of policies on cash dividend payments aimed at increasing the transparency and generating expectations that dividends will be paid; in 2011, only two thirds of listed companies paid cash dividends. These policies would increase households' investment returns and reduce firms' incentive to over-invest. The government also requires SOEs to pay more dividend to the state, which can potentially be used to increase transfer to the household and beef up the social safety net. The ability of Chinese firms to hold onto retained earnings has been an important factor behind high levels of corporate savings in the past.

- *Building a social safety net*. The past two years have seen a huge increase in China's pension coverage with the introduction of rural pensions. By the end of 2011, China's social pension system covered about 615 million employees: 284 million covered by urban worker pension, 326 million covered by the rural pension, and 5 million covered by urban resident pension (Figure 55). In addition, the pensions of civil servants are paid separately by the budget, and some estimate that 40 million government-related employees are covered by these flows. In other words, nearly 50% of the population is now covered by some form of pension. The government has pledged to achieve near-universal coverage of basic pension by the end of 2012. All this should help reduce precautionary savings over time and support consumption.

- *Price reforms*. China is rolling out overdue price reforms, including tier-based electricity tariffs. Water and natural gas pricing reforms are also on the agenda, which raises the prospect the implicit subsidies that firms have historically received in China - due to underpriced factor inputs – will fall over time, reducing the incentives to over-invest.

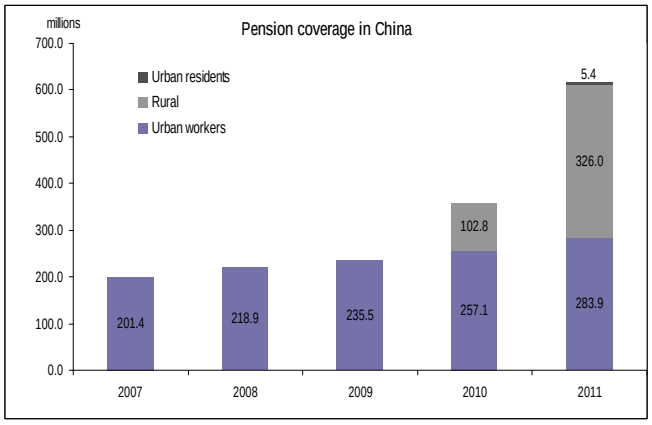
- *Maintaining the exchange rate at fair value*. After years of real exchange rate appreciation, it is now easier to argue than at any time in recent years that the RMB is close to an equilibrium level. This too should minimize the incentives for over-investment.

Figure 54. Dividend payments by Chinese firms have increased since reforms of 2007, and this should continue…



Source: Bloomberg, Citi Research

Figure 55. …while pension coverage has staged a huge increase in recent years, with more to come



Source: MoHRSS and Citi Research

> “Rebalancing doesn’t take place in a vacuum: it will almost certainly take place within the context of a visible slowdown in Chinese growth.”

We see Chinese rebalancing as being both the product of natural forces, as well as something that results from implementation of policy. Either way, it seems a slowdown in growth is inevitable, as Japan and Korea demonstrated.

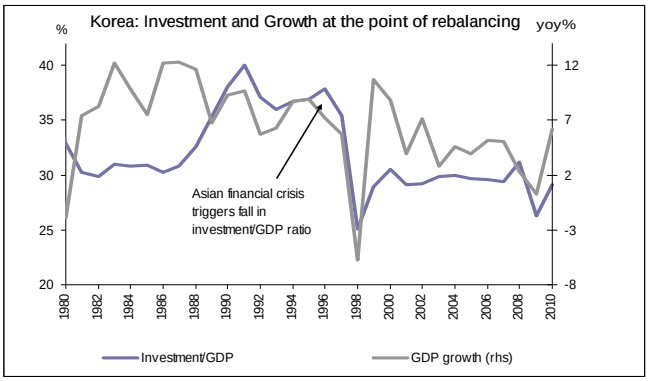
So, we see Chinese rebalancing as something that will happen both because of autonomous factors described in section one, and because of policy-related factors described here. But it is important to note that rebalancing doesn’t take place in a vacuum: it will almost certainly take place within the context of a visible slowdown in Chinese growth.

The link between rebalancing and slowdown is perfectly evident from the experience of other Asian economies in the past 40 years: Figures 56 and 57 show that relationship for Japan in the 1970s and Korea in the 1990s. In the four years running up to Korea’s 1997 crisis, the investment/GDP ratio was 37%; and fell to 28% in the four years afterwards. Growth fell from 7.7% in the four years prior to the crisis, to 4.4% in the four years from 1997 on. Same story in Japan: the GDP growth rate there was 9% in the four years before 1973, and 3.5% in four years from 1973 on.

China has more in common with Japan in the 70s than with Korea in the 90s, but the experiences of both countries suggest that i) rebalancing can be triggered by an international shock; and ii) that rebalancing can have as much to do with a decline in investment as with a rise in consumption!

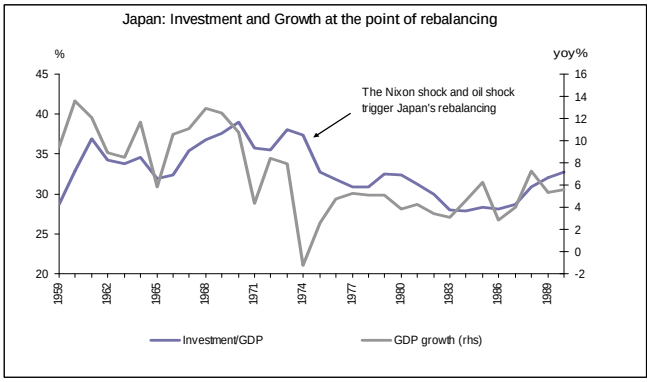
We've already expressed our view that China's rebalancing may have more in common with Japan's in the 1970s than with Korea's in the 1990s, since Korea's rebalancing was heavily influenced by its high reliance on external savings in the run-up to the crisis, and this made it vulnerable to the 'sudden stop' in capital flows that produced the Asian financial crisis of 1997. But even though Japan enjoyed an average current account surplus of 1% GDP during 1970-1975, it is worth stressing that Japan's rebalancing after 1973 *also* took place in the context of big shocks. The first was the 'Nixon Shock' of 1971, which ended the dollar's convertibility with gold and generated a sharp appreciation of the Yen (the Yen price of a dollar fell by over 20% between 1970 and 1973). The second was the oil shock of 1973 which caused energy prices to surge. Both these experiences suggest that rebalancing can just as easily take place because of a fall in investment as because of a rise in consumption, if an international crisis plays any role. International crisis are probably neither a necessary nor sufficient condition to induce a Chinese rebalancing process; but judging from the experience of Korea and Japan, the fragility of the international environment that China faces today is probably another reason to expect the rebalancing process to start sooner rather than later.

Figure 56. Rebalancing of the Korean economy after 1997 was precipitated by crisis and was associated with a growth slowdown…



Source: Citi Research

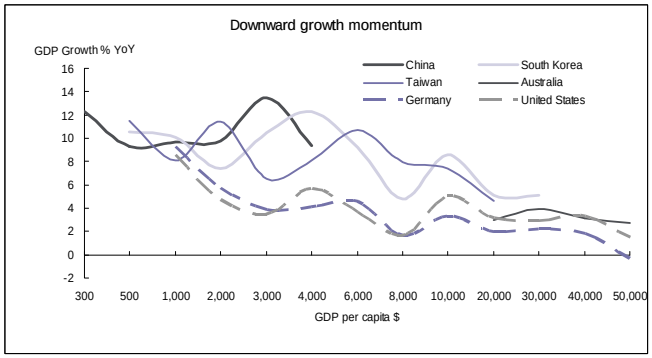
Figure 57. …and the same can be said of Japan's rebalancing after 1973



Source: Citi Research

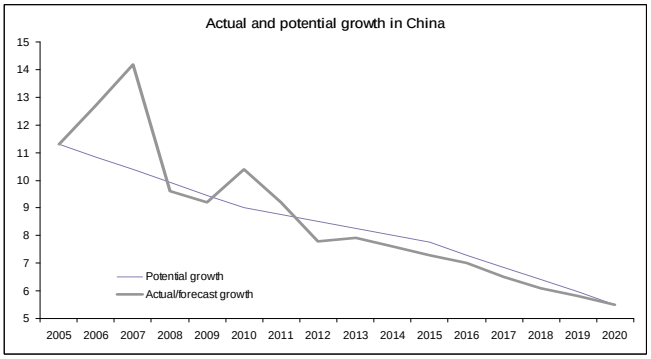
In any case, it seems reasonable to conclude from these experiences that Chinese rebalancing will be associated with economic slowdown. In China's case this slowdown is widely expected, both from the perspective of China's rising per capita GDP (Figure 58), and also from the perspective of changes in the nature of the capital stock, and of productivity (Figure 59).

Figure 58. Rising per capita GDP will be associated with lower GDP growth in China…



Source: Citi Research

Figure 59. …while downward pressure on GDP growth will also follow from less factor accumulation and slower productivity growth



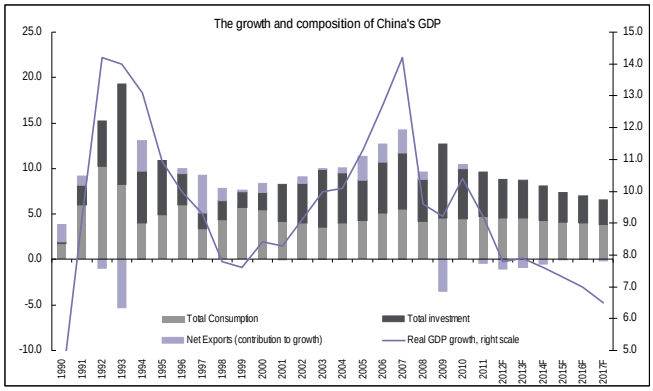
Source: Citi Research

A slower-growing, more consumer-driven China will see a simultaneous fall in the contribution both of investment and net exports – a big change from the period 1994-2008

So, we end up with slower-growing China and more consumer-driven China. The shape that we expect Chinese growth to take is set out in Figure 60. There are two points to stress in the numbers that underlie this. The first is that we expect consumer spending growth to exceed investment spending growth in every year from 2012 through 2020, a big change from the past decade in which investment spending growth has exceeded consumer spending growth in every year between 2002 and 2011. The second is that we expect net exports to contribute barely at all to Chinese growth: in fact, a small negative between 2012 and 2020. This constitutes an important change in the structure of Chinese GDP: net exports made a positive contribution to GDP in every year between 1994 and 2008. What's important to note here is the interconnectedness between Chinese investment and Chinese exports. China's demand for investment goods has been partly associated with domestic investment needs, of course. This is particularly true in the context of China's property boom: real estate investment rose to 13% GDP in 2011 from 5% a decade earlier. But in addition, China's imports of investment goods have been largely associated with its export machine, as we showed in Section 2 of this paper. A more balanced Chinese economy, therefore, will simultaneously lose its dependence on investment *and* on net exports.

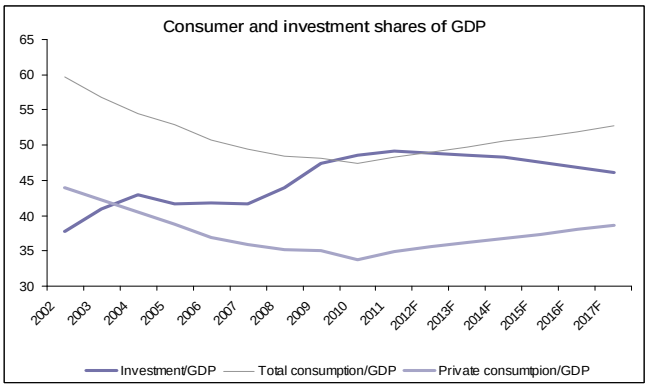
> "A more balanced Chinese economy…will simultaneously lose its dependence on investment and on net exports."

Figure 60. Net exports will disappear as a contributor to Chinese GDP growth...



Source: NBS, Citi Research

Figure 61. ...and this is what rebalancing will look like

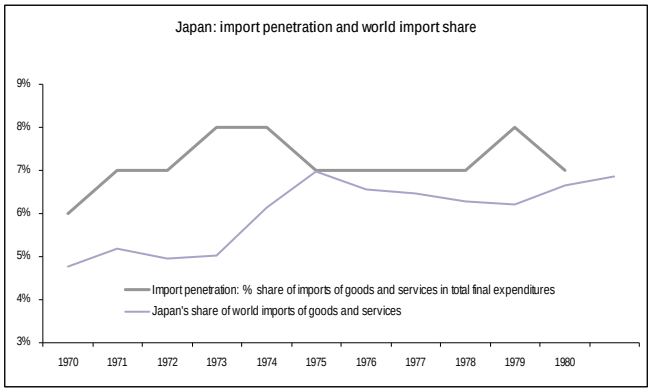


Source: NBS, Citi Research

China won't necessarily suck in huge amounts of imports from the rest of the world as consumer spending rises as a share of GDP. Japan didn't, and China seems perfectly able to supply its own consumer goods!

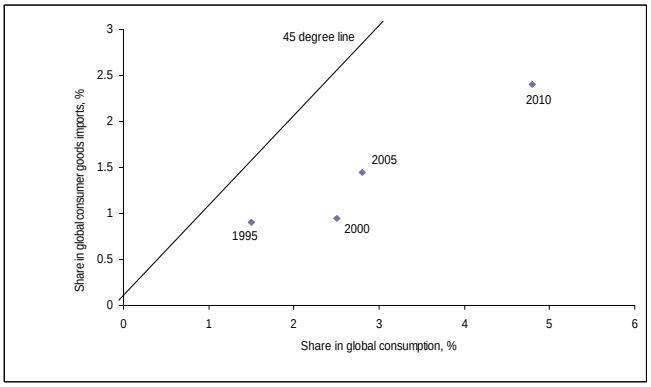
One important implication of this is that a consumer-driven China will not necessarily suck in imports from the rest of the world. That was certainly Japan's experience. After Japan's investment/GDP ratio peaked in 1973, there was no particularly visible increase either in Japan's share of total world imports, or in the import content of Japan's domestic expenditure (Figure 62); and what increase there was is probably best explained by the rise in oil prices. And for China, there is at least some evidence to suggest that a higher propensity to import does not necessarily follow from a higher propensity to consumer: Figure 63 suggests that China's share of global consumer imports has risen more slowly than its share of global consumption, and this carries the implication that as China consumes more, it might simply produce more of the goods and services that it consumes.

Figure 62. Japan saw a rise, but not a surge, in its absorption of imports after rebalancing…



Source: Haver Analytics, Citi Research

Figure 63. …and it seems that China's share of world consumer imports has risen more slowly than its share of world consumer spending



Source: IMF (2012), Citi Research

Chinese rebalancing promises to have some important implications for the growth rate and the composition of its commodities imports.

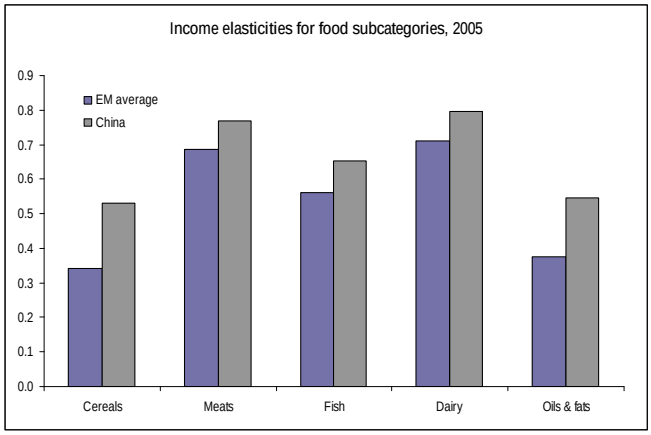
How might commodities markets be affected by this? Probably the best news will be for food producers. A well-respected observation in economics, Engel's Law, suggests that food consumption will rise with consumers' income even if the proportion of income spent on food falls. And the income elasticity of food demand in China seems rather high compared to other emerging economies; higher, in fact, in every main sub-category of food demand (Figure 64). A separate USDA study asks, using 2005 data, the following question: how would an additional $1 of income get distributed across broad expenditure categories? Their answer, for China, is 37 cents. (For comparison, the equivalent for Brazil is 24 cents; for Turkey 24 cents; for Korea 16 cents). This rather high number is simply a function of China's relatively low per capita income, but given China's size and growth rates – both of the economy and of urbanization - the data have important ramifications for the growth of international food demand. All this raises the prospect that the China's demand for foreign food might increase disproportionately to income growth.

We think food imports are likely to keep growing: China already has a food deficit and this is likely to widen

It is already true that China's food consumption has been growing faster than food production. China has achieved eight consecutive years of bumper harvests, and grain output reached a record high of 570 million tonnes in 2011. Yet China had to import 52 million tonnes of soybeans last year, averaging nearly 40kg per capita. And higher food imports will be further triggered by the fact that the composition of China's food demand will change as income rises: more meat, more eggs, more milk. Our analysis shows, for example, that while China's beef consumption varies positively with per capita GDP, the same isn't true for rice consumption. And this in turn helps to reinforce the argument that China's net food imports will rise over time. One way of seeing this is set out in Figure 65. We construct a 'grain-equivalent' total for China's food production and consumption, and forecast the balance simply using the average growth rate in each over the past five years. What we find is that – even without adjusting our demand forecast for rising per capita GDP – China's food import requirement could double to100 mn tonnes grain-equivalent in the next five years.

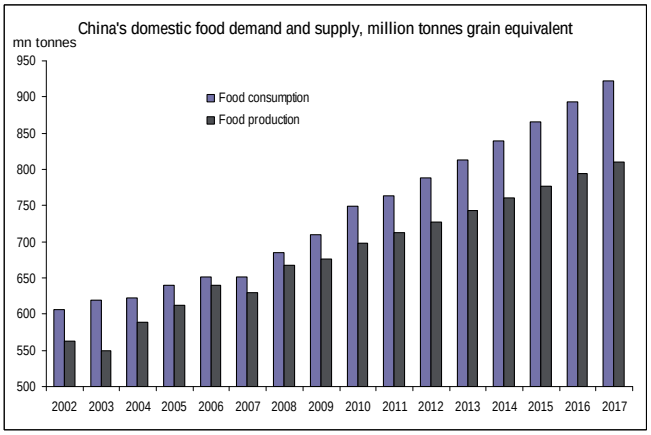
> China's food consumption has been growing faster than food production….and even a rebalancing and a slower-growing China is likely to be a rising source of food demand for the world's food supply.

Figure 64. China's low per-capita GDP means that the income elasticity of its demand for food is higher than EM on average...



Source: USDA, Citi Research. Note the EM average is of 24 countries

Figure 65. ...and we think that China's food trade deficit could double in five years to 100 mn tonnes grain-equivalent



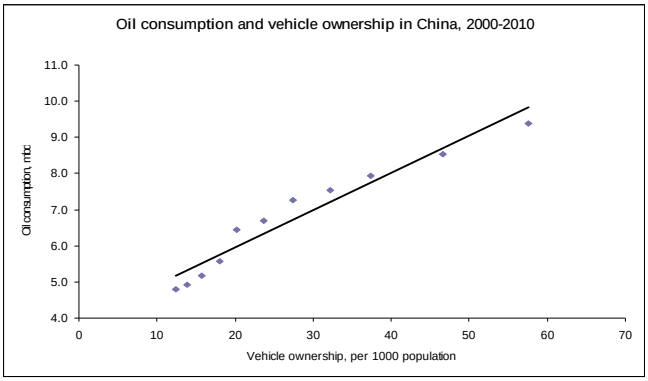
Source: UNFAO, Citi Research

Energy demand is also likely to be supported, not least by the rise in vehicle ownership that will accompany an increase in per capita GDP

So, even a rebalancing and slower-growing China is likely to be a rising source of demand for the world's food supply. And we think the same is probably also true of its demand for the world's supply of energy. A key to exploring this theme is the future of car ownership in China. Private transport in China now accounts for only some 10% of its energy demand; while commercial transport accounts for another 28%. By contrast, private transport in the US accounts for some 38% of energy demand, while commercial transport accounts for an additional 33%. Car penetration in China is low, of course, again reflecting the economy's low level of per capita GDP. China's total car ownership, at some 68.8 per thousand population, is now where Japan's level of car ownership was in 1965. Japan saw exceptional growth in car ownership in the years that followed: by 1970, car ownership in Japan had more than doubled to 169 per thousand.

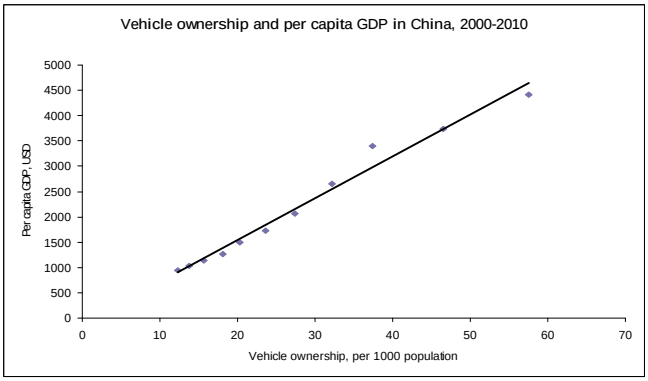
China may not follow quite the same path of explosive car ownership as in Japan in the late 1960s, not least because of environmental concerns that could impose price or quantity restrictions on ownership growth: driving restrictions in some Chinese cities have already made an appearance. But even if we assume that car ownership and oil consumption rise in line with per capita GDP, we get some interesting results, as Figures 66 and 67show.

Figure 66. China's oil consumption seems to rise in a linear fashion with respect to vehicle ownership…



Source: CEIC, Index Mundi, IMF, Citi Research

Figure 67. …which in turn rises in a linear fashion with respect to per capita GDP



Source: CEIC, IMF, Citi Research

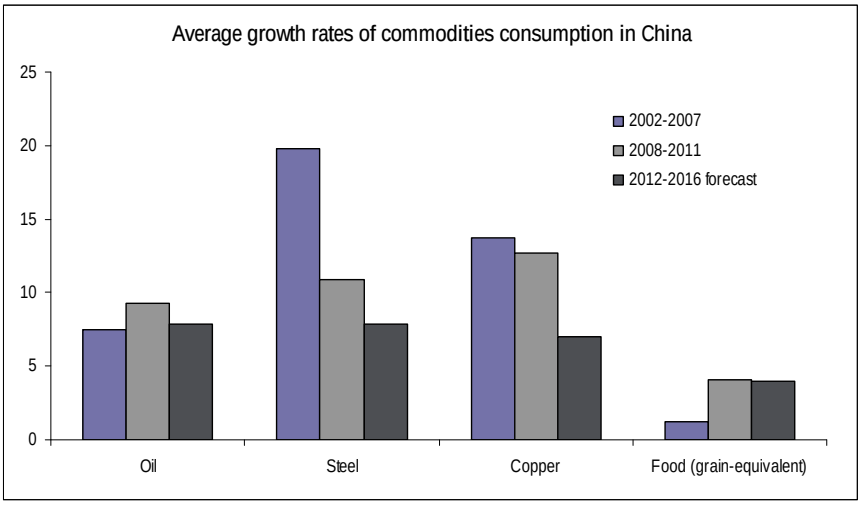
China's energy needs might be met with some increase in domestic supply, of course: China has technically recoverable shale gas reserves of some 1,275 trillion cubic feet – almost 50% bigger than those of the US – but development of those reserves is likely to be hindered by geological problems and an absence of infrastructure. It probably makes sense, therefore, to expect a rise in Chinese energy imports from the rest of the world.

Metals demand is likely to suffer the most in the context of Chinese rebalancing, and we think the growth of copper and steel consumption will fall to a rate equal to or just below that of oil

In Section 2 of this paper we highlighted the unusual metals-intensity of China's investment-oriented growth, and so it makes sense to assume that the growth rate of China's demand for metals, and its metals imports, will decline in the coming years of slowdown and rebalancing. Using some simple regressions we can provide at least a hint of where we think the breakdown of China's commodities demand is going, and the results are presented in Figure 68. The analysis generates some intuitive conclusions: the growth of metals demand will fall, we think, to a level just below or equal to the growth of oil demand. Food demand will be higher than in the past, but only just. But it is worth emphasizing that these forecasts can only provide a hint as to where we think the directions of these growth rates are going. If these forecasts prove wrong, *they are likely to do so because the ratio of metals demand growth to oil/food demand growth could end up higher than the picture we've generated here*, not least because the growth rate of metals demand in the past few years will have been boosted by inventory accumulation. That stockbuilding will probably have biased our forecasts of future metals demand growth to the upside. In short: the forecasts in Figure 68 should be seen as conservative. Metals demand growth rates could well be lower in the future, and the growth rate of food demand could well be higher.

With this in mind, the question that follows is: what will this new pattern of commodities demand – and indeed, the new pattern of Chinese growth overall – do for EM? We try to answer these questions in the following section.

Figure 68. The changing composition of China's commodities demand: the growth of metals consumption will fall below the growth of energy consumption



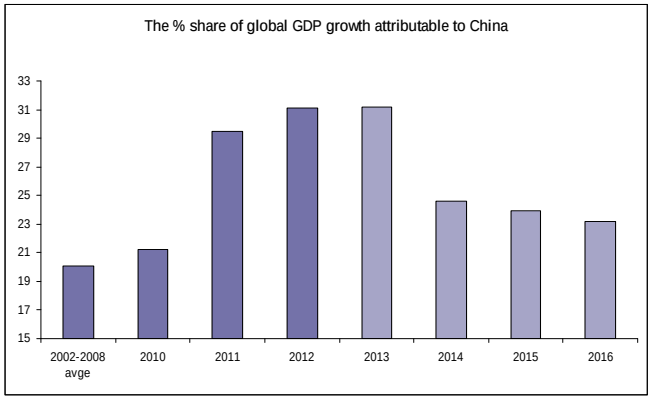
Source: Citi Research

4. How a rebalancing China will affect EM

Weaker, more consumer-driven Chinese growth will contain a number of threats for EM. These will come in three forms: i) threats to the commodities-exporters who fail to benefit from the weaker growth of China's commodities demand and its changing composition; ii) threats to countries who lose out in China's pursuit of vertical integration, by which China replaces foreign-supplied inputs to the production process with its own; and iii) threats to a broader group of commodity-importing countries if it turns out that a weaker, more balanced Chinese growth has a bad effect on global risk appetite. Yet there will also be opportunities for a number of EM economies, in two senses. First, a more consumer-driven China will increase its demand for the world's supply of consumer goods and services. And second, the increase in China's cost-structure – rising wages, fewer subsidies for inputs such as energy, capital, land and water – will make other countries more attractive as locations for production. We try to provide some estimates to show who the gainers and losers might be.

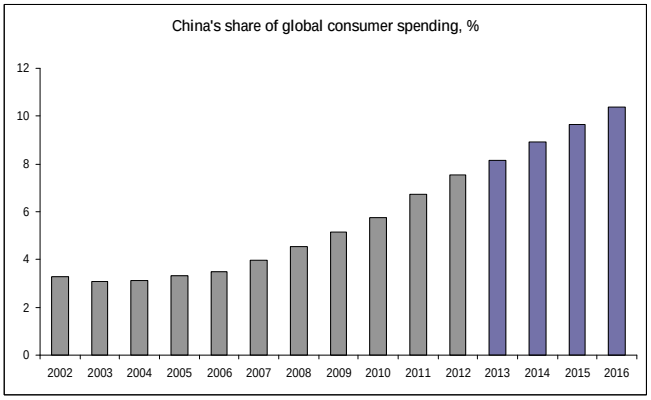
Weaker Chinese growth and less growth in China's demand for (some) commodities is unlikely to be good news for anyone, given the world's rising reliance on China as a source of global GDP growth in the past few years (Figure 69). We've already seen how Asia's exposure to a slowdown in Chinese exports is probably higher than others in EM (Figure 42); and it makes sense to think that Asian economies will find it difficult to escape from the damage caused by slower Chinese demand, both for final goods and for intermediate goods.

Figure 69. A slower-growing Chinese economy will mean that less of the world's rise in annual GDP will come from China...



Source: Citi Research

Figure 70. ...but China's reorientation towards consumer spending will cause its share of global consumption to keep increasing

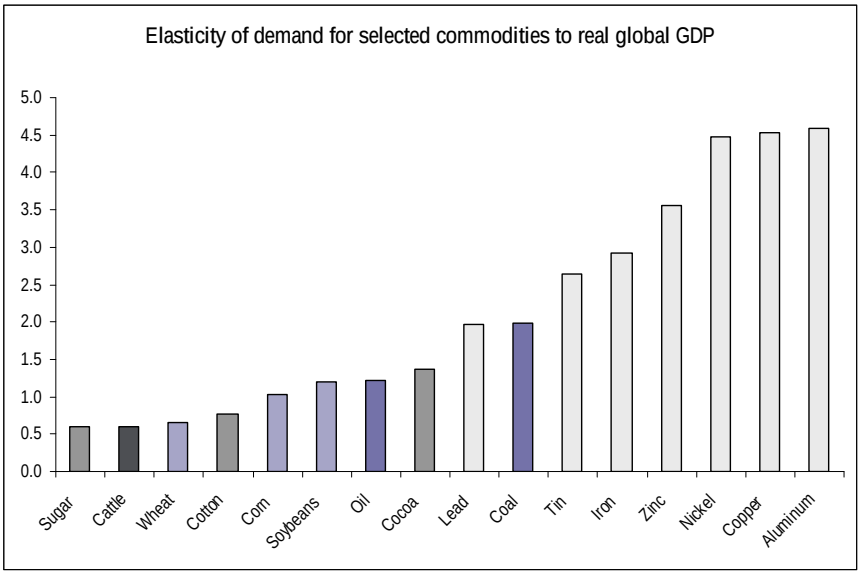


Source: IMF, Citi Research

China's impact on commodity exporters will change as the growth rates of China's demand for metals falls relative to the growth rate of its demand for energy and food

In addition, of course, a slower-growing more consumer-oriented China has potentially deep ramifications for commodity markets and the economies that produce them. Much as the natural resource exporters listed above were some of the main beneficiaries of the China-commodity connection, they may be challenged in the future as Chinese growth slows and rebalances away from commodity-intensive forms of growth. Industrial metals are under particular threat as not only are they highly cyclical and closely tied to the global business cycle, they also disproportionately benefited from Chinese infrastructure and other fixed investment demand. So the Chinese slowdown and the change in the composition of Chinese GDP will generate a kind of double-whammy for metals producers: a cyclical hit, and a structural one.

Figure 71. Global GDP – and by extension, Chinese GDP – have had the biggest impact on metals prices…



Source: Citi Research

A more country-specific measure of vulnerability to a declining Chinese growth rate is presented in Figure 72. Zambia, Chile, Peru, India, South Africa – the countries most exposed to a decline in the growth of Chinese metals demand – seem to be the most exposed[7].

Figure 72. …and so it may be the metals exporters in the centre of this table that suffer at the margin if China's metals demand growth falls

	Biggest Exporters of Agricultural Goods (% share in total exports)		Biggest Exporters of Metal (% share in total exports)		Biggest Exporters of Oil (% share in total exports)	
1	New Zealand	5.8	Zambia	19.3	Congo	20.0
2	Peru	3.4	Chile	15.1	Cameroon	4.6
3	Viet Nam	1.2	Peru	2.6	Colombia	2.6
4	Thailand	0.8	India	2.1	Russia	2.3
5	Ghana	0.6	South Africa	2.0	Brazil	2.1
6	Hong Kong	0.6	Korea	1.7	Algeria	2.0
7	Chile	0.6	Colombia	1.0	Azerbaijan	1.5
8	Australia	0.5	Australia	0.8	Viet Nam	1.1
9	Pakistan	0.5	Bulgaria	0.7	Indonesia	1.0
10	Ethiopia	0.5	Bolivia	0.7	Argentina	1.0
11	Brazil	0.4	Philippines	0.5	Malaysia	0.8
12	Argentina	0.3	Brazil	0.4	Nigeria	0.7

Source: UN Comtrade, Citi Research

[7] Some data limitations are important here: African oil and metals exports to China aren't well-enough documented to include some important exporters: Angola, for example, or Democratic Republic of Congo.

To the extent that food and energy exporters might gain from a rising Chinese consumer, there might be good news for the countries in the far left and far right columns of Figure 72. Indeed, commodity exporters haven't been entirely disconnected from China's consumption up until now, in spite of the fact that

In spite of its investment-driven growth, China's absorption of consumer-related goods has already been important for a number of EMs.

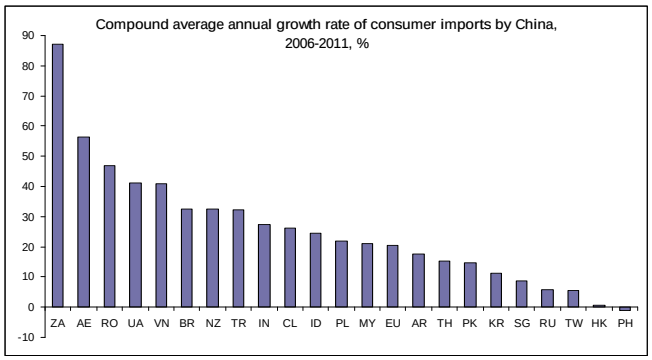
China's share of world consumer spending has grown faster than its share of world consumer imports. Although Chinese consumption remains low relative to GDP, the growth of GDP itself has boosted China's share of global consumer spending from 3% in 2002 to 7% today (and, we expect, to 11% in 2017). In nominal dollar terms, that's a rise from roughly $1 trillion to roughly $4 trillion during the past 10 years. And since commodity exporters aren't just supplying investment goods – particularly true of those countries supplying food to China – Chinese consumers have already delivered some notable benefits to a number of commodities exporters.

This is evident if we look who has benefited from the rise in Chinese consumer spending in recent years. This isn't an easy task: Chinese trade data breaks imports down between those used for processing/re-export, and those supplying domestic demand; but doesn't contain any information about what *kind* of domestic demand – investment demand or consumer demand – these goods are destined for. So we have to make some assumptions at a country and product level. We do this by assuming that 9% of China's imports of transport equipment; 15% of China's electronics demand; and 30% of Chinese imports of "commodities not classified according to kind" are all destined for Chinese consumers[8].

Asia has been in the lead as a supplier of consumer goods to China

What the data show is that there are quite a few countries outside Asia that have enjoyed rapid export growth of consumer goods to China: South Africa, the United Arab Emirates, Romania and Ukraine all seem to have benefited (Figure 73, but note footnote 8 below). But when these data are looked at from the point of view of the contribution to GDP generated by selling consumer goods to China, it seems that Asia is in the lead: Taiwan, Malaysia, Vietnam, Korea, New Zealand and Thailand lead the group here, although South Africa and Argentina also seem to have sold consumer exports to China in an amount greater than 1% of their GDP last year (Figure 74).

Figure 73. A few countries outside Asia – South Africa, the UAE – seem to have enjoyed rapid export growth of consumer goods to China...



Source: CEIC, Citi Research

Figure 74. ...but it is Asia's economies that benefit most by selling consumer goods to China

Source: CEIC, Citi Research

[8] Needless to say there could be a number of flaws associated with these assumptions. Last year, for example, almost two thirds of China's imports from South Africa were classified as 'commodities not classified according to kind'. A good share of this is probably accounted for by diamonds, which China imports not only for consumers but also to process: along with Belgium, India and Israel, China is an important international centre for diamond-cutting. (Switzerland too: unclassified imports accounted for over two thirds of China's imports last year, of which a good share is probably commodities exports from Africa intermediated by Swiss trading firms).

We apply a simple approach – Revealed Comparative Advantage – to ask: which countries might benefit from higher Chinese demand for consumer goods?

Who might benefit from rising consumer demand in China in the future? To attempt an answer to this question we use a methodology known as Revealed Comparative Advantage, first set out by Bela Balassa (Balassa, 1965)[9]. The basic assumption behind the analysis is that comparative advantage determines the structure of a country's exports. So, the approach considers a country's comparative advantage in an industry by comparing its market share in that industry with its share of total world exports. Simply put: a country can be said to have revealed comparative advantage if its market share in a particular good is higher than its market share for all goods. The 'Balassa Index' for country i and for industry/product j is calculated as follows:

$$RCA_{ij} = (X_{ij}/X_{gj})/(X_i/X_g)$$

Where
X_{ij} = exports by country i of industry/product j
X_{gj} = global exports of industry/product j
X_i = total exports of country i
X_g = total global exports

If it takes a value greater than 1 for a particular product, the country has a revealed comparative advantage in that product.

This approach has plenty of shortcomings: it doesn't account for scale, for example, which might allow bigger countries to achieve lower absolute costs even if they have no comparative advantage. That said, we try to investigate which countries might have Revealed Comparative Advantage in consumer goods likely to be attractive to Chinese buyers. We consider 4 buckets of products: low-tech consumer goods (ex-textiles); consumer electronics; cars; and high-tech consumer goods[10]. We standardise the Balassa Indices for each country/product, and generate a country-by-country ranking (Figure 75). We indicate in the table the cut-off point below which countries are scoring less than 1 on the Balassa Index. That doesn't mean they won't have ever had an Index above one; but simply that they didn't in 2010, the year for which we've run the calculations.

Once again, Asia scores high: Thailand, Indonesia and Vietnam all seem competitive in the production of consumer goods

The results are pretty encouraging for Asia: Thailand for example, has a Balassa Index greater than 1 for all four of the categories included here; Vietnam scores likewise in three out of the four; and Indonesia in two. Outside Asia, the scores indicate relatively promising prospects, for example, in Romania, Poland, Hungary and Turkey. Latin America, on the other hand, has less encouraging results: other than Mexico, which features well in consumer electronics and cars, Latin America's scores are largely disappointing. But Mexico's score may provide a reminder of some of the shortcomings of this analysis. The fact that Mexico has RCA in cars, for example, doesn't necessarily mean that it will be able to sell more cars to China. An optimistic reading of these data, though, would suggest that Mexico could benefit through a chain-effect: even if other countries sell more cars to China, the increase in global demand for cars will filter its way to Mexican producers. In any case, it would seem that the potential for car penetration to rise in China is high, as we discussed earlier.

[9] Our use of this analysis owes particular thanks to Kit Wei Zheng, 2010.
[10] *Low-tech consumer goods* includes leather goods, travel goods, clothes, footwear, furniture and miscellaneous manufactured goods; *consumer electronics* includes some data processing equipment, TVs, radios, phonographic equipment, telecoms equipment and household electrical appliances; and *high-tech consumer goods* includes cameras, related equipment, and watches.

Figure 75. Ranking of countries' 'Revealed Comparative Advantage' in four categories of consumer goods

Global Rank, 2010	Low tech consumer (ex-textiles)	Consumer Electronics	Automotive	High tech consumer goods
1	Sri Lanka	Hungary	Slovakia	Philippines
2	Viet Nam	China	Japan	Japan
3	Pakistan	Mexico	Mexico	Taiwan
4	China	Slovakia	Czech	Thailand
5	Turkey	Philippines	Poland	Korea
6	Romania	Malaysia	Romania	Singapore
7	Hong Kong	Czech	Turkey	China
8	India	Thailand	Argentina	Viet Nam
9	Poland	Poland	Korea	Hong Kong
10	Indonesia	Korea	Thailand	Malaysia
11	Czech	Hong Kong	S Africa	Czech
12	Thailand	Romania	Hungary	Israel
13	Slovakia	Israel	Brazil	Mexico
14	Egypt	Singapore	India	Argentina
15	Malaysia	Viet Nam	Philippines	Hungary
16	Taiwan	Turkey	Taiwan	Poland
17	Mexico	Indonesia	China	India
18	Philippines	Japan	Indonesia	Indonesia
19	Peru	Ukraine	Singapore	Slovakia
20	Hungary	India	Chile	South Africa
21	Singapore	Brazil	Ukraine	Romania
22	Colombia	S Africa	Viet Nam	Brazil
23	Israel	Egypt	Sri Lanka	Ukraine
24	Ukraine	Chile	Malaysia	Turkey
25	Brazil	Colombia	Israel	Chile

Source: UN Comtrade, Citi Research. Note that countries with shaded text have Balassa Index below 1

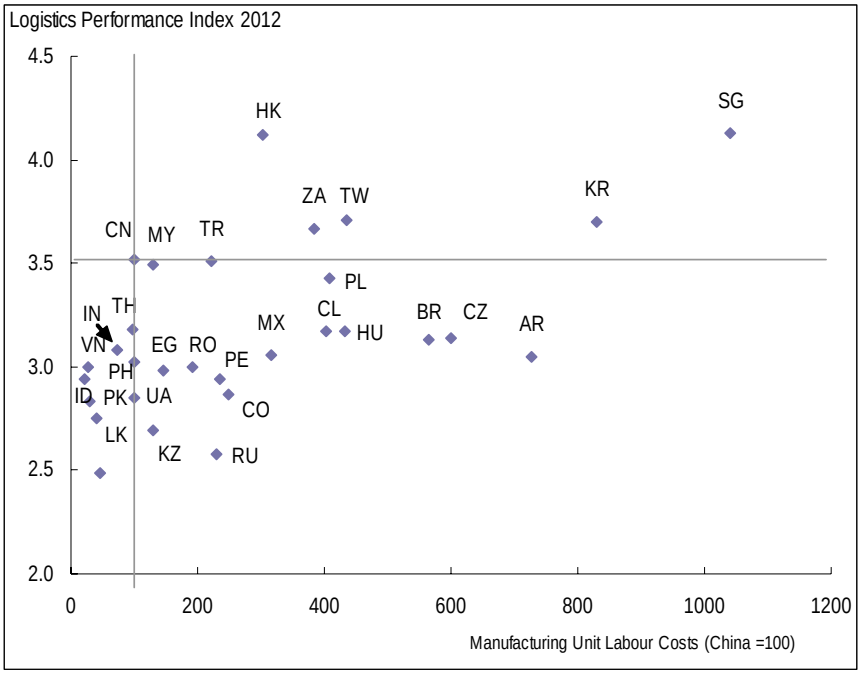
Who might benefit from a reallocation of manufacturing production capacity as the cost of production in China rises due to wage increases and the re-pricing of inputs like capital, land, energy and water?

A story that's closely connected to China's rebalancing is the prospect of factory relocation away from China, to countries that become increasingly attractive to China (and others) as Chinese costs rise. As we highlighted in back Figure 16, China's wage advantage is eroding more or less universally. And cost pressures in China will rise not just due to wage growth, but also due to the re-pricing of factor inputs – capital, land, energy and water - in the context of the reforms we discussed in Section 3. As a result, it makes sense to imagine that factory-growth in China might fall relative to factory-growth elsewhere.

But where will 'elsewhere' be? One obvious guide in thinking about the countries who might benefit from this is simply unit labour costs in manufacturing. But more than this is needed, and we think that one useful guide might be the relationship between unit labour costs and business conditions defined in the World Bank's Logistics Performance Index (LPI) (World Bank, 2012). This is a multi-dimensional assessment of logistics performance across 155 countries and has six components: the efficiency of the cross-border clearance process, including customs; the quality of trade- and transport-related infrastructure; the ease of arranging competitively-priced shipments; the quality of logistics services (transport operators, for example); and the ability to track consignments. The scores range from 1.6 (Burundi) to 4.1

(Singapore and Hong Kong). In general we've found a relatively close relationship between countries LPI scores and their scores in the World Bank's better-known Doing Business surveys. But the LPI gets to the heart of what makes a country attractive from a production/trade perspective.

Figure 76. Manufacturing Unit Labour Costs measured against the World Bank's Logistics Performance Index



Source: World Bank, EIU, Citi Research

Asia wins here too: Malaysia, Thailand, India, the Philippines and Vietnam all seem to have good combinations of low-ish unit labour cost and strong logistics. But Turkey, Romania, Egypt and South Africa also screen well.

There is no country that currently has a better combination of low wages and good logistics than China. That's the conclusion of Figure 76, which shows no country to the upper left of China. China's overall competitiveness is hard to match. To get to the question 'to where might factories relocate?', we look at a category of countries with reasonable trade logistics (above a score of 3, which embraces the top 54 out of the 155 countries in the World Bank's survey) and relatively low unit labour costs. The most obvious possible beneficiary is Malaysia, whose wage/logistics endowment is closer to China's than anyone else. Indeed, most of the other beneficiaries are likely to be Asian: Thailand, India, Philippines, Vietnam and possibly Indonesia all score reasonably well here.

Away from Asia, the country that seems to have the brightest prospects on this measure is Turkey, whose trade logistics are good – it ranks 27th globally in the LPI – and whose manufacturing wages are 'only' twice China's. Romania, Egypt and South Africa are other possible candidates within CEEMEA (South Africa's superior trade logistics might offset some of its disappointing wage performance). For Latin America, there is largely bad news once again: both Brazil and Argentina are to bottom right of the chart, signifying high manufacturing wages and relatively poor trade logistics, with Chile not far behind. Of the Latin American economies, only Mexico, Peru and Colombia seem to have reasonable combinations of cost and logistics quality. All in all, this analysis helps to draw the conclusion that China's rebalancing will not only benefit Asia more than the rest of EM, but that further regional integration within Asia has a considerable tailwind behind it. For Latin America, however, the implications of a rebalanced China are more discouraging.

Figure 77. Ranking of countries' 'Revealed Comparative Advantage' in three broad categories of technological depth

Global Rank, 2010	High tech	Medium tech	Low tech
1	Hong Kong	Hong Kong	Pakistan
2	Philippines	Japan	Sri Lanka
3	Taiwan	Israel	Viet Nam
4	Singapore	Hungary	China
5	Korea	Ukraine	Turkey
6	China	Poland	India
7	Malaysia	Czech	Romania
8	Hungary	Slovakia	Hong Kong
9	Israel	Turkey	Egypt
10	Mexico	Mexico	Poland
11	Japan	South Africa	Indonesia
12	Slovakia	Romania	Czech
13	Thailand	Korea	Thailand
14	Czech	Thailand	Taiwan
15	Panama	India	Slovakia
16	Romania	Taiwan	Malaysia
17	Poland	Panama	Mexico
18	Viet Nam	Brazil	Philippines
19	Ukraine	Argentina	Peru
20	Turkey	China	Hungary
21	India	Egypt	Israel
22	Indonesia	Singapore	Colombia
23	Brazil	Malaysia	Korea
24	Egypt	Indonesia	Singapore
25	Sri Lanka	Russia	Ukraine

Source: UN Comtrade, Citi Research. Note that countries with shaded text have Balassa Index below 1. Hong Kong's ranking in high tech could be a reflection of re-exports to and from China.

A different way of slicing our Revealed Comparative Advantage continues to flag Asia as best-placed to take advantage of possible factory relocation away from China

Another way of looking at EM's chances of attracting new production capacity is to go back to the Revealed Comparative Advantage analysis we used earlier to assess which countries might be able to increase their supply of consumer goods as China rebalances. The analysis in Figure 77 summarises countries' rankings in the Balassa Index for three broad categories of goods: high-, medium- and low-tech[11]. For high-tech sectors, Asian economies still dominate, although Hungary, Mexico, Israel, Czech, Slovakia, Romania and Poland are CEEMEA economies with potential; and that pattern is also evident for the other broad categories we've analysed. And as for Latin America, we reach the same conclusion that we did in our earlier analysis covering consumer goods; namely, that only Mexico features visibly.

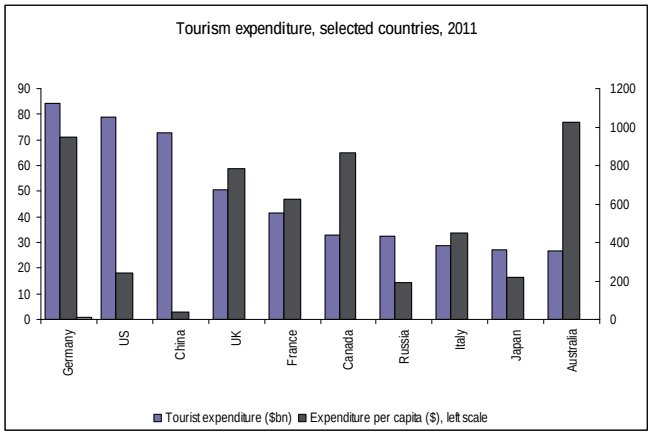
[11] Our decisions about how to group Standard International Trade Classification (SITC) codes into technological classifications were influenced by Lall, 2000. In broad terms, *high tech* includes electrical and electronic equipment, including telecoms, together with non-road transport equipment, scientific equipment and high-tech consumer products that feature in Fig 74; *medium tech* includes metals, cars, chemicals/plastics and some machinery; *low tech* includes textiles and the low-tech consumer goods included in Fig 74.

Of course it's not just manufacturing capacity that might expand away from China as it grows richer, but services too. One area in which this might have some important implications is tourism. Last year China was the third highest-spending source of the world's tourism income after Germany and the US, although its spending per capita remains, for obvious reasons, exceptionally low by international standards (Figure 78). The World Tourism Organisation expects 2012 to be the year China takes over as the world's biggest exporter of tourists. If China were to spend the same, per capita, as Russia does - $228 last year - its overall tourist expenditures would rise to $300 bn. That might take some time – Russia has a per capita GDP that's twice China's level – but the trend is clear, and will lead to Chinese tourism expenditures dwarfing other countries': last year Germany, the world's biggest spender on tourism, spent $84 bn.

Chinese tourism expenditure is likely to rise significantly

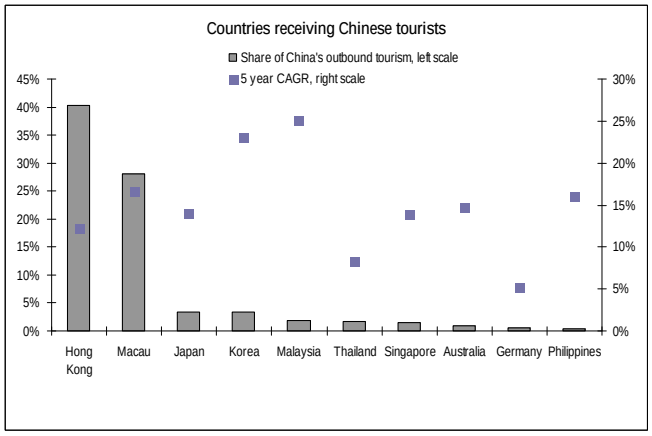
Once again, though, it appears that Asia will be the biggest winner from rising Chinese tourism expenditure, at least in the foreseeable future. Hong Kong and Macau together accounted for 68% of Chinese tourists in 2010, and the next most popular destinations were Japan, Korea, Malaysia, Thailand, Singapore and Australia (Figure 80). For the time being, therefore, Chinese tourism seems likely to reinforce the arguments contained elsewhere in this paper that a more consumer-oriented China is likely to deliver more benefits to Asia than to anyone else. Asian integration seems very likely to intensify with China's rebalancing, a theme that is possibly reflected in the dominant position that Asian economies hold in the rise of RMB currency swap arrangements in the past three years (Figure 79).

Figure 78. China is the third-highest spender on tourism in the aggregate, although per capita spending is obviously low…



Source: UN World Tourism Organisation; Citi Research

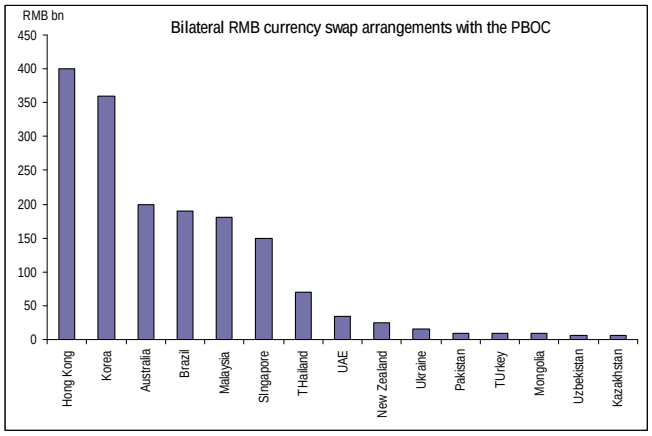
Figure 79. …and for the time being at least it seems that it will be Asian destinations that benefit the most from the rise in Chinese tourism



Source: CEIC; Citi Research

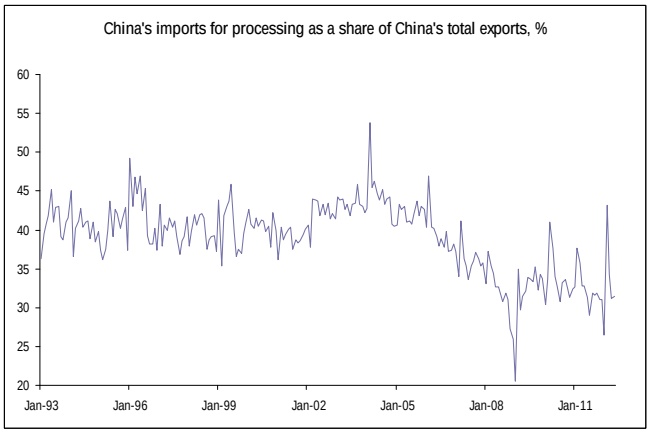
What we've tried to assess so far is the possible benefits that might accrue to different countries and regions as a result of factory relocation away from China. But China will also be a competitor, particularly as it is likely to develop further its competitiveness in high-tech manufacture. It is already clear that China is undergoing a process of vertical integration, by which it is gradually ending its reliance on other countries to supply intermediate goods in favour of its own. This is evident from Figure 81, which shows how the imported content of Chinese exports has diminished over time: from an average of 42% in 2002-06 to 32% during the past 12 months.

Figure 80. The likely intensification of Asian integration is reflected in Asia's dominant position of RMB swap arrangements with the PBOC...



Source: PBOC, Citi Research

Figure 81. ...but Asian economies could find themselves faced with more Chinese competition



Source: China Customs, Citi Research

The countries most at risk from this process are probably those whose exports to China are most heavily weighted towards intermediate goods: Philippines, Malaysia, Taiwan, Singapore, and Korea (see Figure 24). The precise fate of Asian economies affected in this way will depend on how the threat of Chinese competition is balanced against the opportunities that open up to these countries as Chinese wages rise. The net effect is impossible to predict, but we suspect that regional integration will remain a positive story for emerging Asia during the period of China's rebalancing.

On the other hand, the wealthier Asian economies could become victims of a 'boomerang effect', as higher costs force Chinese firms to add more value to their products - including brand value - and so compete with their former suppliers. There's plenty of precedent for this process. In the 1970s and 80s, for example, the Korean steel company POSCO started to replace Japanese steel exports at much lower prices; Samsung went from being a buyer of Japanese equipment to being a competitor (Kim, 1998). And this competition may not be confined to intermediate goods imports, but could apply equally to areas such as shipbuilding: Chinese yards compete with Korea's.

Conclusion

The increase in the world's China-dependence in the past few years suggests that the imminent rebalancing of the Chinese economy will have highly visible consequences for many countries. If that rebalancing takes place as Japan's did in the 70s and Korea's did in the 90s – through a decline in investment spending more than a rise in consumer spending – then the consequences could be unpleasant in the short run. Above all, a sneezing China will cause Asia to catch cold. The increase in China-centric regional integration – one of the most important trends in the global economy during the past few years - has left a number of Asian economies – Korea, Thailand, Singapore, Indonesia, Vietnam – highly exposed to China through trade and investment linkages. But there is a paradox here. Asia may have the most to lose in the short run if China's rebalancing doesn't follow a benign path, but it probably has the most to gain in the long run. Asian regional trade integration still lags that of the EU, and it's likely that Asia will catch up in this respect. In addition, in every slice of analysis that we've performed for this paper – to see which countries can sell consumer goods to China; to see which countries might benefit from factory relocation away from China; and to see which countries might benefit from higher Chinese expenditure on services like tourism – Asia scores highly. When one couples the prospects for future Asian integration together with the competitiveness of Asian economies that we've unveiled here, the case for an 'Asian century' becomes compelling.

By contrast, there are a number of Latin American economies that seem relatively vulnerable to Chinese rebalancing, both in the short- and long-run. Chile and Peru, for example, have considerable reliance on metals exports to China, and if we're right in thinking that the growth of China's demand for these goods will fall, then there could be pressure on these economies to go through an adjustment process in response. And that adjustment could be painful: when we investigated which countries might have a decent chance of selling more consumer goods as Chinese consumption increases, not a single South American economy registers as having a competitive advantage, and that conclusion is echoed in our analysis of the countries that might have a chance of benefiting from factory relocation as Chinese costs rise. Brazil is also likely to be affected in this way, with its relative high unit labour costs and historically appreciated exchange rate – albeit that Brazil should be relatively protected if its food and energy exports to China benefit from rising Chinese consumer demand.

The news is not entirely bad for Latin America: Mexico in particular looks like it may have a chance of reversing the relative damage done to its global market share of manufacturing goods that followed from China's accession to the WTO in 2001. Good trade logistics and a reasonable cost structure help to make Mexico attractive, not just as a possible supplier of consumer goods but also as a beneficiary of some reallocation of the world's manufacturing capacity away from China.

If the simplistic headline conclusion of our analysis is that 'Asia wins, and South America loses', a more precise list of countries that will suffer or benefit is difficult to come up with. Some of our analysis has flagged certain countries – Turkey, Hungary, Romania, Poland, Israel, Czech, Egypt, Ukraine are examples – as having potential in a world of a rebalanced China. But the high number of 'known unknowns' – how policies evolve in each country, and how nimbly policymakers adjust to a new pattern of Chinese growth – would make a precise list only spuriously accurate.

One thing seems clear though: a rebalancing process in China is imminent. The distorted investment-led growth model that's characterized China in the past few years will either die of natural causes – through changes in the labour market, the fall in investment efficiency and the decline in the return on capital – or as a result of policies designed to promote a 'harmonious society'. Ideally of course, the world would be happy if that rebalancing took place in a benign fashion: as the result of rising consumer spending rather than declining investment spending. But as we've seen, the experience of Japan and Korea suggests that this process might not be so friendly. Either way, the pattern of China's relationships with EM seems destined to change. The 'China-commodities complex' is unlikely to last in its current form, posing threats and opportunities for policymakers everywhere.

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NOW / NEXT

Key Insights on the Shifting of Energy Supply and Demand

COMMODITIES

China's investment-oriented growth has been a commodities-absorptive growth with China accounting for more or less the entire global increase in demand for zinc, nickel, lead, copper and tin between 1995 and 2011. / Metals demand is likely to suffer the most in the context of Chinese rebalancing and the growth rate of China's demand for metals and it's metals imports will decline in the coming years of slowdown and rebalancing.

LABOR MARKET

China's population has been steadily increasing since the 1950s with the number of workers aged 20-29 expected to peak in 2015. / Between 2016 and 2026, the 20-29-year old population is expected to fall by 25% and China's dependency ratio (China's young plus old population divided by its working population) will start rising from 2015.

POLICY

High savings rates, driven by corporate restructuring, cultural factors, the legacy of the Asian crisis, pension reform, the emergence of private home ownership and capital controls facilitated the rise of China's investment-orientedness. / Chinese authorities have put in place a policy framework (including wage, dividend, interest rate, exchange rate and price reforms) that is aimed at stimulating the rebalancing process and shifting the composition of Chinese GDP away towards a consumer-driven growth model.