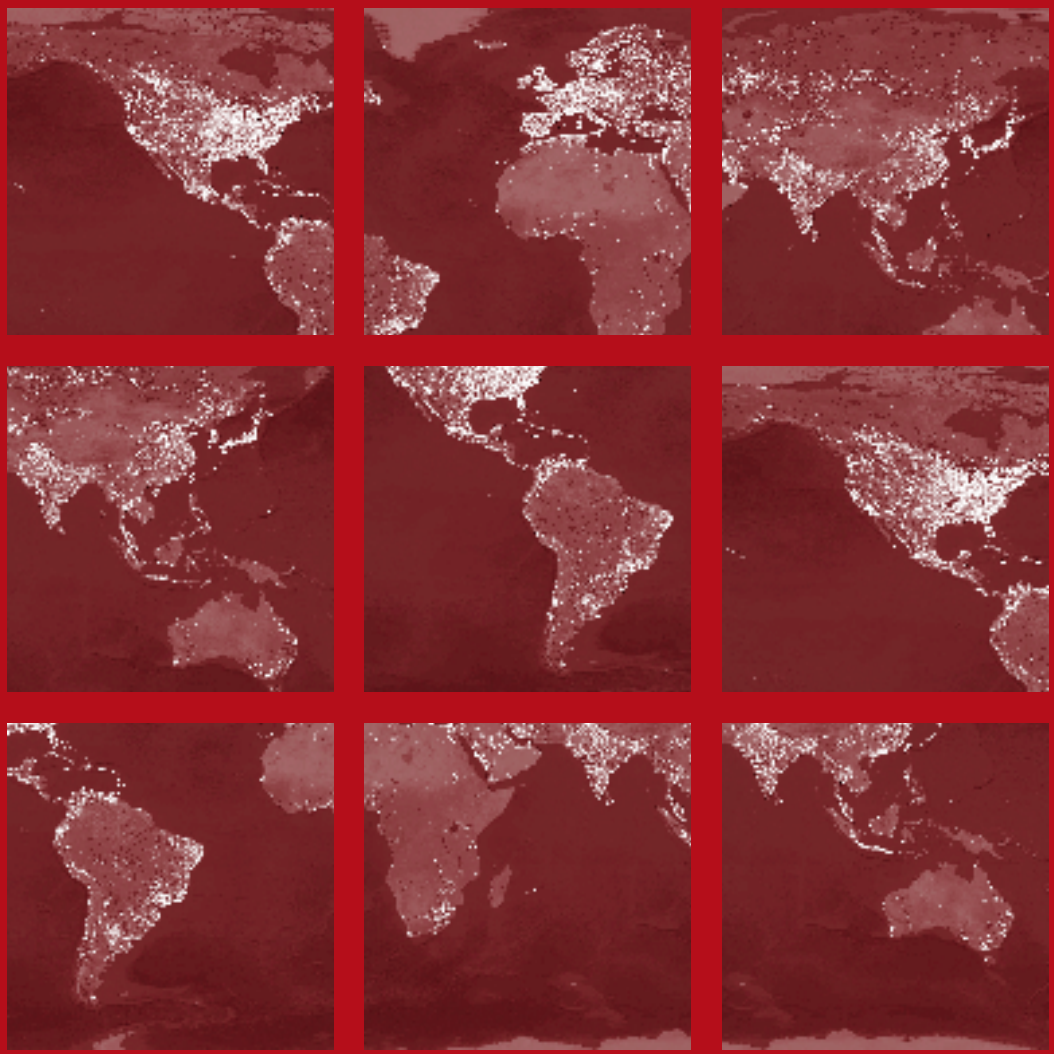
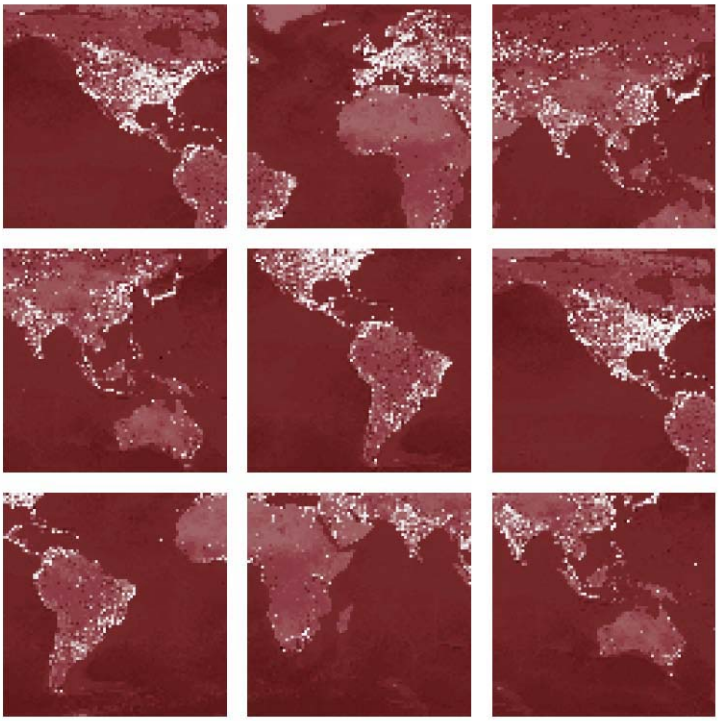


BRICs and Beyond

Goldman Sachs

BRICs and Beyond

Goldman Sachs Global Economics Group



For questions about our research on the BRICs, please contact sandra.lawson@gs.com

For additional copies of this book, please contact eco-ldn-production@ln.email.gs.com

Source for all tables and charts is Goldman Sachs Global Economic Research, unless otherwise stated.

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INTRODUCTION: BRICs AND BEYOND

It is now six years since we coined the term 'BRIC' in our *Global Economics Paper*, 'Building Better Global Economic BRICs', published on November 30, 2001. Since then, these countries' equity markets have seen a remarkable increase in their value: Brazil has risen by 369%, India by 499%, Russia by 630%, and China by 201%, using the A-share market, or by a stunning 817% based on the HSCEI.

The equity market performance is just one manifestation of the staggering rise in BRICs' importance to the global economy. In our 2001 paper, we argued that the BRIC economies would make up more than 10% of world GDP by the end of this decade. In fact, as we near the end of 2007, their combined weight is already 15% of the global economy. China is poised to overtake Germany this year to become the third-largest economy in the world. Our 'BRICs dream' that these countries together could overtake the combined GDP of the G7 by 2035—first articulated in our 2003 *Global Economics Paper* 'Dreaming with BRICs: The Path to 2050'—remains a worthy 'dream'.

The recent performance of the BRICs has turned up as many questions as answers. Will Russia be able to grow at the staggering rates of recent years? Will the infrastructure challenges there, and in India, limit potential growth? What about the rest of the BRICs? Can we, for example, justify the B in BRICs? And, of course, will China and India become the future giants that we have suggested they can?

In this book, we provide a compendium of some of the most interesting papers that we have published on the BRICs theme in the past two years, as a follow-up to our first two books, 'Growth and Development: The Path to 2050', published in January 2004, and 'The World and the BRICs Dream', published in February 2006.

We also look beyond the BRICs to see which other countries are changing the global economic landscape—in particular, the increasingly popular 'N-11'. It is now two years since we introduced this term and, just as in the years after we coined the BRIC acronym, its popularity is on the rise. As we argued in our *Global Economics Paper* 'The N-11: More Than an Acronym', published in March 2007, the N-11 is a distinct group in itself, albeit one defined by population. We introduced the N-11 concept not to encourage the growth of a new or alternative investment theme to the BRICs, but simply to answer lots of questions about the BRICs. The most frequently asked question about the BRICs has been 'Why did we choose those original four countries, and what about others?'. In our initial analysis, we concluded that, of the next largest countries, perhaps Mexico had the greatest claim to be feel aggrieved at not being up there with the BRICs.

Certainly, Mexico, the four BRIC countries and Korea should not be really thought of as 'emerging markets' in the classical sense, as many still tend to do. We regard these countries as a critical part of the modern globalised economy, and they are just as central to its functioning as the current G7 is. Indeed, as we have argued repeatedly, the role and purpose of the G7 (and similar global forums and institutions, including the IMF) are increasingly questionable. Today, six years after we first suggested the need for a change in the G7, it seems ludicrous that the G7 still meet and offer statements about the world economy without China—or the other BRICs—present.

This book looks beyond the BRICs themselves to a number of global topics that the growth of the BRICs has fed. What does the future hold for the environmental issues raised by the BRICs' rapid growth? We discuss why the BRICs dream will not be 'green', as well as why it *should* be green! We also look at a recent source of collective anxiety: Sovereign Wealth Funds. We include a chapter on their growth, and discuss their current and future influence on global markets.

Beyond the four BRICs and the two most developed of the N-11, Korea and Mexico, what is the scope for the other nine? Can any of them individually or collectively 'do a China', as we discuss in Chapter 19? What may motivate these countries to behave differently going forward, in order that they might have brighter futures than their past? In this regard, the role played by China in lifting many millions of people out of poverty is telling. One of the most observable and remarkable phenomena of the past couple of years is just how enthusiastic the leaders of some of the N-11 countries seem to be about changing policies and wanting to engage in globalisation. Nigeria is one country that deserves a special mention, and is certainly a country that has captured my attention. With a population close to three times that of South Africa, Nigeria's ability to deliver on our 'dream' could be vital for the whole African continent. Let's hope the government's slogan, 'Top 20 by 2020', materialises; if so, we are in for an exciting second decade of the new millennium.

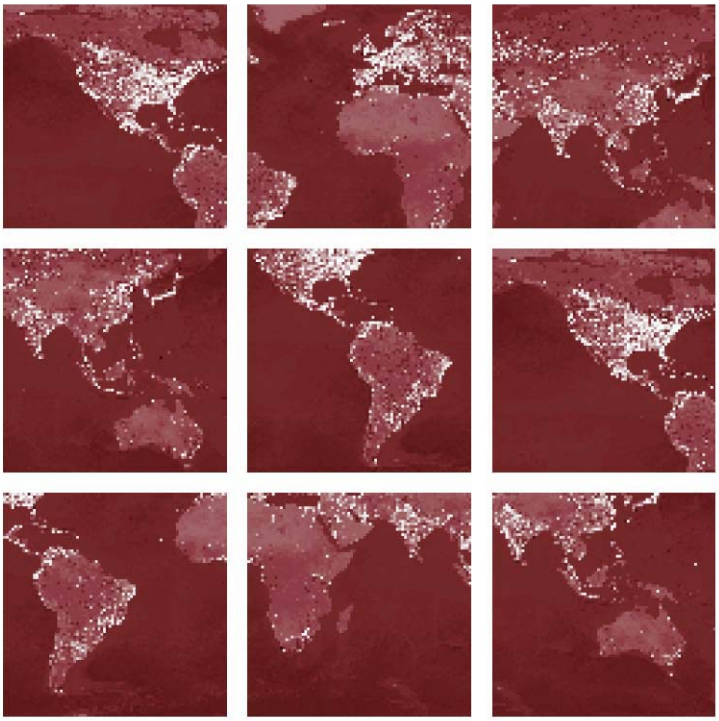
And beyond the N-11? Not a week passes when I am not asked by a cheeky journalist somewhere, 'What next, what is the new theme going to be?' It is tempting, we can assure you, but we are likely to resist the temptation as much as we can, for two reasons. First, we don't want to be associated with just acronyms. Second, and more importantly, the two we have created continue to afford plenty of opportunity!

Undoubtedly, other pockets of activity remain undiscovered in the world. A very sharp hedge fund manager suggested to me a few weeks ago that, added together, all the countries east of Germany and west of China were the equivalent of another China. And, of course, there is the Middle East. Our book discusses these issues, along with all the others mentioned above. We hope you enjoy reading about the BRICs and Beyond, as much as we have enjoyed (and continue to enjoy) researching and writing about them.

Jim O'Neill
November 23, 2007

SECTION ONE

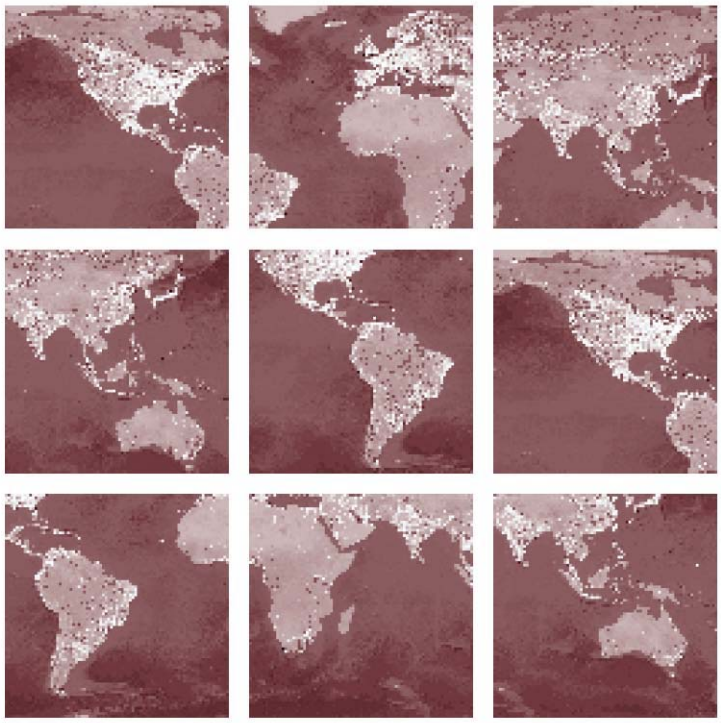
THE BRICS



CHAPTER ONE

INDIA'S RISING GROWTH POTENTIAL

January 2007



INDIA'S RISING GROWTH POTENTIAL

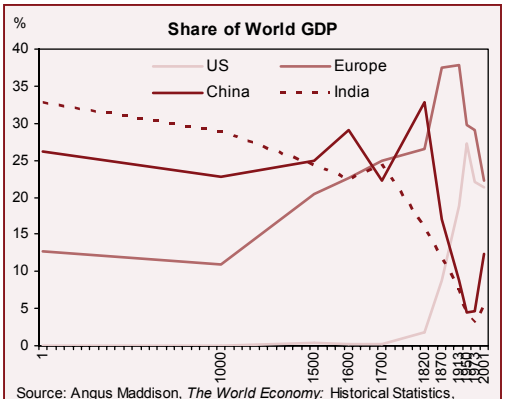
India's Scope for Catch-Up

On the eve of the Industrial Revolution (around 1770), India was the second-largest economy in the world, contributing more than 20% of total world output. By the 1970s, after two centuries of relative economic stagnation, that share had fallen to 3%—the lowest in its recorded history. From a long-term perspective, the post-industrial economic decline of India (and China) is a historical aberration, driven to some extent by a lack of openness. After independence in 1947, India followed inward-looking and state-interventionist policies that shackled the economy through regulations, and severely restricted trade and economic freedom. The result was decades of low growth, pejoratively termed the 'Hindu rate of growth'. Reforms beginning in 1991 gradually removed obstacles to economic freedom, and India has begun to play catch-up, steadily re-integrating into the global economy.

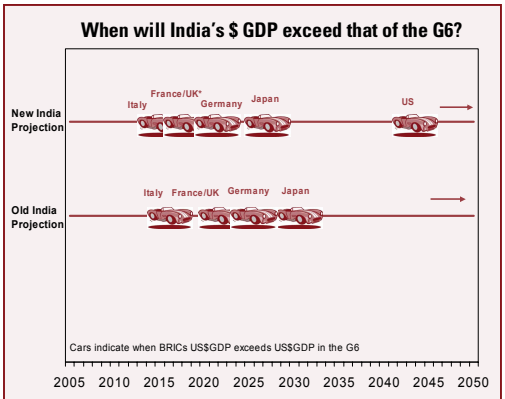
Since 2003, India has been one of the fastest-growing major economies, leading to rapid increases in per capita income, demand and integration with the global economy. Will India be able to sustain, or even increase, its high growth rates over the medium term? If so, what will be the implications of India's re-integration into the global economy for world demand growth?

We argue that there has been a structural increase in India's potential growth rate since 2003 on the back of high productivity growth. In this paper, we explain why productivity (by which we mean total factor productivity, or the manner in which all inputs are combined to achieve more output) has surged, and why we think this is likely to continue over the next decade.

Our baseline projections for India's potential output growth show that the economy can sustain growth rates of about 8% until 2020, significantly higher than the 5.7% that we projected in our original BRICs paper. The key underlying assumption is that the government will continue to implement growth-supportive policies. The implications of this are that India will overtake the G6 economies faster than envisaged in our earlier BRICs research. Indeed, India's GDP (in US Dollar terms) will surpass that of the US before 2050, making it the world's second-largest economy. India's contribution to world growth will also be high and increasing.



Source: Angus Maddison, *The World Economy:* Historical Statistics, OECD 2003.



Source: CEIC, Goldman Sachs Research estimates.
Note 1: India's $ GDP is projected to exceed that of the UK a year after it surpasses France in both our old and new forecasts.

Note 2: Our new projections for India's potential growth envisage an average growth of 6.9% in 2006-2050. We also assumed the same exchange rate changes till 2050 as in the original BRICs projections. Under the original BRICs projection, India would become the third largest economy by 2050.

The higher growth rate under our new projections will have significant implications for demand in India. From 2007 to 2020, India's GDP per capita in US Dollar terms will quadruple (one-third higher than the original BRICs projections). Indians will also consume about five times more cars (up from 3.5 times) and three times more crude oil (up from 2.3 times).

Comparisons with other countries that have experienced similar rapid rates of growth show that India is firmly on the growth expressway. There is considerable scope for catch-up and, even with our baseline projection, the speed of India's growth transition is not implausible when compared to the growth experiences of other East Asian countries.

A turnaround in manufacturing productivity since 2003 has been crucial. The proximate cause is the increase in efficiency of private-sector firms in the face of growing competition. The gradual opening up of the economy introduced a competitive dynamic, which forced the private sector to restructure during the relative slowdown in growth and corporate profitability during 1997-2002. After the restructuring, the private sector emerged leaner, fitter and more productive.

The underlying causes for the increase in efficiency of private firms have been trend accelerations in international trade, financial sector growth, and investments in and adoption of information and communication technology. These are also the cumulative effects of a decade of reforms.

The re-allocation of land, capital and especially labour from low-productivity agriculture to high-productivity industry and services is an essential dynamic behind sustained productivity growth. This process is being accelerated by higher returns in industry and services due to trade openness, cheaper credit, investments in IT and communications, and the building of highways. These processes are in their initial stages and have substantial distance left to run.

The upside to our baseline projections is significant. Thus far, the economy has logged high growth rates without significant increases in domestic or foreign direct investment. If it can accumulate significantly more capital to add to its favourable demographics and ongoing productivity gains, India could reach a growth rate of 10% by 2010 and sustain it thereafter. We show various combinations of factors that are necessary to achieve this.

The downside risks to our baseline growth projections come from a slowdown or reversal of reforms in part due to political or social instability, supply-side constraints to doing business that include shortfalls in educational attainment, and environmental degradation.

Based on our analysis, we would emphasise the 'FORCE' factors as critical to sustaining growth: Financial deepening, Openness to trade, Rural-to-urban migration, Capital deepening, Education and Environment.

Productivity Accelerates

India's growth performance since independence in 1947 has been well below potential, stymied by low productivity. From 1960 to 2000, annual total factor productivity (TFP) growth averaged a mere 0.25%. Tentative steps to reform the economy in 1985, and then fundamental reforms since 1991, moved the economy up a gear, with growth averaging 6% and TFP growth moving up to an average of 1.6% per year.

To estimate the productive capacity of India's economy and understand its sources of growth, we used a supply-side approach, distinguishing between contributions of TFP and of inputs of capital, labour and human capital, to obtain the underlying 'potential' or trend growth rate. We first stripped out all cyclical variations in inputs to calculate the trend. We then cyclically adjusted productivity growth to obtain the trend. By measuring the 'potential', we seek to estimate the rate at which the economy can grow without 'overheating' or igniting inflation. This rate is useful as it provides a benchmark against which to assess actual growth outcomes.

Since 2003, there has been a structural increase in India's potential growth to nearly 8% from 5%-6% in the previous two decades. Productivity growth has been the key driver behind the jump in GDP growth, contributing nearly half of overall growth since 2003, compared with a contribution of roughly one-quarter in the 1980s and 1990s.

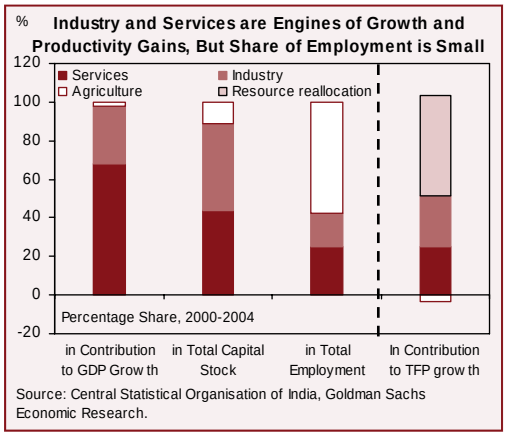
The growth drivers: Services and industry

We then sub-divided growth into the key sectors of agriculture, industry and services. Industry is increasingly becoming an important growth driver, contrary to conventional wisdom that growth in India is only services-led. A quarter of services are directly linked to industry, in sectors such as trade, transport, electricity and construction.

Recent increases in productivity are in part due to a turnaround in industry productivity, which has rebounded from negative to positive. Services productivity has remained strong over the past few decades. Labour has moved into industry from agriculture, while capital has moved to services since 2002.

In India, labour is nearly four times more productive in industry and six times more productive in services than in agriculture, where there is a surplus of labour. Economic theory tells us that as labour moves from low-productivity sectors (such as agriculture) to high-productivity sectors (such as industry or services), overall output must improve.

We estimated the output gains due to labour migration from agriculture to services and industry, and found that in recent years, this move has contributed upwards of 0.9 percentage points (ppt) to overall growth. The gains are roughly equally split between agricultural labourers moving to industry and to services.



Source: Central Statistical Organisation of India, Goldman Sachs Economic Research.

Average growth (% chg yoy)

	GDP	TFP	Capital Stock	Employment	Education Attainment
Agriculture					
1981-1990	3.5	0.5	2.1	1.1	2.3
1992-1996	4.7	1.8	2.0	1.2	2.0
1997-2001	2.0	-0.4	1.3	0.6	2.3
2002-2004	1.3	-1.0	1.5	0.4	2.2
Industry					
1981-1990	7.0	0.5	7.5	3.4	2.3
1992-1996	7.3	1.2	9.0	2.0	2.0
1997-2001	**4.5**	**-1.2**	5.4	3.7	2.3
2002-2004	**7.7**	**1.9**	3.9	4.7	2.2
Services					
1981-1990	6.7	1.6	3.3	3.5	2.3
1992-1996	7.5	2.2	4.7	3.2	2.0
1997-2001	8.2	2.8	4.2	3.3	2.3
2002-2004	8.5	3.0	5.8	2.8	2.2

Source: Central Statistical Organisation of India, Goldman Sachs Economic Research.

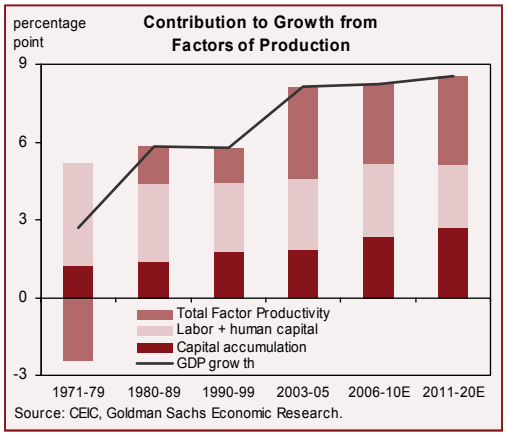
Given that the movement from agriculture to other sectors (which in India's case is roughly equivalent to the move from rural to urban areas) is still in its initial phase, we expect the gains to increase and continue for several decades. Agriculture still employs close to 60% of the labour force, with negative marginal productivity.

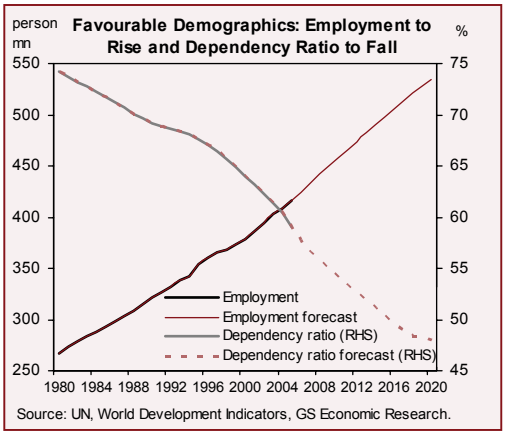
Our Baseline Projections

Based on our supply-side framework, we projected potential growth rates for India till 2020. The chart below shows our projections for the overall growth rate, and contributions from productivity, capital, labour and education. Keeping current rates of savings and investment roughly constant, we project India's potential growth rate at an average of 8.4% till 2020, on the back of continued productivity growth, favourable demographic factors and further growth in educational attainment.

Our baseline scenario is derived from fairly conservative assumptions:

- The **investment/GDP** ratio is assumed to remain roughly constant at around 29% of GDP (in real terms).
- The growth rate in average years of **schooling** is assumed to decline gradually in line with trend. This means an increase in average years of schooling from 5.8 in 2006 to 7.3 by 2020.
- For the labour input, according to demographic trends, over 100mn people will enter the **labour force** by 2020. We assume no increases in labour force participation rates and that the rate of unemployment stays at its natural rate (4.4%, the average unemployment rate from 1977-2005). If participation rates were to increase by a quarter of a percent each year from the current rates of 61%, this would add another 25mn to the labour force in the next 10 years.
- For **TFP growth**, we assume an average annual rate of 3.3%. We think this is a reasonable assumption based on the large scope for catch-up, the continued movement of labour and land from agriculture to other sectors, aided by continued openness to trade, financial deepening, investments in information and communication technology, and the building of highways. These are discussed at length below.





Why Productivity Growth Is Likely to Be Sustained

The proximate cause of the increase in productivity since 2003 is the increased efficiency of private-sector firms in the face of growing competition. The gradual liberalisation of the economy introduced a competitive dynamic that forced the private sector to restructure during the relative slowdown in growth and corporate profitability during 1997-2002. After the restructuring, the private sector emerged leaner, fitter and more productive. The presence of constraints, including the lack of adequate infrastructure and a set of demanding, value-conscious consumers, forced companies to innovate on products, processes and distribution, which, in turn, created companies that are more efficient and competitive.

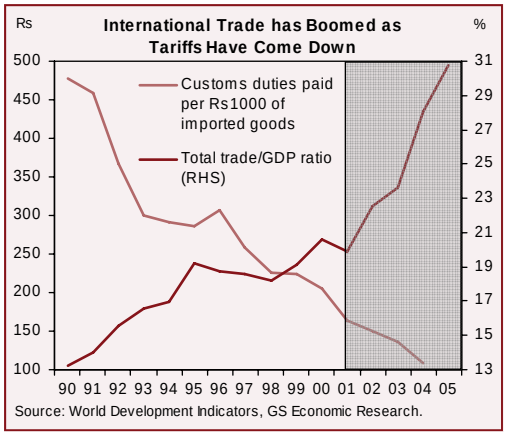
In our view, the underlying causes for the increase in efficiency of private firms have been trend acceleration in international trade, financial deepening, and investments in and adoption of information and communication technology. The process that tentatively began after the onset of reforms in 1991 is also the cumulative effect of a decade of liberalisation, a vital component of which was the gradual deregulation and de-licensing of industry.

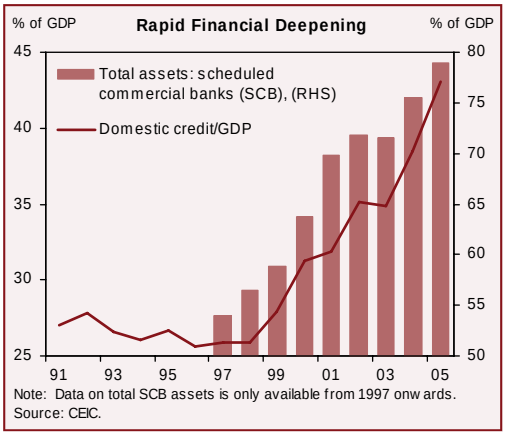
Reason 1: India opens up

With the onset of reforms in 1991, India began to unshackle its closed economy by gradually lowering its very high trade barriers and boosting exports. Average tariffs fell to below 15% from as high as 200% as the country began to re-integrate into the global economy. The impact of opening up has been significant. Exports have risen 14 times as India has rapidly gained trade share. This development has been most evident in the past three years, when trade has grown, on average, 25% a year.

Increased openness has contributed significantly to increasing productivity:

- It provided domestic firms with access to superior inputs, ideas and technology.
- The increased competition from actual and perceived imports has focused domestic firms on the need to improve efficiency as critical to survival.
- It has rewarded the most efficient firms while penalising the most inefficient domestic firms, thereby improving average productivity.





What Will It Take to Reach 10% Growth?

India's current growth rates of around 8% have been achieved without large increases in domestic capital accumulation or foreign direct investment, raising the possibility that increases in investment could boost growth further. As the left-hand chart below illustrates, India is well below its efficiency or productivity frontier, due to inefficiencies in production. The curve represents all optimal points of combining inputs into output, i.e., the 'production possibilities frontier'. Currently, India is at point A; elimination of inefficiencies, or higher productivity growth, would lead it to point B. If it can increase its input of capital, it could move to point C with higher output. Continued catch-up due to technological innovation would lead the curve to expand outwards, thus increasing growth output.

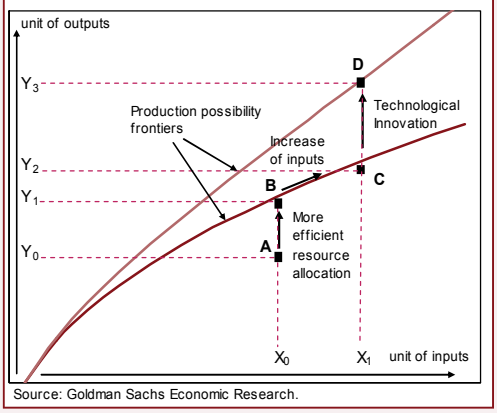
To determine the amount of investment required to reach 10% growth, we mapped out two scenarios based on different productivity growth rates: either 3% or 3.5% on average until 2020. For the labour and education input, we use the same assumptions as the baseline. Based on these assumptions, we calculated the real investment/GDP ratio required to reach and sustain 10% growth until 2020.

If we assume more optimistically that productivity growth is sustained at 3.5%, the required increase in the investment/GDP ratio is of the order of 16%. Thus, India would have to boost its savings rate by roughly 16% of GDP, through a combination of domestic and foreign savings, in order to finance the investment required for a sustained 10% growth. Below, we assess whether this is feasible. If productivity growth were to decline to 3%, then 10% growth would be unsustainable. The large difference in required investment in the two scenarios is due to cumulative effects: a higher capital stock requires still higher investment to compensate for depreciation effects.

How much of a constraint is India's savings rate?

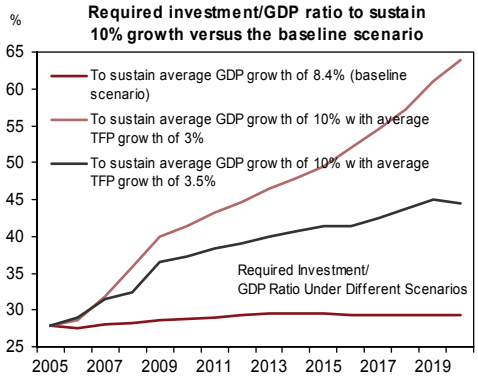
India's savings rate is low compared with that of its East Asian neighbours, which raises concerns that the domestic savings constraint may not allow the kind of investment rates needed for high growth. Therefore, our baseline projections assume roughly constant investment/GDP rates, obviating the need for a rising savings rate.

Production function and the Sources of Growth



Source: Goldman Sachs Economic Research.

Required investment/GDP ratio to sustain 10% growth versus the baseline scenario

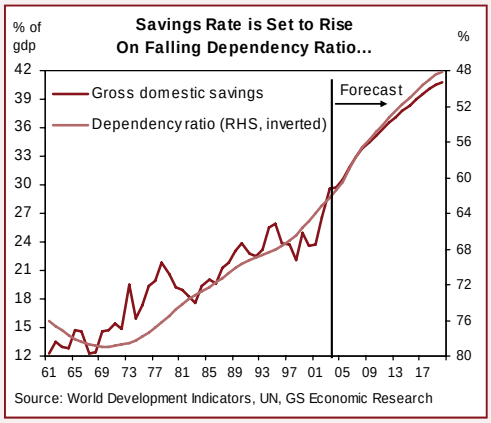


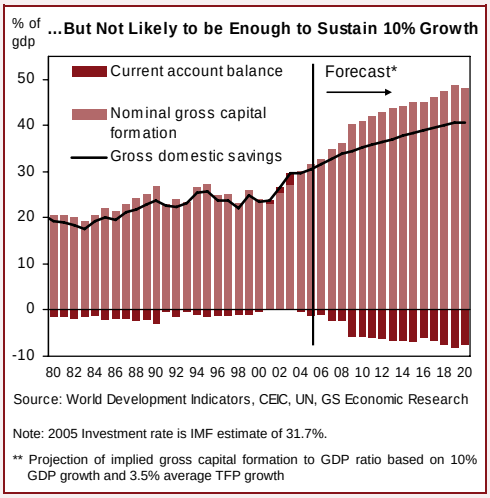
Source: Central Statistical Organisation of India, Goldman Sachs Economic Research.

What Will It Take to Reach 10% Growth? *(continued)*

Savings rates, however, tend to increase with falling dependency ratios, rising incomes and greater financial sector development. We have projected savings rates based on the evolution of dependency ratios. In India, according to our estimates, savings tend to increase about 0.8% for every 1% fall in dependency. We assume these rates for our projections.

For our more optimistic scenario, with productivity growth averaging 3.5%, the right-hand chart below shows the required investment/GDP ratio, the savings rate projections and the consequent current account deficit required to sustain a 10% rate of growth. We find that the current account deficit would have to be large and increasing, averaging 5.7% from 2006-2020. We believe such a large deficit would be difficult to sustain. Hence, India would need to increase public savings substantially to sustain a 10% rate of growth.





- It also encouraged a shift in employment from the less productive agricultural sector to more productive sectors.

India's trade/GDP ratio is still small, while average tariffs are still high by regional standards. India currently contributes less than 1% of world trade. Assuming that trade barriers continue to decline, productivity gains from further trade integration still has some distance to run.

Reason 2: The rise of the financial sector

Starting from a low base, the financial sector has grown rapidly in the past decade, and especially in the past four years, and has contributed to the jump in productivity. Credit to the private sector has grown by an average of 32% over the past two years. Increased financial intermediation improves resource allocation by effectively channeling savings into investment and raising productivity. India's financial sector is still relatively small compared with the size of its economy, as well as with those of its East Asian neighbours. Assuming that policies to open up the financial sector remain on track, including the entry of foreign banks starting from 2009, we expect financial deepening to continue and to contribute to increases in productivity in the medium term.

Reason 3: Back-office to the world

The success of the IT industry in India has had a material impact on productivity. Apart from the direct productivity gains of the major IT firms, it has had spillover benefits through two channels:

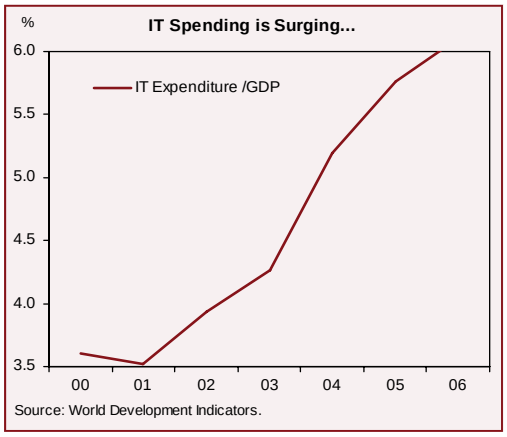
- It has provided powerful incentives for students to invest in IT skills. This has created a pool of technology-skilled labour that firms in other industries can tap into.
- It has had a demonstration effect on other domestic firms, leading them to ramp up their own technology spending, thereby boosting productivity.

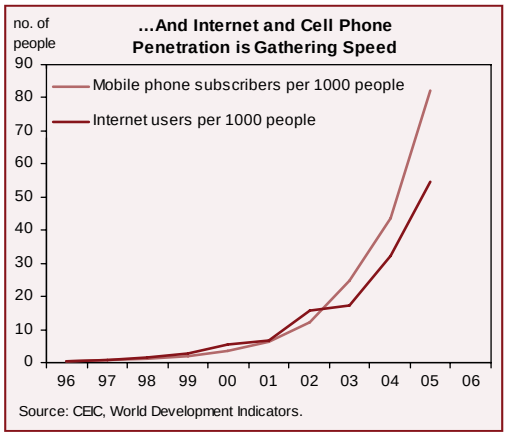
The rapid spread of mobile phones from a very low base provided a fillip to communications, further boosting productivity. Today, India is the fastest-growing market for mobile phones, with average growth rates of over 80% every year since 2000. India's technology spending is still low and there remains substantial scope for catch-up and productivity gains.

Reason 4: The Golden Quadrilateral

The Golden Quadrilateral Highway project is the first part of India's most ambitious infrastructure project since the building of the railway network by the British in the 19th century. In the last 50 years, the government has built just 334 miles of four-lane roads. The Golden Quadrilateral aims to build 3,625 miles of four- and six-lane highways. The highway will connect the four largest cities: Delhi in the north with Kolkata in the east, Chennai in the south and Mumbai in the west. Along the way it runs through 13 states and 17 other cities with a million or more inhabitants, and it is expected to be fully functional by 2007. The effort echoes the construction of a national highway system in the US in the 1920s and 1950s, which fuelled commerce and development.

We expect the new highways to help jump-start India's competitiveness, given that its dismal infrastructure has inhibited growth. They are expected to reduce travel times by half, lower fuel costs and freight delivery times and enable firms to leverage economies of scale. We expect the arteries to attract economic activity along the way. Already, hotels, petrol stations and shops are sprouting up along the highways. This will have implications for real estate, for location of industry and for decongestion of crowded cities. Areas close to urban centres stand to benefit most, as activity and people fan out of crowded cities along the highways.





More importantly, the highways will open up—and out—the closed worlds of India's villages. They will facilitate increased rural-urban migration, and when migrants return to their villages, they bring back new views and aspirations, encouraging others to follow in their footsteps.

The process is unlikely to be smooth or to happen overnight. Motorists could strike against taxes and tolls, speeding cars may have to contend with animals and bullock carts on the roads, local sensitivities to religious structures in the path of the highways may have to be taken into account, and there could be difficulties with the rural poor adapting to the highways. However, the potential for productivity gains and the boost to the economy are substantial.

Map of the Golden Quadilateral Highway – Connecting India

Reason 5: The great migration

The 21st century is set to become India's 'urban century', with more people living in cities and towns than in the countryside for the first time in its history. India has 10 of the 30 fastest-growing cities in the world and is witnessing rapid urbanisation. The growth is happening not in large cities, but in small and mid-sized towns. In 1991, India had 23 cities with a million or more people. A decade later, it had 35.

According to our projections, another 140mn rural dwellers will move to urban areas by 2020, while a massive 700mn people will have moved to urban areas by 2050. India's current urbanisation rate of 29% is still very low compared with 81% for South Korea, 67% for Malaysia and 43% for China. Rural-urban migration in India has the potential to accelerate to higher levels as, judging by the experiences of other countries, the pace of migration tends to accelerate after a critical level of 25%-30% urbanisation is reached, and due to faster economic growth.

Urbanisation is spurred by both push and pull factors. Deteriorating agricultural productivity, caste barriers and unemployment in villages push rural inhabitants out, while better opportunities in cities, very high growth in the construction industry and demonstration effects from other migrants pull rural workers into urban centres.

The implications for productivity growth are significant. Our estimates show that movement of labour across sectors, primarily from agriculture to manufacturing and services, adds 0.9ppt to

GDP growth a year. This process is likely to continue, if not accelerate, as urbanisation continues. Demand for urban housing and infrastructure such as electricity, health care, sanitation and education is set to jump several-fold. Policy will, however, need to address basic infrastructure shortfalls in order to take advantage of the 'urbanisation bonus'.

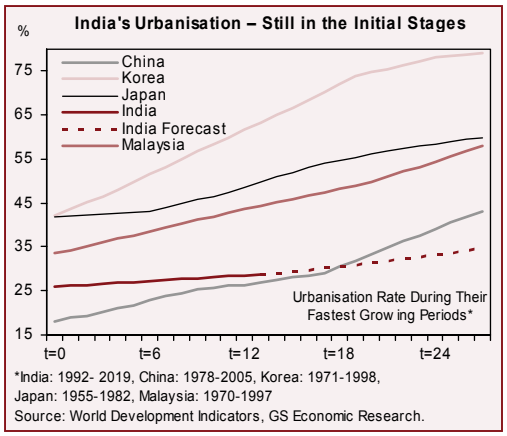
Reason 6: The land factor

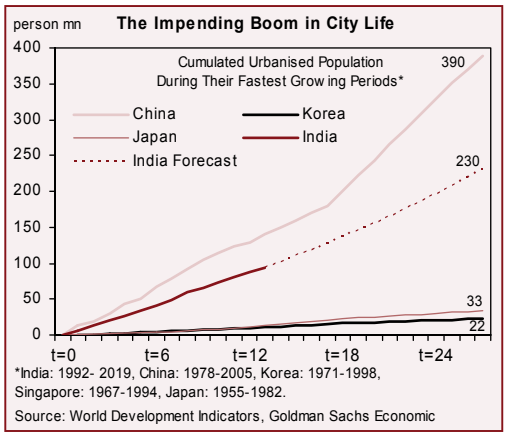
The imminent shift in land from agriculture to urban use and industry constitutes another source of potential productivity gain. Land is a critical input needed to keep the development process moving, allowing for the shift of people from the rural to the urban sector. Access to land is needed for factories and housing projects, and to create tens of millions of jobs in construction in the short run, as well as longer-term employment.

When land moves from low productivity agriculture to urban use and higher productivity sectors, overall productivity improves. However, India will need investments in agriculture to boost productivity, especially in rural connectivity, storage, etc., to improve the yield of remaining agricultural land.

The creation of new Special Economic Zones (SEZs) has the potential to transform the productivity of agricultural land. Ideally, India should develop economy-wide infrastructure and the necessary investment climate to enable the move from agriculture to industry and services. In the absence of governmental resources (or the ability) to do so, the SEZs will attract private-sector as well as foreign investment, thus helping to develop much-needed infrastructure, generate employment and facilitate urbanisation.

Productivity gains for the economy tend to be a cumulative process. Higher productivity leads to more confidence and increased openness, which means more technology and investment and sustained productivity growth. The building of highways will not only lower costs for companies but also enable rural-urban migration, the development of cities and the process of moving land from agriculture to industry and services. These in turn attract more investment through agglomeration effects, and thus sustain growth.





How Plausible Is Our Growth Scenario?

To check the plausibility of our projections, we compared India's growth projections with actual outcomes for its East Asian neighbours. High-growth phases during transition from low-income to middle-income are fairly common. For instance, Japan increased its output eightfold between 1955 and 1985, while Korea increased its GDP by nearly nine times between 1970 and 2000. More recently, China (starting from the same level as India in 1978) achieved a more than tenfold increase in its output in the 27 years to 2005. By contrast, India's growth transition, based on our projections of 8.4% growth from 2007 to 2020, do not appear implausible.

The investment rates that we envisage for India in our baseline scenario are well below the range achieved by other countries in East Asia. For instance, Korea sustained an average investment rate of over 35% for more than 30 years, while China has seen investment rates of roughly 43%. India's capital per worker is one of the lowest in the world, leaving considerable room to catch up.

Even in terms of educational attainment, India is not starting off on its growth transition at a considerable disadvantage to its East Asian neighbours. For instance, in terms of average years of schooling, the figure in India was 4.3 in 1992, compared with 4.6 for China in 1978, 4.7 for Singapore in 1967 and 5.3 for Korea in 1971.

Our assumptions on productivity growth rates seem reasonable when compared to other high-growth episodes. China has sustained TFP growth rates of 3.5% on average for 27 years over its high-growth phase. The low initial starting point for India implies greater scope for catch-up with other emerging and developed economies.

Another way to cross-check our projections is to ask whether the economy is close to its optimal level of productivity (also known as its production possibilities frontier), given its stage of development, its political, legal and economic institutions, and its geography. A previous study found that India's TFP level is between one-third and 40% of what it should be, creating the scope for productivity improvements based on just catching up.

The Growth Environment Score (GES) for India provides a different method of estimating the gains that India could attain. Based on the GES, the contribution to annual GDP growth could be as much as 2.8ppt. These independent analyses suggest the enormous scope for catch-up.

Where Do We See the Constraints to Growth?

Obviously, such a growth scenario is not without risks. India will need to make continued progress in reducing the fiscal deficit and in enhancing education at all levels. We also see threats to the growth process from protectionism, supply-side constraints to doing business and environmental degradation.

A rapidly-growing economy is often accompanied by an initial increase in income inequality (the famous Kuznets curve), which in India's case can manifest itself in a growing rural-versus-urban and an educated-versus-uneducated divide. With rising aspirations, it is critical for the economy to have 'inclusive' growth, with employment opportunities for all. Education

and labour market reform will be important in this respect. Otherwise, rapid growth could lead to rising social tensions, political pressure to slow the reform process and increasing protectionism from reservations in education and jobs. If managed badly, this has the potential to kill the growth goose.

Plenty of Room Ahead for Capital Deepening

(Capital stock in 2004, current prices)

	Capital Stock/ GDP (%)	Capital Stock per Capita (USD)
US	2.9	152,367
Japan	4.4	158,161
China	2.6	3,842
India	2.2	1,282

Source: Vikram and Dhareshwar (1993), CEIC, Central Statistical Organisation of India, GS Economic Research.

The old risk of sectarian disharmony is now supplemented with the new risk of political discontent spawned by dissatisfaction with the unequal distribution of economic growth. How effectively the political process manages these risks will be central to India's economic performance. Fortunately, thus far, there is a wide consensus among political parties in India to enhance the reform process. However, there are considerable risks that India will not be able to achieve 'inclusive growth' without sacrificing average growth rates. The most direct manifestation of this risk is costs to the public sector of 'populist' policies, which reduce public savings and the ability to finance the required investment growth.

India will need to alleviate supply-side constraints in order to absorb the labour coming out of agriculture and to sustain the growth momentum we have outlined. It currently takes 35 days to start a business, 270 days to obtain various licences and permits, 62 days to register a property, nearly four years to enforce contracts, and a shocking 10 years to close a business. It is also extremely difficult to lay off workers in India, and on average it costs more than one year's wage.

Even though India is making progress in reducing red tape, the scale of the problem remains immense. Action on these issues is important because it is the small and medium-sized enterprises that create the most jobs.

To embark upon its growth story, India will have to educate its children and its young people (especially its women), and it must do so in a hurry. Lack of education can be a critical constraint to the growth of the knowledge-based IT sector, as well as in the move to mass employment in manufacturing. The demographic dividend may not materialise if India fails to educate its people.

The success of India's elite students from the IITs and IIMs masks the generally abysmal state of higher education in India. Higher education remains heavily regulated, with little to encourage private-sector participation or innovation. There are, however, changes taking place. Labour market returns to education have risen in recent years, leading to an increase in demand for better quality, and as a result the private sector is beginning to step in to fill the supply gap.

We believe that environmental degradation is a critical risk to India's long-term growth potential. The country remains largely rural, and normal monsoons are the life-blood of the system. With increased urbanisation, industrial development and a burgeoning need for energy, India will be a large contributor to global warming. Climate change can cause erratic monsoons, with grave implications for rural incomes and overall growth. Already, shortages in

India's Growth Environment

The Goldman Sachs Growth Environment Score (GES) allows us to compare India with its peers at comparable income levels, and provides a perspective on where the greatest scope for improvement lies. India's macro environment and political conditions are generally conducive to growth. The key drawbacks are the high fiscal deficit, low penetration of PCs, phones and Internet, and especially low education levels. India could improve its growth potential by an annual 2.8ppt by moving to the best in its class of low-income countries.

How India Rates in the GES

Macroeconomic stability

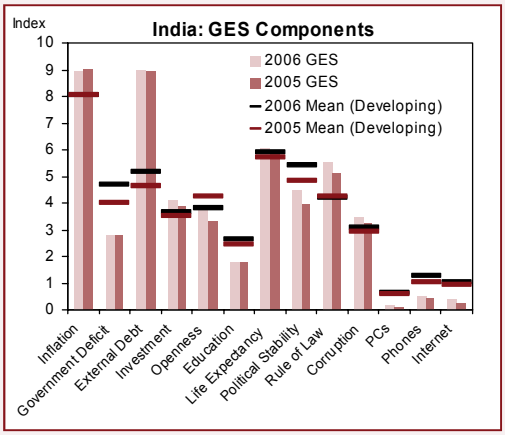
- **Inflation:** Historically, inflation has been relatively well-contained due to a strong commitment by the central bank and the Ministry of Finance. Commodity and food prices have risen in recent months, but inflationary expectations have been well managed, thanks to the credibility of the central bank.

- **Government deficit:** The consolidated fiscal deficits of the centre and states are high both in absolute terms and relative to India's developing country peers. However, with the current growth momentum and consequent buoyancy in revenues, we expect an improvement in macro-fiscal stability, given the implementation of the Value-Added Tax (VAT) and the government's commitment to the Fiscal Responsibility Act, which envisages an annual reduction in the fiscal deficit by 0.3%. Although it still needs to fall further, the general government deficit has come down from 10.1% in FY2001 to an estimated 6.3% of GDP in FY2006, with both central and state finances showing a marked improvement. However, to boost investment substantially, further improvement in the consolidated deficit will be necessary.

- **External debt:** At 17% of GDP, India's external debt is low. This means that external and currency risks are manageable.

Macroeconomic conditions

- **Investment:** Although India's investment/GDP ratio is not high by regional standards, gross capital formation has risen in recent years and the outlook for investment growth is strong, especially in areas such as infrastructure and retail. However, bureaucratic red tape remains a bugbear for the investment climate.



India's Growth Environment *(continued)*

- **Openness:** Tariffs have gradually been reduced, and India is negotiating a clutch of free-trade agreements. We expect openness and trade to improve, with positive consequences for productivity growth.

Human capital

- **Education:** India compares very unfavourably with its peers in indicators of educational attainment at all levels. In 2000, the working-age population's average number of years of schooling was about 5.1 in India, compared with 6.4 in China and 6.8 in Malaysia. Both the spending and the efficiency of spending on education remain weak. The shortfall in education is a key constraint to growth.

- **Life expectancy:** Life expectancy is comparable to that in other developing countries and on the rise due to increases in income, health care and nutrition. Fiscal spending on health care remains inadequate, however, with large sections of the population lacking any access to health care.

Political conditions

- **Political stability:** Democracy and democratic values are relatively well-entrenched, and the political system is largely stable. Handover of power after general elections held every five years is peaceful, and confidence in the stability of the system is high. However, there are incipient threats to stability from the extreme left-wing Naxalite movement, which need to be monitored closely.

- **Rule of law:** India ranks above its peers in rule of law due to a relatively well-functioning judiciary. However, cases drag on for years, and further improvements in the legal process are necessary to improve the business climate.

- **Corruption:** Although India scores better than the developing country mean, bureaucratic and administrative corruption and rent-seeking by the large public sector continue to dampen investor confidence.

Technological capabilities

- **PCs/Phones/Internet:** India is starting from a very low base in technological capabilities, and it ranks well below the developing country average. However, connectivity and PC penetration is expanding rapidly. India is the world's fastest-growing market for mobile phones, now adding some 20mn subscriptions a year.

water are occurring with concerning rapidity. If water and electricity are not priced at close to long-run marginal social cost, the shortages will become critical. In order not to hamper the growth process, India will need to put in place policies that are increasingly environmentally-friendly.

Although these risks are important, we would need to see a dramatic deterioration in them to fundamentally derail the growth process. Comfort can be derived from the fact that India's growth experience in the past two decades has been achieved with low volatility. More recently, strong economic performance has been achieved during a period of rising oil prices and with the economy remaining relatively closed. A high level of reserves, a falling fiscal deficit, low external debt and a low current account deficit give further reassurance about the underlying strength of the current growth momentum.

Our projections of India's potential growth are based on growth-friendly policies continuing to be implemented. We would emphasise the 'FORCE' factors policies as critical to sustaining growth, in particular, policies to enhance Financial sector growth, Openness to trade, Rural-urban migration, Capital formation, Education and Environment.

Conclusion: India Can Become a Motor for the Global Economy

Any kind of long-term projection is subject to a great deal of uncertainty, and we need to be mindful that India's growth transition is unlikely to be smooth or devoid of shocks. International development experiences are littered with examples of failure due to bad policies or simply bad luck. However, our projections provide a framework based on clear assumptions that can help investors to assess future developments and to position themselves to take advantage of emerging opportunities.

In absolute terms India will remain a low-income country for several decades, with per capita incomes well below its BRIC peers. But if it can fulfil its growth potential, it can become a motor for the world economy and a key contributor to generating spending growth.

India's imminent urbanisation process has implications for demand for housing, urban infrastructure, location of retail and demand for consumer durables. We expect the coming on-stream of major highways (especially the Golden Quadrilateral) to drive growth in the transportation sector, spur demand for vehicles, increase real estate values along the corridor and potentially boost construction of suburban homes as people escape congested cities. The SEZs hold out substantial investment opportunities in all spheres of activity.

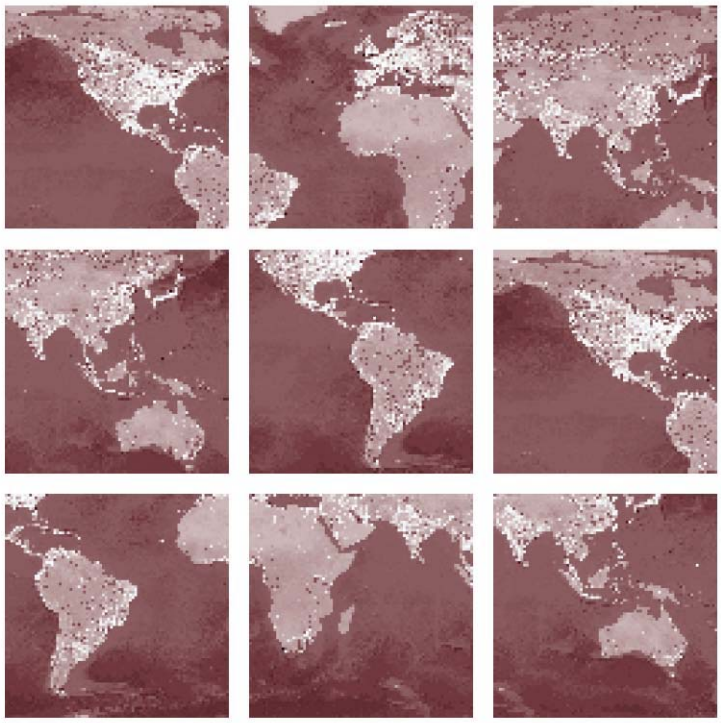
Our projections are for India's potential output, i.e., growth rates that are possible under particular conditions—rather than a central case of what will happen. There can, of course, be a big gulf between potential and reality. Given the considerable implications, India's ability to turn potential into reality should be of pressing importance not only for the fate of its 1.1bn citizens, but also for the progress of the global economy.

Tushar Poddar and Eva Yi
January 22, 2007

CHAPTER TWO

RUSSIA: A SMOOTH POLITICAL TRANSITION

October 2007



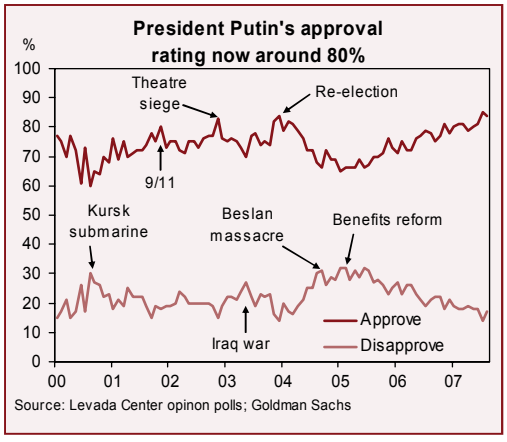
RUSSIA: A SMOOTH POLITICAL TRANSITION

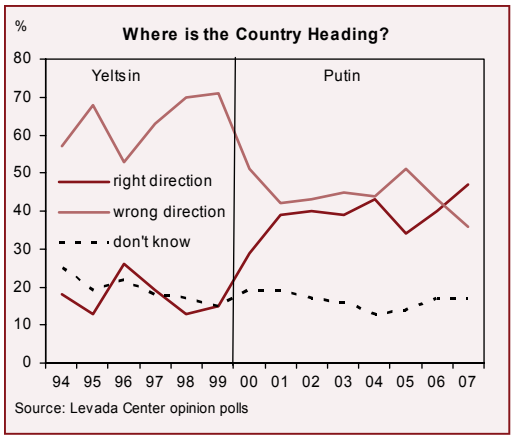
On October 1, 2007, Russia's President Vladimir Putin announced that he would lead the party list of the pro-Presidential United Russia party in the upcoming parliamentary elections, and said that it was 'entirely realistic' that he could become PM after the elections. At a stroke, he has both confounded and confirmed the consensus view of how Russian politics would evolve over the coming years. On the one hand, very few observers had anticipated that Putin might move into the PM's seat after relinquishing the presidency next year (we didn't); but, on the other hand, the statement lent strong credence to the widely-held view that, regardless of where Vladimir Putin sits after the inauguration of the next President in May, he will continue to play a central role in the country's political life.

In this paper, we review the record of the Putin presidency, and argue that the Putin era is likely to continue for the foreseeable future, quite likely for another 5-10 years or more. Putin's continued presence on the political stage would all but eliminate the risk of the kind of political disorder and policy gridlock that Russia suffered in the 1990s—and that continues to hamper reforms and macroeconomic stability in neighbouring Ukraine and some other emerging market democracies.

The Putin Record

Since taking office on December 31, 1999, President Putin has presided over a remarkable resurgence in the Russian economy. After contracting 35% under President Yeltsin, Russia's GDP has grown by an average of 6.8% per year under Putin, and in 2007 economic output will be 70% larger—and household consumption 115% larger—than in 1999 in real terms. From its depressed levels after the 1998 Ruble devaluation, GDP in US Dollar terms has risen more than six-and-a-half times, while average wages have risen eightfold. Soaring oil prices have enabled the state to repair its tattered balance sheet after a decade of large budget deficits: the state has reduced its debt/GDP ratio from 150% to under 10%, and the Central Bank has accumulated $434bn in foreign currency reserves, including the government's $141bn oil stabilisation fund. Inflation has declined steadily from over 125% in mid-1999 to around 9%. Given this impressive economic turnaround, it may seem natural that Putin enjoys the approval of around 80% of the Russian population as he approaches the end of his second four-year term.





Surprisingly, however, a majority of Russians do not believe Putin has been particularly successful in improving living standards: a full 54% of survey respondents say that he has been either entirely or somewhat unsuccessful in dealing with economic growth and raising living standards (64% answered the same way in a 2006 survey). This may be because the economic expansion of the last eight years has only restored Russia to its 1990 level of real GDP: for the average Russian, this decade's growth has been a recovery from the painful recession of the 1990s rather than any kind of economic miracle. When asked why people generally trust Putin, less than a third of Russians answer that it is because they believe he is successfully solving the country's problems; 30% say it is because they hope he will solve the country's problems in the future; and 35% indicate that it is because they cannot see anyone else to rely on. So, while Putin's approval rating is enviable by the standards of most political leaders around the world, and far higher than any other Russian politician's, it is to a significant degree due to the absence of any realistic alternative.

Decentralisation under Yeltsin

The lack of any perceived alternative is in large part the result of a re-centralisation of power over the course of the last eight years, reversing the chaotic decentralisation that had occurred during the turbulent 1990s. During his rule, President Yeltsin variously shared and fought over power with a number of other state and non-state actors, including his opponents in the federal legislation; directly-elected regional governors; a new oligarchy that controlled large parts of the bureaucracy, courts and legislature through corruption; managers of state-owned firms who turned them into personal fiefdoms; and media chiefs who at times used the threat of negative coverage to put pressure on or even extort money from the state.

By 1999, with the state bankrupt and the ailing President's approval rating in single digits, the Kremlin was directly controlled by a small group of business oligarchs. It was they who identified Vladimir Putin, at the time the obscure head of the Federal Security Service, as someone who would be electorally viable but who would not seek to reverse the privatisation process of the 1990s. Putin appealed to the patriotic electorate but also had an understanding of the workings of the market economy. In Russian terms, the oligarchs saw Putin as a *preemnik* (a successor) who would ensure *preemstvennost'* (continuity) rather than a reversal of Yeltsin's unpopular and incomplete market reforms.

Re-centralisation under Putin

After taking power in 2000 with a strong popular mandate, President Putin proved far less pliant than the oligarchs may have expected. He immediately began to reverse the political pluralism that had frustrated many of his predecessor's efforts at reform and had contributed to the breakdown of central state authority. His supporters forged a majority in the previously fractious Duma, and he has taken steps to eliminate independent deputies and small parties from the legislature. In effect, the Duma has been transformed over time from a staunch opponent of market reforms into a body that approves all of the President's initiatives with minimal debate.

Putin also eroded the power of regional governors, ultimately reducing them to the status of Presidential appointees. Finally, he reasserted government control over state-owned companies, either replacing the management with close allies or appointing senior administration officials to their boards.

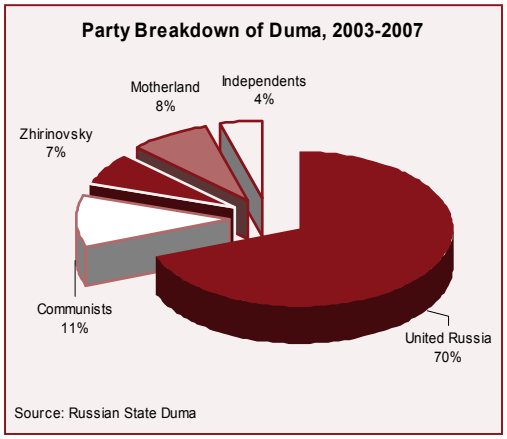
A new relationship between the state and big business

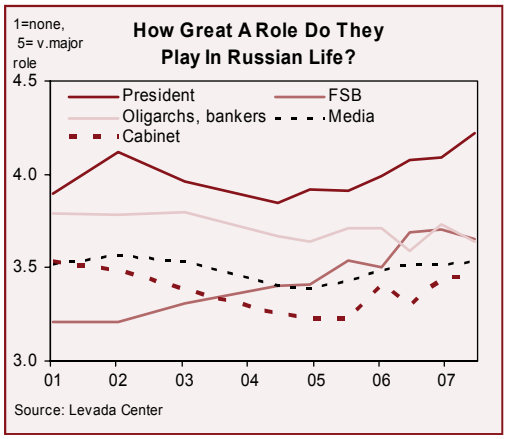
The most delicate challenge was to renegotiate the state's relationship with the business oligarchs who, by the end of the Yeltsin years, had captured much of the bureaucracy and legal system at all levels, and who had been instrumental in bringing Putin to power. The 1990s privatisation process was, and remains, extremely unpopular: to this day, nearly 40% of respondents in opinion polls say that the state should take back everything that it privatised during those years, and a further 30%-40% believe that property should be returned to the state in cases where the privatisation was proven to have been carried out in violation of the law (though the law itself was highly ambiguous throughout the period). But Putin made clear early on that he did not intend to embark on a large-scale re-nationalisation campaign, since to do so would cause economic chaos, trigger another round of bloody struggles for property at the grassroots level and (this last concern went unstated) potentially cause the oligarchs to unify against Putin.

Instead, Putin proposed a straightforward, if extra-legal, political bargain to the leading oligarchs: that they could keep the property they amassed during the 1990s if they stopped attempting to influence politics. At the same time, Kremlin allies took control of two oligarch-controlled television channels. Despite their somewhat diminished political status, the leading business groups were major beneficiaries of the Putin reforms and of the return of macroeconomic stability.

The bargain held until 2003, when Mikhail Khodorkovsky, the principal owner of YUKOS, then the country's largest oil company, launched what was widely understood to be a challenge to Putin's authority. The Kremlin squelched this independence, sending a strong signal to other business groups that have since gone to great lengths to demonstrate their loyalty. The YUKOS case proved a turning point in the Putin administration's political strategy. He appears to have drawn several conclusions from the YUKOS case:

- First, that private, and especially foreign, ownership of the oil industry posed a potential threat to the nation's strategic interests, as well as to his regime's survival. The Kremlin responded by expanding the role of state companies in the sector through asset acquisitions and by deeming large new oil fields strategic and therefore ineligible for sale to foreigners.





- Second, Putin appears to have concluded that he could not rely on the liberal officials he inherited from the Yeltsin era for any but the most narrowly technocratic of government portfolios. Instead, he has increasingly drawn his appointees from a cadre of current and former operatives of the security services, who broadly share a common outlook that Russia is surrounded by foreign enemies and that civil liberties are a source of national vulnerability.

- Finally, Khodorkovsky's relationship with US policymakers appears to have fuelled suspicions that the US and other foreign governments were seeking to subvert or even overthrow the Putin regime, reducing Russia to the status of a compliant oil supplier. The 2004 'Orange Revolution' in Ukraine intensified these fears. The response was a crackdown on NGOs, a further tightening of control over the media, and, particularly in the wake of the Iraq war, the adoption of a more hostile and assertive international stance.

A consequence of the elimination of alternative sources of power, the increase in state control over the media, the reining in of the oligarchs, the more hostile international stance and the promotion of securities services personnel has been to empty the political landscape of any credible challenges to President Putin. As a side-effect, it has also prevented the emergence of any strong figures in the President's own camp who could credibly step into his shoes after he leaves the presidency.

The Search for a Successor: 'Operation *Preemnik'*

Under the 1993 Russian constitution, a President is allowed to serve no more than two consecutive terms in office. As the end of Putin's second term has approached, political commentators have sought to answer three related questions:

- Will Putin step down from the presidency at all?

- If he does step down, whom will he support to succeed him as President? There is little doubt that Putin's preferred successor will win next March's Presidential elections.

- What role will Putin himself play in the political system after stepping down? This was the topic of much speculation initially, but now appears to have been resolved.

In late 2005, Putin promoted two of his closest associates, Dmitry Medvedev and Sergei Ivanov, to be deputy PMs. The move was widely seen as an effort to position them to cultivate the public profile they would need to run for President. Each of the two men appeared to embody one side of the Putin agenda: Medvedev, a cautious lawyer who had worked with Putin in St Petersburg, is close to the liberal wing of Putin's team, and advocates economic openness and good relations with the west; by contrast, Ivanov, former defence minister and a colleague of Putin's from the foreign intelligence service, is best known for his hawkish foreign policy rhetoric. Medvedev was initially given greater prominence in the official media.

What Would be Best for Russia in 2008?

%	2005	2006	2007
Putin stays on as president	44	51	49
Putin proposes close ally as successor	12	10	12
Putin leaves, does not name successor	34	29	28
Don't know	10	10	11

Source: Levada Center opinion polls

Russia's Economic Collapse and Recovery

The post-communist collapse

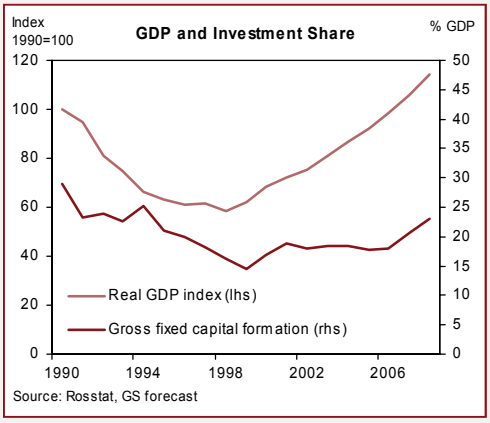
Russia suffered a deep economic depression during the 1990s. At its low in 1996-98, the economy was roughly 40% smaller in real terms than in 1990, and industrial capacity utilisation was 50% lower. After a bout of hyperinflation in the early 1990s, the authorities belatedly brought down inflation through an exchange-rate based stabilisation, leading to severe over-valuation of the currency. With oil prices low and the economy in a deep recession, the government was unable to collect taxes to cover its large expenditure commitments. The government embarked on a rapid privatisation of state-owned assets, in an at-times bloody struggle for control of the most valuable assets.

By early 1998, more than half of industrial transactions were carried out in barter, and the government and industrial companies had accumulated debts to their employees amounting to more than 10 months of wages. The government shifted from monetary financing of its deficit to issuance of short-term debt, but when the oil price fell below $10/bbl, the markets proved unwilling to finance the $1bn in weekly roll-overs. The government capitulated on August 17, 1998, defaulting on its domestic debt and allowing the Ruble to depreciate by 75%.

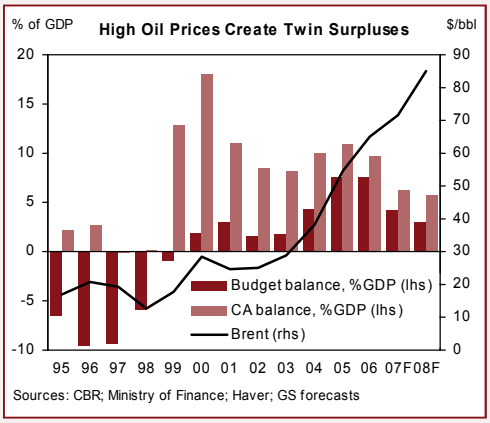
Rebound after the 1998 crisis

The country's macroeconomic indicators rebounded with surprising speed. The depreciated Ruble restored the competitiveness of many tradable sectors, while depressed imports caused the current account surplus to surge to 13% of GDP in 1999 and 18% in 2000, allowing the CBR to start accumulating reserves. Without the crowding-out effect of the government's domestic debt burden, real interest rates tumbled, domestic demand began to recover, and companies were able pay in cash. As oil prices rose, oil production, which had halved in the 1990s, began to recover, yielding tax revenues that enabled the government to pay its bills on time. Property rights remained uncertain and many structural impediments to growth remained in place, but the easing of monetary conditions sent GDP growth into double digits.

Putin took over this strong tail-wind of recovery and introduced structural reforms to address many of the economic rigidities left over from Soviet days. Between 2000 and 2003, the Duma adopted a new tax code; a modern labour code; a land code that legalised the purchase and sale of both urban and agricultural land; and a reduction of red tape and harassing inspections of small businesses. The government also launched an electricity sector restructuring, which is now nearing completion, and less successful pension and judicial reforms. The last major reform,



Source: Rosstat, GS forecast



Sources: CBR; Ministry of Finance; Haver; GS forecasts

Russia's Economic Collapse and Recovery *(continued)*

launched in 2004, was the replacement of in-kind benefits with cash payments.

External surpluses past their peak

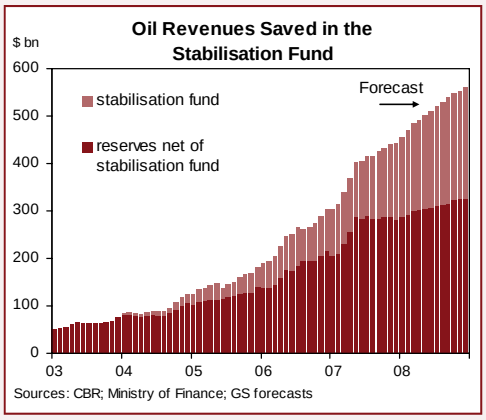
The ongoing increases in oil prices have caused the current account and fiscal surpluses to expand. The current account surplus averaged over 10% of GDP between 2004 and 2006, while the budget surplus was 7.5% of GDP in 2005 and 2006. As oil price growth has slowed, rapidly rising imports and government spending have begun to catch up. Even using the Goldman Sachs Commodities team's bullish forecasts of oil price reaching $90/bbl by 2009, we expect the current account to fall to 6% of GDP this year, and possibly to go into balance by 2010-11, while we expect the budget surplus to fall to 4% of GDP in 2007 and to be essentially in balance by 2010. In 2007, for the first time in more than five years, Russia had a positive gross external financing requirement, meaning that its current account was not large enough to cover its maturing external debt; the GEFR is likely to rise over time as Russian companies integrate into international capital markets.

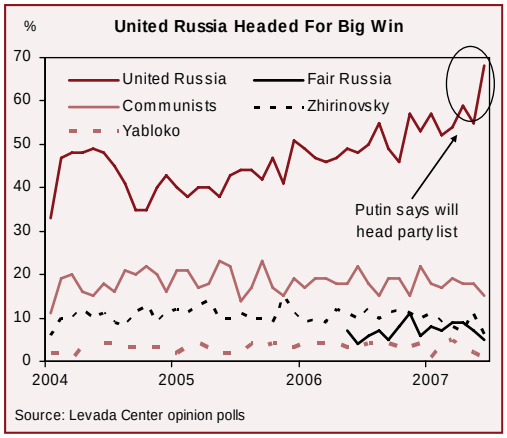
The government has saved much of its fiscal windfall in an oil stabilisation fund that receives most of the tax take from oil at prices above $27/bbl, a policy that has bolstered the state's credit-worthiness and partly insulated the economy from high oil prices. The fund currently amounts to $141bn, even after the government used $45bn from the fund to pre-pay its external debt. In 2008 the government plans to split it into a reserve fund of 10% of GDP, to be held in liquid securities, and a National Welfare Fund, which will initially be used to finance domestic investment but in future might evolve into a sovereign wealth fund that invests in foreign assets. The shift of the government's external balance sheet from net debtor to net creditor has 'crowded in' external borrowing by Russian companies and banks, which over the last two years have increased their external debt from $128bn to $343bn.

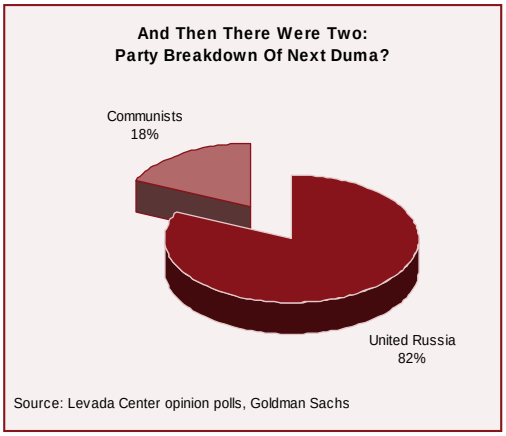
State refocuses on infrastructure

Growth over the last eight years has been 'investment-free', with fixed capital expenditures a mere 18% of GDP. While this is much better than in the 1990s, it is far below the investment rates of other fast-growing emerging markets. This has been possible thanks to the country's extensive Soviet-era infrastructure and underutilised capacity. As a result, labour productivity has grown by an impressive 6.0% annually, as underemployment has disappeared. As the economy has returned to its pre-transition magnitude in real terms (according to official statistics, Russia's GDP will cross its 1990 level this year), infrastructure bottlenecks have begun to appear in areas such as power generation and roads.

There are signs that investment has begun to accelerate over the last 12 months, with capital expenditures up over 21%yoy in 2007H1. Private investment growth may suffer a brief interruption due to the recent troubles in the local credit markets. But public investment may make up some of the shortfall: after repairing its balance sheet and accumulating a substantial 'rainy-day' fund, the government has announced ambitious plans to invest over $1trn over the next ten years in roads, rail, ports, pipelines and other infrastructure projects.







But as tensions between Russia and the west worsened, Ivanov has taken on additional responsibilities and pulled ahead in opinion polls.

The appointment of the little-known Viktor Zubkov as PM this September immediately thrust the former head of the government's anti-money laundering agency into the running as a third possible Presidential candidate. But we believe that it is extremely unlikely that he will be able to gain the level of public trust that it would take to establish himself as a viable candidate in the short time available. In the first polls to emerge since Zubkov's appointment as PM, a mere 4% of the population said they would vote for him, and his televised appearances in cabinet meetings have raised doubts about whether he would be ready to take on a more significant role.

Whom Putin chooses to succeed him will shed light on how strong and self-sufficient he intends the next President to be. Arguably, the most credible, confident and independent-minded of the three leading candidates would be Ivanov, who also currently has the highest popular approval rating. The least independent would presumably be the 66-year-old newcomer to high politics, PM Zubkov. Putin now appears intent on leaving the decision until the last moment, which could mean that we may not know until late December or even January.

Saying goodbye without leaving

In our view, Putin's announcement on October 1 that he may become PM—Putin described the proposal as 'entirely realistic', which we take to mean that it is highly likely—reduces the significance of his choice of successor. Before the announcement, we had expected the President to move to a bespoke position outside the constitutional framework, from which he would try to exert ongoing influence as a 'paramount leader', like Deng Xiaoping in China, or 'senior minister', like Lee Kuan Yew in Singapore. But now we believe that Putin is poised to become the next PM, the second-highest-ranking figure in the country.

But if Putin does indeed move into the role of PM after the inauguration of the new President in mid-2008, then the question is, does Putin intend to remain the de facto leader of the country, albeit from a position that is clearly subordinate to the President in Russia's constitutional hierarchy? Putin has stated that he does not intend to name a figure-head President. But it is hard to know exactly how to interpret these words. If Putin honestly intended the next President to be strong and independent, then it stands to reason that he would

have identified a single candidate much earlier and given him or her the space to emerge from under the current President's shadow and establish him or herself as an independent figure in the eyes of the population. The fact that Putin has still not announced whom he plans to support as his successor, less than five months before the election date, may be partly due to indecision, as former close associates claim. But the result is that the candidate will have very little time to gain support ahead of the election. Nor will it help that Putin plans to stay very close to the centre of power, and that he has repeatedly refused to rule out the possibility that he could return to the presidency in 2012. In our view, all this evidence suggests that Putin has no intention of choosing a President who could rival him in political stature.

Whether that means that Putin intends to rule the country from another seat (for example, whether the first item on the state news channel every day will be about Putin and whether it will be Putin rather than the President who will take phone calls from the world leaders and attend the G8 meetings) is more difficult to say. Our conjecture is that Putin is likely to pay lip-service to the 'strong presidency' fiction, meaning that the next President will continue to enjoy the protocol of Head of State and will continue to represent the country at summit meetings. But we do not believe that Putin intends to allow his successor very much decision-making leeway, and we do not expect the next President to be in a position to preside over cabinet meetings or dismiss the government at the flick of a pen.

Potential Threats to the Regime

If we are right that Putin intends to hold a very highly influential role even after the upcoming elections, there is still the very important question of whether he can pull it off. Is he likely to be able to retain his authority even in a constitutionally subordinate position? We see three possible dangers:

- First, it is conceivable that policy mistakes or economic shocks could damage the popularity of the entire leadership. Traditionally in Russia, it is the PM rather than the President who has borne the brunt of popular dissatisfaction, allowing the President to dissociate himself from the worst failures.
- Second, though the next President in all likelihood will begin his or her term a far weaker figure than Putin, it is possible that over time he or she will gradually steal the limelight from Putin, or even deliberately try to undermine him.
- Finally, both Putin and the future President could face a fresh challenge from a political actor outside the current ruling group.

Risk of economic shocks or policy mistakes

The first danger is certainly plausible. The country remains somewhat sceptical of its political leaders, and blames them for its misfortunes and economic failures. Even as PM, however, we would expect Putin to try to remain above the fray of day-to-day economic policy, with deputies taking responsibility for execution and potentially taking the blame for any policy failures.

While Putin's approval rating could fall from its current high level, we see very little risk of an economic shock so large or a mistake so grave that it would threaten the longevity of the regime

Russia and the BRICs Projections

Our well-known BRICs projections imply a rosy long-term future for Russia's economy. Not only could it be the largest economy in Europe before the middle of this century but, alone among the BRICs, Russia has a real chance of catching up with living standards of the current G7, increasing its per capita GDP eleven-fold in constant Dollar terms between 2006 and 2050. We believe this is possible despite the dramatic projected population decline (from 142mn people to 109mn in 2050) and despite a steady decline in the average annual real GDP growth rate from 4.3% in 2006-2015 to 1.5% between 2045 and 2050.

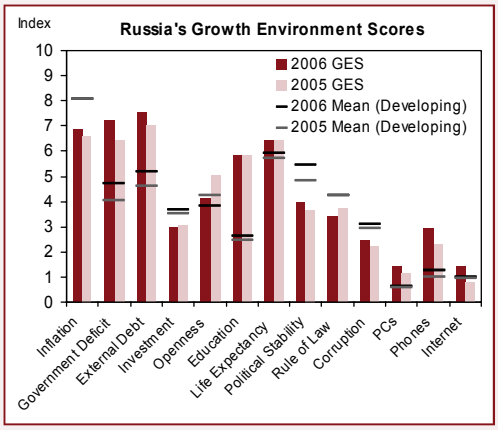
The BRICs dream is not even a 'best case' scenario—in fact, Russia's recent performance has been considerably better than projected in the original BRICs papers. But it does assume that the necessary conditions for long-run growth are in place, conditions that we have tried to capture in our Growth Environment Scores (GES). Russia scores well above the emerging market mean on education, government deficit and external debt; marginally above average on openness and life expectancy; lower but still above average on technology (phones, PCs and internet access per capita); and somewhat below average on inflation, which is now in the high single digits.

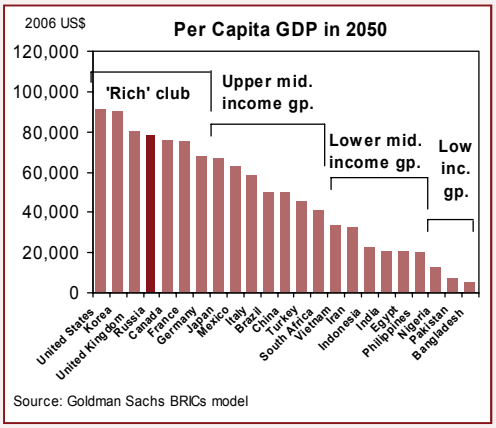
By far Russia's worst scores relative to the mean are in political and institutional variables: the rule of law, corruption and political stability. We estimate that if Russia were to move to the 'best in class' among emerging markets on its overall GES score, its growth rate would be 200bp per year higher than today. If it were to move to the 'best in class' on all the variables except for the political and institutional ones, it would gain only 136bp, forgoing 64bp per year in additional growth, an amount that over time would compound into a substantial difference.

The GES scores highlight the benefits for growth that the country is likely to enjoy thanks to the key achievements of Putin's government: restoring the country to solvency, improving macroeconomic management and imposing institutional stability after the chaotic 1990s. But they also make clear that, over the long term, Russia's highly centralised political framework is unlikely to be a recipe for the kind of sustained growth that would make the BRICs dream a reality.

% annual GDP growth	BRICs projections 2006-2050	BRICs projections 2006-2010	Actual and GS forecasts 2006	Actual and GS forecasts 2007 (F)	Actual and GS forecasts 2008 (F)
Brazil	3.7	3.7	3.7	4.5	4.2
Russia	3.0	5.5	6.7	7.5	8.0
India	6.0	7.4	9.4	8.7	8.0
China	4.8	9.3	11.1	12.3	10.9

Fiscal Year for India.





Source: Goldman Sachs BRICs model

over the next five years. What is striking about Putin's approval rating is its sheer resilience: even at its low point in 2000, 60% of the population still said they approved of his performance. A serious shock to household incomes also looks highly unlikely. Under Putin, Russia's fiscal and monetary policies have been oriented towards creating huge financial ramparts to guard the economy—and the political regime—from external shocks. The Central Bank's $434bn in reserves could be deployed to prevent a sudden currency devaluation or to bail out failing banks, while the high tax rate on the oil sector means that the economy barely notices even large moves in the oil price, with the up-side (and potentially the down-side) largely absorbed by the government's $141bn (11% of GDP) stabilisation fund. That fund could be drawn down to maintain social spending for an extended period in the event of a downturn in commodity prices.

Over the longer term, we see a greater danger not from so much from external shocks as from evolutionary change. On the one hand, a lack of structural reform could lead to a gradual deceleration in the growth rate and a steady rise in popular dissatisfaction. On the other, higher living standards and a greater sense of economic security are likely to lead to eventual demands for greater political freedoms and pluralism, and less tolerance for the daily petty bureaucratic indignities of authoritarianism. We see neither of those processes as posing a threat to the regime in the next five years.

Risks of cohabitation

We are also not seriously concerned about the second danger, of either a significant open conflict between Putin and his successor or a Byzantine palace coup by the next President. This is true although the print media will inevitably play up any policy differences that come to the surface and there is likely to be some sniping between members of the President's and Putin's teams.

- As we have argued above, Putin is likely to choose the successor from within his inner circle, someone who owes his or her career at the top ranks to Putin and someone who will be surrounded at least at first by other Putin loyalists. Unless Putin were to start to behave extremely erratically, we see no reason why his disparate and frequently feuding allies would unite to depose him.

- Second, in our view, the entire political class will continue to recognise Putin as the ultimate authority, not least because, by signalling that he may return to the presidency in 2012, he has made clear that any effort to undermine his position would be a high-risk undertaking.

- Third, it is unrealistic to expect the next President to have anything like the political authority of Putin. It was Putin, after all, who presided over the dramatic economic recovery and political stabilisation of the last eight years—achievements that will be hard enough for the next President to sustain, let alone outdo. Putin's shoes are simply too large to fill—especially if he himself still plans to occupy them.

- Fourth, control of the television news channels would be essential in any political rivalry in high politics, and we expect Putin to ensure that his close allies continue to monitor and influence news content after the elections. Given that Kremlin control over the television channels is conducted on an informal basis, we would expect the media to take their lead from the *de facto* rather than *de jure* political hierarchy. Putin's aides already exert tight if informal control over the content of the television news.

- Finally, and most importantly, unlike all previous Russian PMs, Putin will have led the election list of the party that is very likely to hold a large majority—and quite possibly a veto-proof supermajority—in parliament. United Russia's entire political programme is based on its association with Putin. Given how hard the party has worked to associate itself with Putin personally, we believe it would be very likely to give Putin strong backing in the unlikely event that the next President were to try to curtail his powers or even remove him. We believe that a President who tries to dismiss Putin from the PM's post, though fully within his or her constitutional rights, could see the presidency's powers reduced by constitutional amendment or could even face impeachment in a matter of weeks.

Risk of political challenges from outside

The third danger (a challenge to the regime from outside) appears to be remote at this point in time. In his drive to recentralise political power, Putin has effectively emptied the political landscape of any potential rivals. The United Russia party is filled with loyal *apparatchiks*, and even Kremlin-backed political figures who have shown too much independence have been banished from the political scene. Since the destruction of YUKOS, business leaders have not opposed the Kremlin on any matter of substance, and an increasing share of the rent-generating natural resource sectors has been taken over by state-controlled companies run by allies of the President and veterans of the security services. There is a spirited liberal opposition movement, the Other Russia, but it has no access to the mainstream television channels, its demonstrations attract at most a few thousand people, and its leaders receive under 5% support in opinion polls. Only a severe external shock to the regime's stability or a split within the ruling elite would create an opening for a genuine opposition challenge—and, as we argue above, we see neither of those as at all likely in the near term.

All that said, the nature of any political system that concentrates as much power in a single individual is that it is vulnerable to an unquantifiable level of risk from entirely unexpected events—including mortality. If Putin were to leave the political scene abruptly, the security services veterans would be likely to unite around a successor to preserve their elite status. But there would be profound uncertainty in that transition.

Structural Reforms and Their Limits

Russia's strong economic performance and financial recovery over the last eight years owes a lot to rising oil prices and the extremely favourable tail-winds from high global growth. But Putin's economic policies also deserve some of the credit for proceeding with structural reforms, saving rather than spending the oil windfall, and promoting diversification of the economy through tax policy.

- Thanks to the backing of a strong legislative majority, the government was able to push through reforms early in Putin's administration that under Yeltsin had met with unyielding resistance. Since 2004, however, strong economic growth and high oil revenues have sapped some of the reform momentum of the early Putin years.

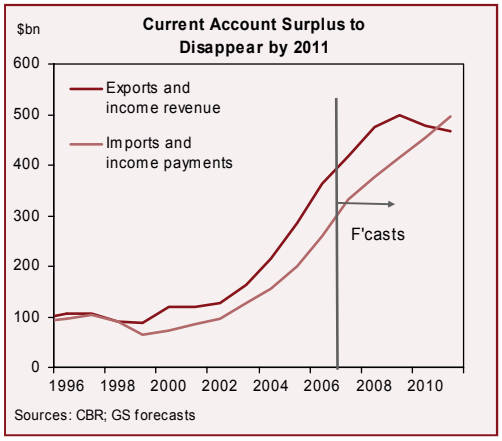
- After a decade of large budget deficits, the government has run fiscal surpluses every year since 2000, paying down external debt and more recently accumulating a $141bn oil stabilisation fund. The budget surpluses were considerably larger than planned, thanks to the unexpectedly rapid rise in oil prices, and government spending is gradually catching up

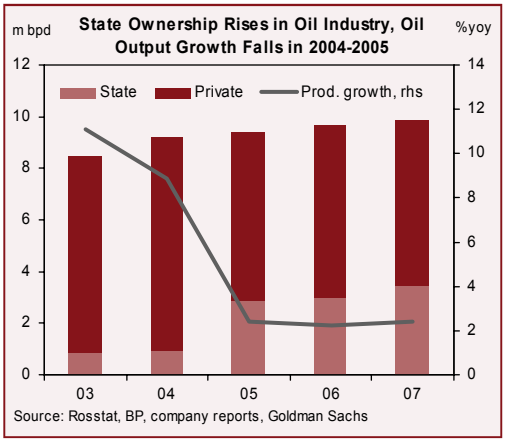
with the higher revenues. But finance minister Kudrin, with the personal backing of the President, deserves credit for fighting off repeated efforts by a range of political forces to spend the surpluses. Kudrin's goals have been economic: first, to repair the country's balance sheet and enable companies to borrow, later to prevent pro-cyclical spending from driving up inflation, accelerating the real appreciation of the currency and causing the onset of 'Dutch Disease'. The minister has also been very sceptical of the Russian state's ability to spend money effectively. But Putin's support for tight fiscal policy appears to be motivated as much by politics as economics: the reduction of debt and the accumulation of fiscal reserves has reduced the country's—and by extension, his regime's—vulnerability to a possible downturn in oil prices and other potential external shocks.

- Lastly, after the tumultuous years of political upheaval, macroeconomic volatility and rapidly shifting property ownership in the 1990s, Putin's firm grip on power has given the country a degree of stability and predictability, which in turn has stimulated the beginnings of a recovery in investment. Capital investment grew by an average of +11% between 2000 and 2006, compared with -11% annually in the previous seven years. In the first eight months of 2007, it has accelerated further to around +22%yoy. This has come despite the YUKOS case and a handful of other examples of property expropriation and discriminatory tax treatment. Inward foreign direct investment has also risen, from 0.9% of GDP in 1993-1999 to 1.8% of a much larger GDP in 2000-2006.

On the other hand, the current political framework has also ruled out certain other structural reforms. The clearest example is the oil and gas sector. The state's desire to retain control over Gazprom has caused it to reject reformers' efforts to unbundle transportation from production or to liberalise independent gas producers' access to the pipeline system. This is despite inefficiencies in the current system and an imminent shortage of gas on the domestic market. Since 2004, the state has also expanded its control in the oil sector through asset purchases and renegotiation of earlier contracts (we estimate that more than 65% of the sector remains in private hands, down from 95% in 2003).

In our view, the Kremlin wants to maintain control of the oil and gas sector not because it believes that state ownership is more efficient but because it is concerned about the sector falling into the hands of its political opponents. Those hands could be domestic or foreign. Worrying that the west is seeking to subvert Russia's political stability, the Kremlin has drafted legislation restricting foreign investment in certain strategic sectors of the economy and in large natural resource deposits. Russia is far from being the only country to restrict





foreign investment and insist on a high degree of state ownership in the energy sector; in fact, in recent years that has become the rule rather than the exception, particularly in emerging markets. It should also be understood that the bulk of Russia's oil is still produced by private companies, some of them with foreign participation. But the cost of mounting state involvement in the sector has been to discourage investment and to slow the growth in oil and gas sector output, and also to create distortions elsewhere in the economy.

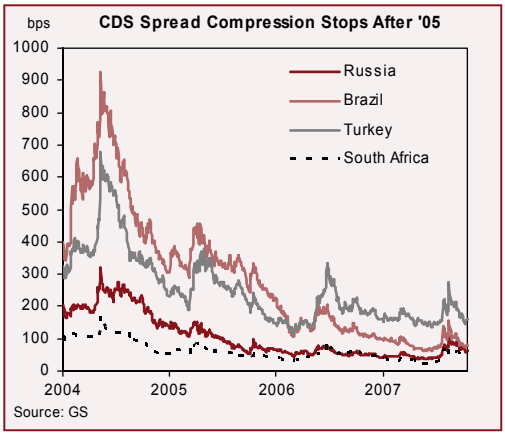
The trend towards state control has gone beyond natural resources. The Kremlin has supported the creation of state-sponsored national champions in a number of sectors, including weapons manufacturing, civil aviation and most recently ship-building. From an economic point of view, we see those moves as an example of misguided industrial policy—an effort to use the state's abundant resources to resuscitate segments of the Soviet industrial legacy that have not attracted the interest of domestic or international investors—rather than part of any grand plan to expand the state management of the economy as a whole.

Thus far, the economic costs of state intervention have been concealed by the strong recovery in the private sectors of the economy and high commodity prices, although there has already been a striking slowdown in oil production growth. Over time, however, we believe that state ownership could divert resources from productive areas of the economy to unproductive ones, as it has done in other countries in the past. The inefficiency of the non-tradables sector in turn would be likely to lead to overvaluation of the real exchange rate and a decline in economic competitiveness of the economy as a whole. We believe that if state ownership continues to grow and curbs on foreign investment remain in place, Russia will have considerably more trouble achieving the long-term possibilities outlined in our BRICs projections. The good news is that we would expect the political elite eventually to respond to declining growth rates by reversing course and returning assets to private hands.

State still not accountable to the judiciary

Putin's focus on maintaining political control has also hindered progress on judicial reform and the establishment of secure property rights, which will be essential if Russia is to raise its still low level of investment. Rather than committing itself to the protection of property rights, since the YUKOS case, the state has opted to keep the oligarchs in a state of perpetual insecurity about their assets, in an apparent bid to discourage a repetition of Khodorkovsky's political adventure. It would be wrong to exaggerate the scale of this problem: it primarily concerns the owners of a handful of the very largest privatised companies. For the most part foreign investors have escaped unscathed. But more broadly, while the Putin government has arguably made some progress in curbing private racketeering and compelling the private sector to comply with the country's tax laws and other regulations, it has resisted efforts to make the state itself accountable to the judiciary or to weaken avenues of political pressure on judges. Put another way, a consequence of the government's reliance on law-enforcement and the bureaucracy to defeat its political opponents is that it has not focused on rooting out corruption in its own ranks.

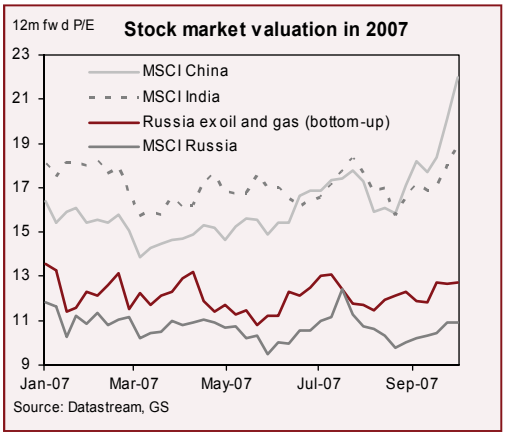
Political Stability Is Good for Asset Prices



After several years of strong outperformance, Russia's asset prices have disappointed in 2007. Equity prices have lagged far behind the other BRICs and many developed markets, even as the oil price has set repeated all-time highs. Russia's equity valuations are now considerably lower than either China's or India's, even omitting the oil and gas sector, which typically trades at lower multiples. Credit default swap spreads on Russian sovereign debt reached a historical low 37bp in June of this year, but widened by as much as 70bp during the credit turmoil over the summer and are still more than 20bp wider than they had been. Russian credit names have been even worse hit and have yet to recover from the global credit sell-off; some leading consumer banks are now 350bp wider against the Russian sovereign benchmark than they were in early July.

In our view, asset prices this year have been hurt unduly by political uncertainty and the perception that the upcoming elections hold risk for investors. There are other technical explanations for the recent equity price weakness: first, the large volume of new share issuance in late 2006 and early 2007; and second, the heavy weight in the index of oil and gas companies, which tend to benefit surprisingly little from higher oil prices because of the structure of Russia's tax system. In credit space, the global shock over the summer, which coincided with a rise in Ruble volatility, revealed a profound lack of trust among Russia's numerous commercial banks as well as their lack of faith in the credibility of the CBR's commitments to support the system. But beyond those technical factors, we perceive a widespread sense of unease among investors about the still-unresolved Presidential succession and the belligerent foreign policy rhetoric emanating from the Kremlin in the past few months.

As we have argued above, we believe these risks are overstated. We now think that the upcoming elections will hold few surprises. The market may well react to the naming of the



Kremlin's Presidential candidate over the next three months: in our view, the reaction to Zubkov would be marginally negative; to Medvedev, marginally positive; and to Ivanov, who at this point is the consensus candidate, the reaction would most probably be fairly neutral. But as we have contended, ultimately the name of the successor is of secondary importance: the most likely scenario is that Putin himself will remain the country's key decision-maker, ensuring that two important contributors to the current economic resurgence—sound macroeconomic management and political stability—will remain in place.

Russia under Putin's leadership is likely to continue to pursue a more assertive and independent stance on foreign policy, since that appeals to a broad consensus among Russia's foreign policy establishment and in the population at large. This means that on issues such as US anti-missile batteries in central Europe, energy supply routes, Iran's nuclear programme and the status of Kosovo, Russia is unlikely to sacrifice what it perceives to be its national interests and historic alliances. Parts of the political elite have come to believe that the country's leverage as an energy exporter, its current account surplus and its stabilisation fund mean that it can thrive without foreign capital. But President Putin himself has stressed, even at the low points in Russia's relations with the US and EU, that he still wants the country to be open to foreign investment, even if certain sectors are partially off-limits. We do not believe that foreign policy rhetoric should have any serious impact on the fundamental quality of Russian assets, though negative headlines do appear to affect western investor sentiment. Over time, as Russia's current account surplus dwindles and the country needs to attract increasing amounts of foreign capital to finance its infrastructure expansion, we expect a greater recognition of global interdependence and a somewhat less confrontational foreign policy stance.

We remain positive on the outlook for Russian asset prices for the next year. Though investment and consumption may suffer a brief slowdown related to the recent liquidity problems in its banking sector, the economy has a lot of momentum as it completes its recovery from the 1990s recession and embarks on a capital-intensive upgrade of its infrastructure. We expect the best near-term performance in credit, where bond prices are still artificially depressed after the summer sell-off, and we see especially strong performance in Ruble-denominated assets, since the recent upturn in inflation is likely to compel the CBR to allow stronger currency appreciation next year.

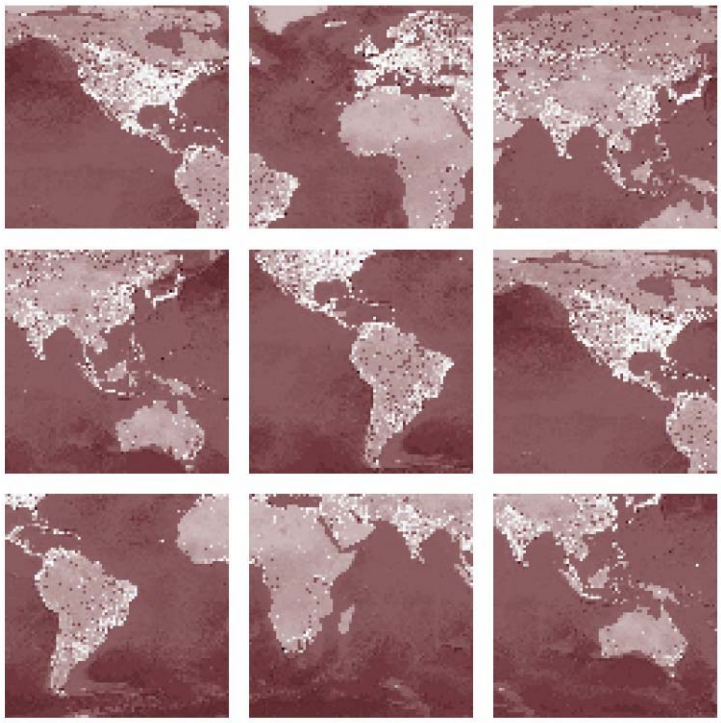
Our equity strategists' favourite themes are the consumer, telecoms and retail sectors, as well as steel and pipe companies, and other names poised to benefit from the state's infrastructure spending. They also see opportunities in domestic restructuring stories, such as power generation and gas. With significant segments of the economy still private, we see considerable opportunities in direct investment.

Rory MacFarquhar
October 22, 2007

CHAPTER THREE

WILL CHINA GROW OLD BEFORE GETTING RICH?

February 2006



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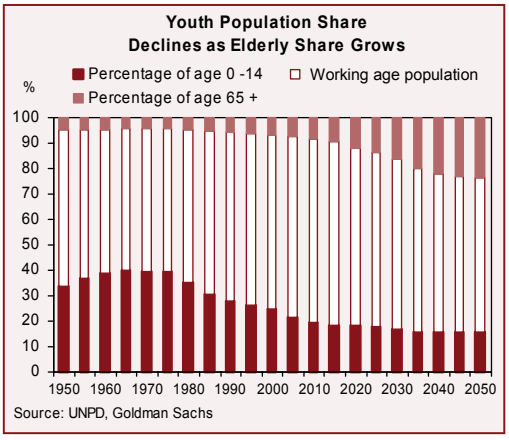
China's unrivalled economic growth over the past quarter-century has surpassed all records and created a new standard in the history of economic development. With an average annual real GDP growth rate of 9.6% from 1978 to 2004, China's pace of growth is faster than that achieved by any East Asian economy during their fastest-growing periods.

Nonetheless, demographers have warned that rapid ageing will limit China's future growth prospects and that the demographic tailwind will turn into a significant headwind. China has benefited from strong raw labour growth from the late 1970s until now, but the future demographic outlook suggests that the growth of the labour force will slow and ultimately decline after 2030. (Our forecasts are in line with the United Nations Population Division and with official Chinese projections.)

Two forces drive these changes: 1) increased longevity, which is raising the number of elderly, and 2) the one-child policy, which has slowed the growth rate of young adults in the population. The implication for workforce growth is immediate and significant. When more workers reach retirement age and growth of the young adult population slows, the dependent-per-worker ratio will increase and the 'demographic bonus' will end.

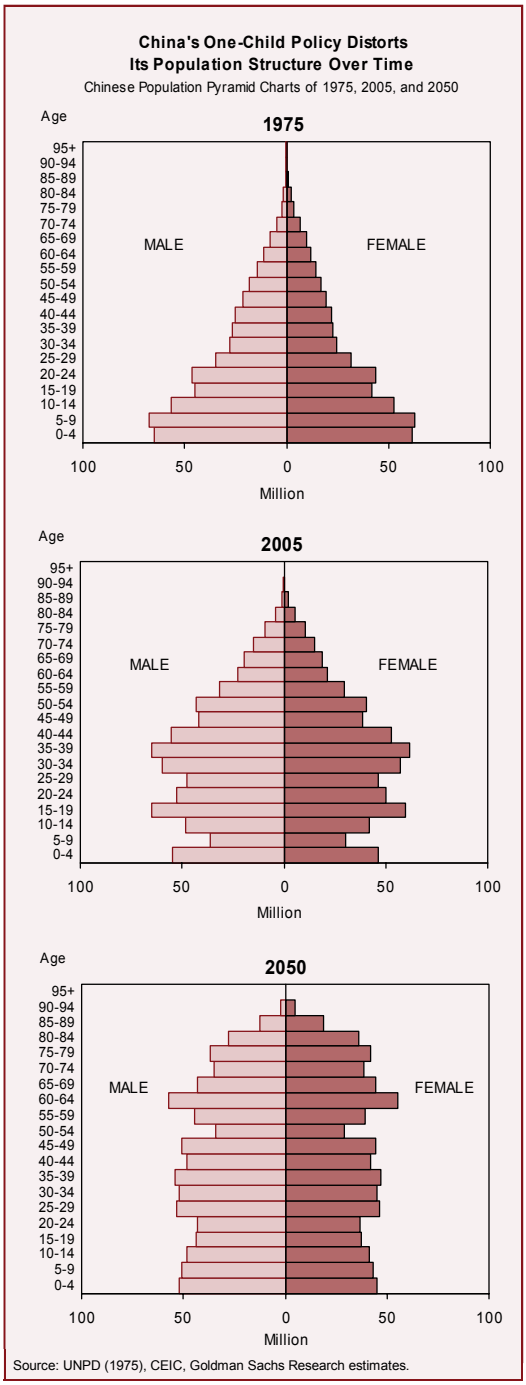
Many observers are thus concerned that 'China may get old before it gets rich'. Ageing has been perceived almost exclusively as a problem for industrialised economies, following years of urbanisation and industrialisation. Fewer people have associated ageing with a developing country where labour is often ample and the cost of child-raising inexpensive. China may be an exception. Although it is still considered a developing country by many standards, China has the fastest ageing trend among the 14 developing economies in the BRICs and the N-11.

Our analysis suggests that by the time China becomes an 'aged society' in 2027, it will probably be considered a developed country, although it will still be considerably poorer than the US or Japan on a per-capita income basis. We believe the rapid build-up of human capital and the continued release of surplus labour from the agriculture sector will mitigate the negative influences on the labour supply from ageing.



Despite the slowdown in labour force growth, improved labour quality is likely to help sustain 'quality-adjusted labour supply' growth. China's economic growth has coincided with a tremendous boost in human-capital accumulation. In addition to advances in education from improved living standards, the one-child policy has led to increased human-capital investment on a per-child basis. As public and private education expenditure has per person increased, the education attainment of the labour force has boomed. Smaller family sizes have helped China to achieve great success in promoting higher education and producing college graduates. This accumulation of human capital contributed 15% of overall growth between 1979 and 2004, while labour force growth only contributed 13%. Further educational improvement should continue to support quality-adjusted labour growth.

The release of rural labourers into the industrial and service sectors will also augment the available supply of labour. The ongoing gradual relaxation of the household registration (*hukou*) system should facilitate this.



Source: UNPD (1975), CEIC, Goldman Sachs Research estimates.

China's Labour-Force Dynamics

Slower population growth, ageing and a rising dependency ratio

China's average population growth from 1950 to 1978 was 2.01% per year. Since then, population growth has slowed substantially. From 1979 to 2004, growth averaged 1.16% per year. By 2005, the population growth rate had fallen to about 0.65%, half the world average and just roughly one-third of its level 50 years ago.

Ageing has been a hidden problem in China for some time. Since 1980, the elderly population has been growing faster than the average of the world and Asia. Yet ageing

was not considered a serious problem 20 years ago, because there was a large pool of young people aged 0–15 who rapidly replaced the elderly exiting the labour force. But when this reserve of youngsters is drained and the elderly surpass the rest of the age groups in growth significantly, ageing will soon become a credible threat to the sustainability of China's rapid economic growth.

The cause of China's ageing problem lies mainly in the lack of young people, rather than the superabundance of the elderly. The reasoning is simple. Young cohorts tend to have a persistent impact on society because they are dependents today, workers tomorrow and the elderly afterwards, while the impact from the elderly is more transitory.

The shortfall in new births is partly due to the normal drop in fertility that accompanies economic development. The one-child policy introduced in 1978 has also played an important role, expediting the country's ageing process by preventing millions of births (the government claims the figure is as high as 300mn). By limiting the total number of children in each family, China has reduced the crude birth rate from 21% in 1980 to 14% per year in 2005, significantly below the current world average of 21% per annum (21 live births per 1,000 people in a given year).

The population pyramid charts on the previous page illustrate the demographic transition China is likely to experience if existing policies are left unchanged. After 28 years of tight population control, the demographic structure now looks more like a Christmas tree rather than the well-based pyramid of 30 years ago. The only-child generation born after 1978 occupies the entire lower portion aged 0–30. By 2050, without changes to the one-child policy, the population will be much less supported at the base by the young, and overweighted at the top due to ageing.

Having fewer babies has been helpful for per capita income growth since 1975, because having fewer young dependents reduced the burden on the workforce. Strong growth in raw labour largely reinforced China's manufacturing-based industrial success. However, once the shortage of young people translates into a slower growing work-age population in the near future, beginning in 2010, the dependency ratio (which is the ratio of the population aged 0-14 and 65+ to the working-age population aged 15-64) will rise again. The dependency ratio will ultimately reach 70% in 2050, implying that every 10 people of working age will have to support up to seven dependents (young and senior) in 2050, compared with fewer than four today.

Uniquely, the sharp rise in the dependency ratio will occur at lower levels of per-capita income than in other countries. The dependency ratios in Japan and Korea are projected to reach 50% in 2005 and 2026, respectively, when their incomes are likely to be well above $30,000 (in 2005 prices). In contrast, our BRICS projections suggest that China's per capita GDP will be just $11,000 in 2030, when the dependency ratio will approach 50%.

A literature review suggests a weak link between per-capita growth and raw labour growth. China's own experience thus far seems to support this argument. Although raw labour growth slowed in the 1990s, economic growth remained robust. It is therefore likely that government policies and individual behaviour will change as ageing becomes a more critical issue. In particular, we think favourable changes in two labour factors will boost future growth.

A Primer on China's One-Child Policy

After China's high infant mortality rate fell substantially in the 1950s, fear of exhausting food and other living resources began to rise. However, the government chose to subscribe to a Soviet view that a large population would affect output growth favourably. This ushered in a second baby boom over the course of the 1960s, when China's population increased by 25%.

The family-planning policy was among the first set of reforms introduced in the late 1970s. Enforcement of this policy began for government and SOE employees in urban areas as early as 1979. In the early 1980s, the rule was implemented and strictly enforced in both urban and rural areas.

In general, couples are allowed only one child, but there are exceptions, even in urban areas, where enforcement is strict. Second children are allowed in families falling into various groups, including permanent disability in the first-born; remarried families with only one child; and pregnancy after long infertility but after adopting a child. In addition, since the late 1980s, rural couples have been allowed to have a second child if the first-born is female. Other couples of special groups (such as from minority groups or both from only-child families, or couples involving a foreign citizen) are subject to more relaxed regulations.

Strict enforcement has relied on a carrot-and-stick approach. On the 'carrot' side, families with only one child are rewarded by a small monthly stipend. All children born 'within quota' (including the first and second child when permitted) are issued official birth certificates that allow them to enter the household registration system (*hukou* system) immediately after birth. This entitles them to social benefits such as free education and local preferential employment on reaching adulthood.

On the 'stick' side, children born outside beyond the allowed limit incur a 'social fostering charge'. This additional fee pays for the benefits and entitlements in the welfare system including nine-year compulsory education. For a second child born outside the quota, this fee can range from two to ten times the average annual disposable income or actual annual income, whichever is higher.

In addition, employers of rule-breaking parents (especially those in the government or related organisations) may also take disciplinary action against them, possibly affecting their career development. This measure used to work most effectively in urban areas because public-sector employees tended not to risk their jobs over a second child. There were also incidents where people were severely punished and harshly treated for pregnancy or births beyond the assigned quota, especially during the early years of implementation.

Local governments provide contraceptive advice, medical consultations and 'treatments' (abortions and sterilisations) free of charge. Local bureaucrats have strong monetary and career-driven incentives to keep the local birth rate below quotas assigned by the immediate upper-level government. Failing in one or more standards would result in 'one vote negates all' in their evaluation, and might permanently taint their political careers.

Human capital accumulation

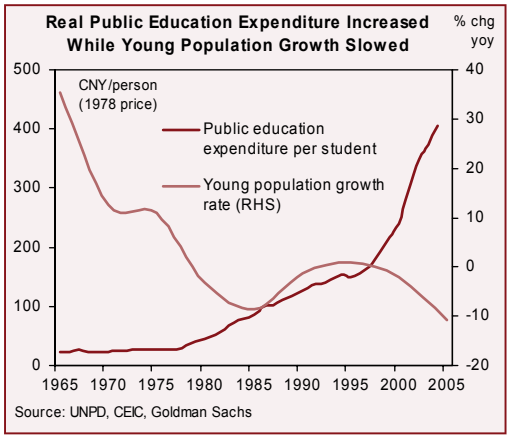
Improving living standards since the late 1970s have helped China to make remarkable progress in accumulating human capital. Education was revived after years of repression during the Cultural Revolution. China has made huge progress in spreading nine-year compulsory education extensively in rural areas, and has been successful in promoting more senior secondary school students into higher education. During the past decade, China has produced college and university graduates at a significantly faster pace than Korea and Japan did during their fastest-growing periods. Students' health conditions have improved as well, as the result of a more balanced diet and the higher priority placed on physical education.

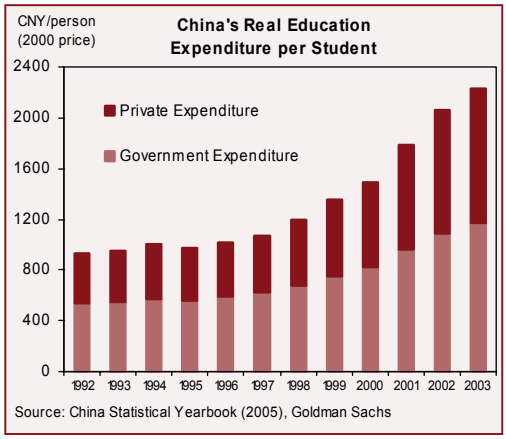
Human capital has also received a huge boost from the one-child policy. Population control makes children scarcer and more valuable to their parents, and this has encouraged parents to increase their educational investment on a per child basis. Disposable income can be more generously allocated on a single child than on many, and, within a smaller family, parents can be expected to raise their average expenditures on each child. Abundant material and emotional resources are expected to contribute to improving labour quality. This should become a buffer against the raw labour growth slowdown in the future.

Unleashing Surplus Labour

China's agricultural productivity has increased remarkably since the early 1980s, but its growth has lagged behind that of industrial productivity. Labour productivity in the industrial sector grew twice as fast as that in agriculture during 1979-2004.

The implied slower efficiency gain in the agricultural sector is partly due to less capital and poorer technology compared with other sectors, and partly due to the lower number of labour input hours per labourer. We therefore expect that when some labourers leave agriculture to work in the industrial or service sectors, those remaining may be able to increase their labour input in response. In the end, real labour input in agriculture would not decline and total agricultural output growth would not be negatively affected. This has happened in the past: since 1978, a sizeable number of agricultural labourers have migrated into cities, but agricultural output growth remained robust nonetheless.





Past restrictions from the household registration system (or *hukou* system) and various other barriers have largely prevented surplus labourers from migrating into cities to work for higher compensation. These requirements are being phased out in a number of areas, and Chinese authorities are also initiating *hukou* reforms to eliminate rural-urban disparity. Several large cities have suspended the temporary residence permit requirement for migrants, and a few provinces are working to unify urban and rural household registration records so that residents will be free to move within the province.

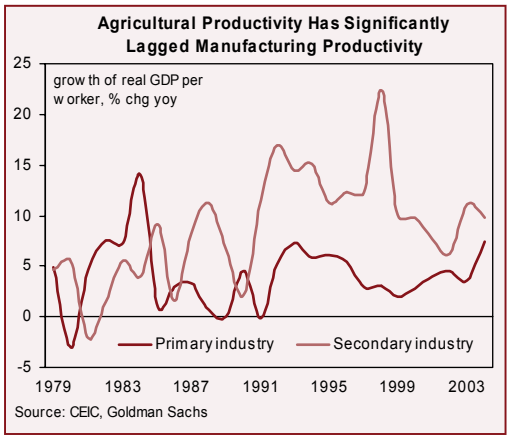
Non-*hukou* barriers also contribute to a high cost of migration. Rural labourers have to worry about potentially forfeiting their right of cultivation when they return in the future. In the cities, some of the high-paying urban jobs are often reserved for urban residents. Job hunting, the lack of unemployment insurance and an unfavourable working and living environment can easily lead to disappointment, and add to the costs of migration to the cities.

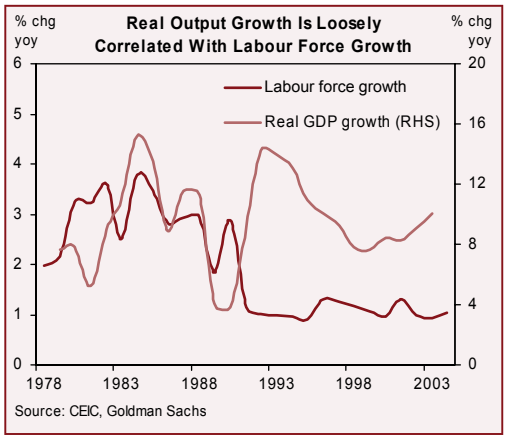
We view the ongoing *hukou* reform and a potential reduction of the non-*hukou* barriers as positive signals to reduce the distortion in resource allocation. There will likely be a windfall gain in relaxing the system and allowing workers to move more freely into the industrial sector.

The ongoing reform of state-owned enterprise (SOE), government and public service units will almost certainly free more redundant labour. The total number may not be significant when compared with that in rural areas, but the potential social impact in urban areas can be challenging. We do not include this portion of labour in our scenario analysis, mainly because it is difficult to estimate the number of eligible labourers with appropriate and employable skills.

A review of the world standard of agricultural population and output suggests that China will experience a further decline in both the proportion of work force and the value added in output in agriculture relative to the rest of the economy.

We assume conservatively, and in line with existing research, that 20%-27% of the agricultural labour force (approximately 98-128mn) is surplus today. People aged 15–29 are most likely to migrate into cities, because the ability of township and village enterprises to absorb surplus labour has declined. This implies that a gradual relaxation of the *hukou* system and other migration barriers could potentially release 25-32mn young labourers into the industrial or service sectors.





Deciphering the *Hukou* System

Hukou (or *huji*) is the common name for household registration in China. Its origins can be traced back to the Shang Dynasty 3,500 years ago. Administration with legal enforcement was introduced in the Qin Dynasty from 220 BC. The household registration system counted residents, limited their mobility across regions and unified tax collection.

A new *hukou* system under the communist regime was formally established in 1958, strengthening the mobility constraint to prevent rural residents from moving into cities and urban residents from migrating between cities. Since the 1950s, China has placed enormous emphasis on developing heavy industries, supported by low living costs and a heavily-subsidised welfare system for urban workers. The *hukou* system helped to ensure sufficient labour supply in agriculture to facilitate the early stages of industrialisation.

In the centrally-planned economy, the seamless integration of the *hukou* system with other socialistic institutions became a binding constraint on domestic mobility. From 1958 until the early 1980s, urban-rural migration was virtually forbidden except for official planning purposes. People were deterred from moving to other areas due to constraints on food allocation (which was determined by *hukou* records), employment and education.

Since China began its transformation into a market economy—and especially since the 1990s—rural-urban migration has become more feasible for those who have completed their education and who seek jobs in informal sectors. The young rural population was among the first to take advantage of this flexibility, venturing into construction, manufacturing and service sectors in urban areas.

Looking forward, a greater proportion of the population may urbanise, either by migrating temporarily to urban areas or by choosing to remain there rather than return home. Even if people do stay in rural areas, the rapid pace of urbanisation may transform them into urban dwellers in any case. To facilitate urbanisation, the *hukou* reform is certainly helpful, but more has to be done. Reducing other migration costs and improving living conditions for migrant workers will be essential to keeping them in cities.

In our growth projection below, we assume that a total of 27mn surplus labourers will exit the agriculture sector by 2050. The migration flow will presumably start with a 1mn release in 2006, adding 200,000 in the second year and gradually more in subsequent years. Since the remaining labourers in this sector will likely increase their labour input to compensate for those who have departed, this implies the economy will have a net gain of labour input worth 27mn people in total.

A potential easing of the one-child policy

A change in the one-child policy would help sustain China's population growth in the long run and improve its demographic structure. In our view, a gradual and conditional easing of the one-child policy beginning in 2010 would significantly boost the total population by 2050.

The government is reported to be considering a gradual lifting of the one-child policy from as early as 2010. A World Bank proposal (which we think has a high likelihood of being adopted) would allow each woman aged 35 and over to have two children (regardless of gender), beginning in 2010, followed by an annual lowering of the 35-year age limit by one year.

Initial shocks from a relaxation of birth quotas may cause an upsurge in fertility rates in the early years. Ultimately, birth rates are likely to stabilise at a level that is higher than in most developed countries, but lower than that in most developing countries.

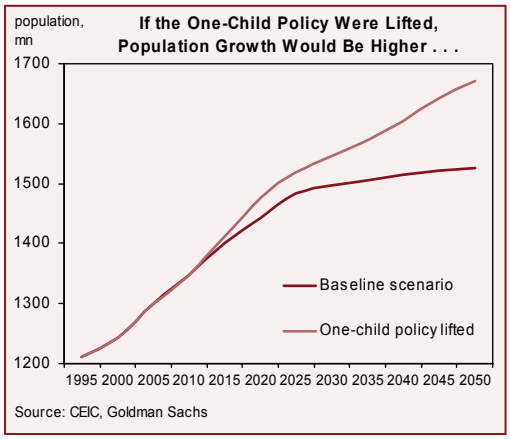
Output Growth Forecast

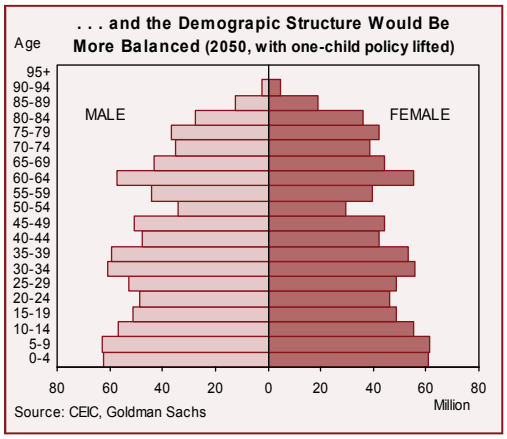
Economic growth will be affected by a combination of forces, including the demographic transition, rapidly improving human capital and the further release of surplus labour from the agriculture sector. We show in the following analysis that output growth should hold up well after accounting for the last two factors, as well as a potential easing of the one-child policy.

We project real GDP growth in three scenarios:

- **Scenario 1** is the baseline case and does not account for any human capital acceleration or further reduction of rural-labour migration barriers. It implicitly assumes that China will undergo a modest accumulation of human capital, and sees no change in the urbanisation or one-child policy. This estimate is similar to our BRICs projections.
- **In Scenario 2,** we take into account the rapid acceleration of education attainment going forward, and allow rural surplus labourers to migrate more freely from 2006. The potential policy environment needed for the second scenario seems to be shaping up well.
- **Scenario 3** takes into account an improvement in labour quality and the release of surplus labour from the agricultural sector, and assumes a phase-out of the one-child policy beginning in 2010, with details consistent with the proposal discussed above. The extensive review that has been conducted on the one-child policy suggests that the policy will be modified. Hence, we are inclined to think that Scenario 3 is the most likely of the three.

Scenarios 2 and 3 take into account both an overall increase in labour supply and a higher-quality labour force, suggesting an even more bullish growth prospect than Scenario 1, or our original BRICs estimates. In particular, Scenario 3 demonstrates that the easing of the one-child policy will likely further accelerate total GDP growth by 12 basis points and have a limited negative impact on per-capita GDP income. This is because a greater proportion of the





added population will be in urban areas and thus will enjoy better educational opportunities. Improvement in average labour quality will ultimately outweigh the burden from the increasing dependent population and help sustain overall growth, especially towards 2050.

Rich But Not Richest

Together, these results suggest that by the time China becomes old, it should be fairly developed, but still not richer than the US or Japan in terms of per-capita income. Richness is usually defined in relative terms, while economic development is both an absolute and relative concept. Generally, an economy is considered to have achieved 'developed' status upon its accession into the OECD. An effective rule of thumb has put per-capita income of $10,000 as the threshold of 'developed country' status. Economies above this line are fairly developed, and are often consistent in sectoral composition of output, urbanisation, life expectancy, national wealth, capital stock per labour hour, education and service-sector development, etc.

For China, this day may not be too far away. Our analysis shows that by the time China becomes an aged society in 2027, its per-capita GDP should have surpassed $10,000 (in 2005 terms) in all scenarios. However, even by 2030, the most optimistic scenario suggests that per capita GDP could reach nearly $22,000 (2005 prices), but stay well below BRICs estimates of per capita GDP in the US ($61,000), Japan ($60,000) and Germany ($51,000) of that year.

In summary, our study on China's future labour supply has the following implications:

- In the medium term, 'demographic deficits' will likely be counterbalanced by an unusually rapid accumulation of human capital and a further release of rural surplus labourers.
- In the longer run, growth will likely hold up well as the country ages. By the time it is old, China will be considered a developed economy—although it will probably be poorer than many developed countries.
- Our BRICs projection of real GDP growth may have some further upside, if China adopts a favourable policy mix to address the labour issues. A potential easing of the one-child policy after 2010 would help boost long-term growth, especially towards 2050.

China's Projected Real GDP Growth

avg % chg yoy	BRICs projections	Scenario 1	Scenario 2	Scenario 3
2005 – 2010	7.6	7.5	8.9	8.9
2011 – 2015	6.0	6.0	7.0	6.9
2016 – 2020	5.0	5.7	6.5	6.3
2021 – 2025	4.5	5.1	5.3	5.4
2026 – 2030	4.0	4.5	4.9	5.1
2031 – 2035	3.8	3.8	4.0	4.3
2036 – 2040	3.8	3.6	3.9	3.9
2041 – 2045	3.4	3.1	3.2	3.5
2046 – 2050	2.8	2.9	3.0	3.5
2005-2050	4.5	4.7	5.2	5.3
GDP growth per capita 2005-2050	6.3	4.3	4.8	4.7

Source: Goldman Sachs

Policies to Watch

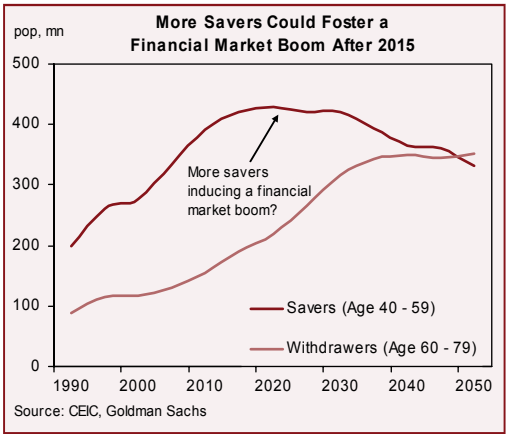
In our view, China is taking the necessary steps in education and the labour market to ease the demographic constraints, which means that Scenarios 2 and 3 are more likely to materialise than Scenario 1. Potential policy changes in these areas are important levers that China can and should push to counter the negative influence from demographic changes. In this sense, we believe demographics will not determine the country's future to the extent that most people currently believe.

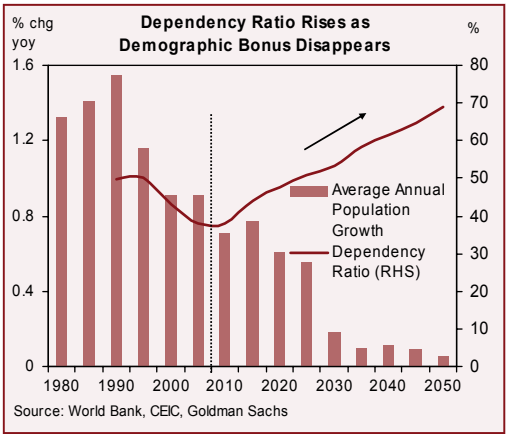
The most obvious step is to relax the one-child policy. Other important steps will include:

- **Making education affordable and flexible.** There is room to expand public expenditure on education, which is low as a share of GDP. A strong commitment here would help build a more evenly distributed network to provide high-quality compulsory education, especially if the youth base were augmented by a relaxation of the one-child policy. The recent commitment to completely free compulsory education will certainly provide an extra boost. Only if youngsters from the countryside receive better education opportunities and skill-sets, will they be able to migrate to cities to take more permanent positions in high-valued-added industries.

- **Facilitating migration.** Beyond the current reform of the *hukou* system, reducing non-*hukou* barriers to migration will be important. The rural economy needs to be restructured away from small household leaseholds of uncertain tenure to larger commercial farms with more secure property rights. Otherwise, migration is likely to stall.

- **Deepening rather than expanding pension reforms.** The current scope of pension reforms offer sufficient support for a limited number of retirees without building up huge government debts for future generations or discouraging child-raising. For farmers and the self-employed, private savings would still be considered the most effective support. To encourage private accounts to be fully funded, and sustain private savings, China will have to liberalise its capital markets.





Implications of an Ageing But Fast-Growing China

- **China's population is ageing, but its economy should continue to grow rapidly** with the help of a better-educated labour force and rapid urbanisation. The gains from human capital development and intensive urbanisation will help buffer the slowing labour force growth.

- **The strong economic outlook will provide renewed opportunities for China's Asian neighbours**, **as well as compensate for the relative slowdown of the G7 economies**. This implies that policy agendas in industrial economies should be oriented towards helping them benefit from China's rise.

- For China, **the demographic transition will likely become a positive catalyst for financial markets**, as a larger percentage of savers come into their highest earning periods. Financial asset prices may rise during the early stages of ageing. But when a large number of pensioners start to switch into less-risky assets, stock prices will likely decline.

- In our view, **investment growth will remain solid** for two reasons. First, rural-urban migration requires more capital deepening to equip labourers coming into the industrial and service sectors. Second, even in the distant future when labourers are in short supply, investment will need to increase to replace labour with capital. Ultimately, however, investment may slowly decline as a percentage of GDP when headline growth slows.

- **Future growth also ensures the market potential for commodities, as well as for multinationals producing consumer goods in China for the local market**. Commodity prices will benefit as China industrialises and transforms into a developed economy.

- **Ageing is likely to benefit specific sectors** such as insurance, pharmaceuticals, biotech and health foods. We also foresee increased opportunities for the financial-services industry to offer a larger variety of products as they cater for the need to accumulate and preserve wealth. New industries (such as nursing homes) and new property opportunities (such as vacation homes) are likely to gain as well.

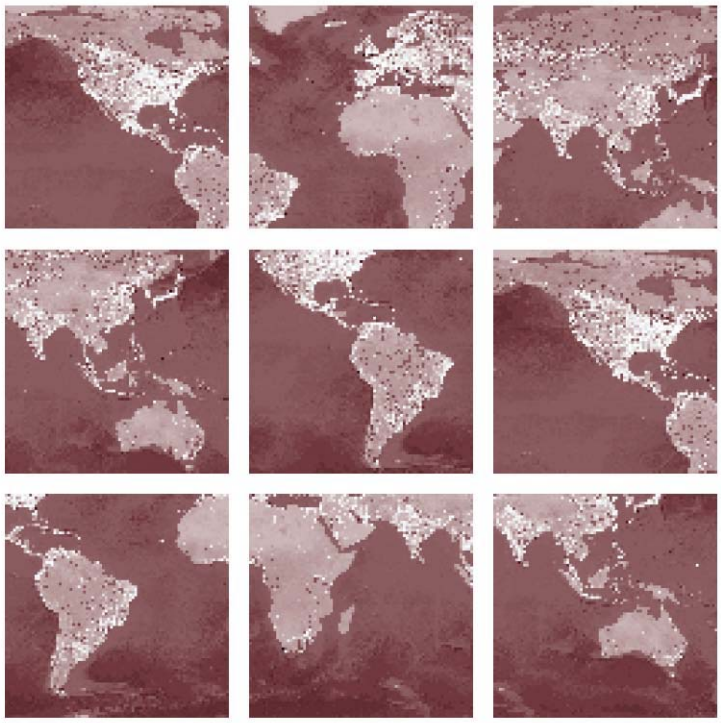
- **Consumption patterns will not only shift because of ageing but, more importantly, due to behavioural changes brought on by added human capital and rapid urbanisation.** Chinese consumers will become more sophisticated and their spending habits will evolve to look more like those of consumers in developed countries. This may translate into positive catalysts for the travel, entertainment, media, fashion, luxury goods and consumer appliances sectors, as well as property, as consumers gain more purchasing power. Rural migrants moving into an urban environment are likely to adopt urban consumption patterns, albeit with a time lag and with less preference for durability and quality.

Helen (Hong) Qiao
February 14, 2006

CHAPTER FOUR

CHINA'S INVESTMENT STRENGTH IS SUSTAINABLE

October 2006



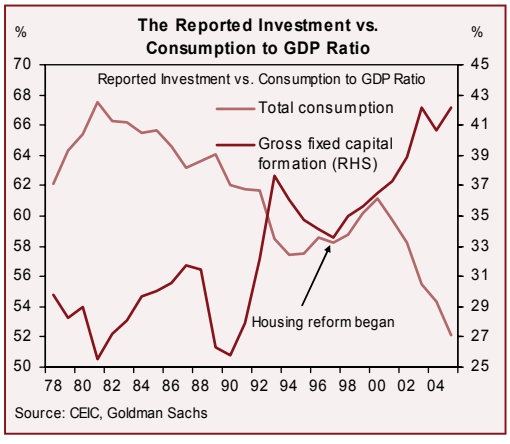
CHINA'S INVESTMENT STRENGTH IS SUSTAINABLE

One of the most widely-held misconceptions about China is that the economy contains an over-investment time-bomb, which will soon result in a sharp correction in both investment and GDP growth, resulting in rising non-performing loans (NPLs) and in deflation. The reasoning behind this theory is that fixed asset investment (FAI) is growing at above 20% year on year, while the investment-to-GDP ratio is already above 45% (higher than the levels reached by Asian economies before the 1997 crisis). Furthermore, this investment boom is financed by misallocated bank credits and generates few returns.

Although this is a popular view, we believe it is wrong for two reasons. First, the conclusion is based on macro data that is deeply flawed, leading to a substantial overstatement of the investment-to-GDP ratio. Second, a high investment-to-GDP ratio is consistent with China's rapid growth. The fact that the return on capital is high and generally has been climbing over the past decade supports our thesis that China's investment strength is sustainable.

We think the 'over-investment' issue reflects data quality problems rather than a true underlying problem. The reported investment-to-GDP ratio looks alarming, but it is significantly overstated due to an over-estimation of investment, under-estimation of consumption and under-estimation of GDP. Data on corporate earnings suggests a very different picture of the health of investment, showing that retained earnings are a key source of investment financing and that the return on investment is not only high but has been rising since the start of the decade. This suggests that China can invest more before its investment returns start to decline. We attribute improved corporate profitability and rising profit share in national income primarily to the successful state-owned enterprise restructuring in 1997-1999, and the accelerated integration of China's abundant labour into the global economy.

There have undoubtedly been inefficiencies in resource allocation caused by inefficient state-owned enterprises (SOEs) and the banking sector. In our view, however, such inefficiencies appear to have been more than offset by efficiency gains at the corporate level and in the economy as a whole. Moreover, the prospect of accelerated reforms and the opening-up of the financial sector suggest that these efficiency gains could continue for a long time.



Policy prescriptions for China can differ fundamentally depending on the diagnosis for the economy. If the problem is indeed over-investment with a falling rate of return, then policy should aim to restrain investment growth while promoting consumption and export growth. However, if the real imbalance is insufficient domestic demand amid rising trade surpluses and robust corporate returns, then the right policy should involve a real appreciation of the currency to smooth the demand rotation away from exports. Other important domestic-demand-friendly policies would seek to alleviate the financial constraints on consumers and enterprises.

We believe a successful rebalancing of the Chinese economy away from exports towards more domestic-demand-driven growth must involve a smooth transition of more investment into the domestic economy. Therefore, the key challenges facing China in the next few years are twofold. First, whether and when to allow further Renminbi (CNY) appreciation, in order to curtail domestic inflationary pressures and to help international demand adjust smoothly. Second, fixing the financial system to improve the allocation of credit.

Since these issues are at the heart of the China debate, this paper analyses our thinking on:

- Where the consensus analysis goes wrong;
- Where the data goes wrong; and
- What data we should be using to assess China's investment health.

Two Simple Math Inquiries, One Conclusion

Much of the controversy over China's 'excessive' investment can be blamed on the poor quality of Chinese statistics. Two simple mathematical cross-checks on the investment and national account data cast serious doubts on their quality.

Incompatible GDP growth vs. investment growth

Mathematically, the degree to which investment growth contributes to GDP growth can be calculated by:

$$Investment\ contribution\ to\ growth = \frac{Investment}{GDP} \times Investment\ growth\ rate \quad (1)$$

If investment has grown at 20%-30%yoy, and if the ratio of investment to GDP is around 45% (the officially reported share), then real GDP growth from investment alone would be 9-13.5 percentage points (20% x 45% = 9%, or 30% x 45% = 13.5%). That is, even without any growth in consumption and net exports, real GDP growth would have been 9%-13.5%.

Both consumption and net exports have recorded positive growth in the last few years, and reportedly contributed at least 5ppt-6ppt to real GDP growth. Adding together the contribution to growth from investment, consumption and net exports, real GDP must be growing in the mid-to-high teens. Alternatively, the reported investment-to-GDP ratio could be too high because real GDP growth has been estimated at only 10%!

Incompatible investment vs. saving rate

A nation's savings must equal its investment ex post. An accounting identity is expressed as follows:

$$\begin{aligned} National\ saving &= Investment_{domestic} + Investment_{abroad} \\ &= Investment_{domestic} + Current\ account\ surplus \end{aligned} \quad (2)$$

That is, total national savings equals total investment undertaken domestically plus capital

exported abroad. Dividing both sides of Equation (2) by nominal GDP, we arrive at the national savings rate, which equals the investment-to-GDP ratio plus the current account surplus as a percentage of GDP:

$$National\ saving\ rate = \frac{Investment}{GDP} + \frac{Current\ account\ surplus}{GDP} \quad (3)$$

The officially reported current account surplus at year-end 2005 was 7.1% of GDP. Adding a 45% investment-to-GDP ratio would imply that the national savings rate is above 50%. But most studies find the national savings rate to be at most about 40%. Arguably, international trade data are the most reliable macro data points for China, which casts serious doubts on the assertion that the domestic investment-to-GDP ratio exceeds 40%.

These two simple examples show that the macro data does not add up, and should be used with caution. However, given the importance of the underlying issue for our judgment on the cyclical strength and medium-term sustainability of China's growth, we need to explore two issues further: where the data bias exists and what other data can be used to assess the health of the investment cycle.

Where Does the Data Go Wrong?

We have long held the view that headline FAI data overstates the true investment growth rates while consumption data understates the strength of consumer demand. The rapid growth of private housing demand in recent years is one of the major factors behind this data bias.

Investment data: too inflated and too noisy

Both the level and growth rates of real fixed asset investment are probably overstated, mainly because of two data quality issues:

- **Over-estimation of investment expansion due to under-estimation of land costs.** Because land purchases do not constitute incremental new capacity added to the capital stock, under-adjustment of this cost in investment spending leads to overstatement of capacity expansion. We believe booming real estate development and rising land prices in recent years have exacerbated this problem, and therefore led to an overstatement of both the level and growth rates in investment.

- **Over-estimation of real investment spending due to under-estimation of inflation.** All official investment series are in nominal terms, and we believe an under-estimation of the FAI deflator has resulted in a significant overstatement of real investment spending. For example, the official FAI inflation rate was less than 1% in the first half of 2006 despite surging commodity and land prices.

Consumption data: under-reported but over-smoothed

The flip-side of overstated investment is understated consumption. We think the official data series have understated the true strength of consumption and over-smoothed the volatility of the high-frequency data. Two factors contribute to these data problems:

- **The rapid shifts in consumer spending patterns.** One important contributing factor is the emergence of housing demand since the late 1990s. Private housing purchases are classified as investment spending, following the conventional international practice. However, housing spending started from a nil base in 1998-1999 and has since grown much more rapidly than GDP. Such a rapid structural change in household outlays has led to misperceptions of a declining consumption-to-GDP ratio and therefore weak consumer demand in recent years.

- **Inadequate statistical coverage of service consumption.** The under-estimation of consumption due to inadequate statistical coverage of service consumption is probably much more severe than the over-estimation of investment spending, resulting in an overall under-estimation of the GDP level and growth. The latest upward revision of the GDP level in 2004 by almost 17% exemplifies the point starkly. Most of the upward revision came from upward revisions of the service sector, which boosted the share of consumption in GDP.

How High Should the Investment-to-GDP Ratio Be?

Beyond the clear data inadequacies, we would argue that the real investment-to-GDP ratio may need to be around 40% in order to support China's 9+% annual growth. The intuition is simple: with rapid growth, more investment is needed not only to produce more output but also to replace depreciated capital equipment.

This premise points to another often-forgotten dimension in the over-investment debate: the level of investment to GDP is intricately linked to an economy's stage of development. It tends to rise for countries during their period of fastest growth, as their total capital-stock-to-output and capital-stock-to-labour ratios trend up from relatively low levels. To some extent, a rising investment-to-GDP ratio itself could simply be a manifestation of the normal capital accumulation process.

China has a long way to go to accumulate more capital

Despite 27 years of fast growth and a formidable economy in aggregate size, China remains a low-income country on a per capita basis, with many of the country's 1.3bn people under-employed in rural areas. Therefore, it is not surprising to find that China's capital-to-labour ratio is still a fraction of that in the US and Japan, while the capital-to-output ratio is in line with the US, but significantly below Japan.

Further capital deepening will be a crucial part of the development process. Our BRICs research projects that, by 2035, the size of the Chinese economy may be 17 times what it was in 2004 in nominal US Dollar terms (or six times in real CNY terms), and may surpass the US to become the world's largest economy. Assuming the capital-stock-to-output ratio stays constant until then, China would need to expand its total capital stock by 11 times in US Dollar terms. Moreover, if the capital-stock-to-GDP ratio needs to rise further in the medium term, the investment-to-GDP ratio would need to be even higher.

China still has a big deficit in urbanisation-related investment. Notwithstanding fast industrialisation, the degree of urbanisation is low, with nearly 60% of the population still living in rural areas. Industrialisation without urbanisation is a unique Chinese phenomenon, the legacy of decades of government policies that segregated urban and rural labour markets. Reforms since 1978 have gradually set the course for urbanisation, and its pace has accelerated in the last few years, alongside waves of powerful demand for FAI.

Looking forward, we believe that 'pent-up' demand for urbanisation will not only sustain investment demand for longer, but will also be one of the most important factors affecting the global economy in the next few decades, not least through its impact on industrial and soft commodities. This process will likely involve substantial investment in infrastructure and housing-related projects, such as electricity, water and waste treatment systems, as well as residential property. Most of the FAI in recent years has gone to the non-tradable sectors. This type of investment facilitates urbanisation and further increases in consumption as incomes rise. We see substantial scope for this to continue, despite some likely bumps along the road. Total domestic demand appears to be far from overheated, and can expand further without running into supply constraints.

Therefore, the key macro policy challenge has remained the same since early 2003: will China slow excessive growth in its trade surplus, preferably through a currency appreciation, so as to allow its own domestic demand to strengthen further without inflationary pressures?

Investment Does Not Appear to Have Overshot the Rate of Return

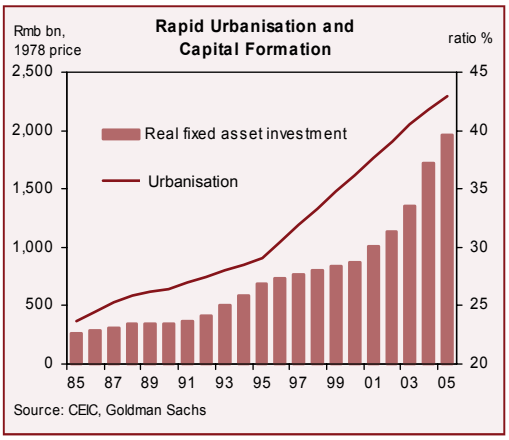
Data issues aside, theoretically, neither the speed of investment nor its ratio to GDP can tell investors much about the *sustainability* of investment. It is the efficiency of investment that ultimately holds the key to the sustainability question. We believe *actual* data on returns at the corporate level provides very useful information on whether China has invested too much inefficiently and without profit, particularly given the flaws in macro data.

Beyond financial data from Chinese companies listed overseas (including in Hong Kong, Singapore, New York and London), we also study in detail the industrial enterprise financial statistics complied by the National Bureau of Statistics (NBS). This data covers about 200,000 listed and unlisted companies, and provides useful and reliable information on corporate

Further capital deepening ahead for China

(Capital stock in 2004, current price)	Capital Stock / GDP	Capital Stock per capita (USD)
US	2.9	152,367
Japan	4.4	158,161
China	2.6	3,842

Source: Nehru, Vikram and Shok Dhareshwar, 1993, A New Database on Physical Capital Stock; The World Bank, CEIC, Goldman Sachs



More Investment Has Gone to Non-Tradeable Sectors

% of total fixed asset investment (FAI)	Manufacturing	Mining	Real Estate	Infrastructure	Utilities	Services**	Construction	Primary Industry	Other***
2004*	25.0%	3.7%	25.3%	19.9%	9.3%	5.5%	1.3%	1.1%	9.0%
2005	27.1%	4.3%	24.0%	19.5%	9.6%	5.1%	1.1%	1.1%	8.2%
2006	28.2%	4.5%	23.7%	19.9%	8.8%	5.0%	1.1%	1.2%	7.7%

* FAI by industry breakdown is only available since after 2004.

** Services include telecom, wholesale & retail, banking & insurance, accommodation and catering.

*** Other includes scientific research, health care, public administration and entertainment.

Source: CEIC, Goldman Sachs

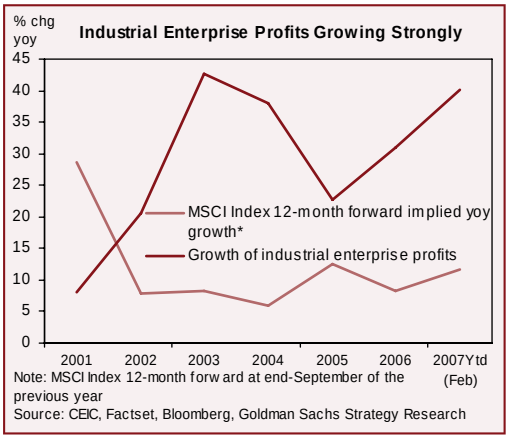
profitability. We believe the NBS-reported profit data is a good indicator of corporate profitability, even though some firms' results are not audited according to international accounting standards. Since companies pay taxes on their reported profits, the incentives to over-report should be limited.

Based on the NBS data and financial reports of overseas-listed companies, we find six stylised facts about recent corporate profitability.

1. Corporate profit growth has consistently surprised on the upside. Despite persistent warnings or predictions of a collapse in corporate earnings by many analysts in the last few years, corporate China has delivered quite decent profit growth. Since mid-2002, the beginning of the current cycle, annual profit growth has been in the 20%-40% range, exceeding market consensus by a significant margin.

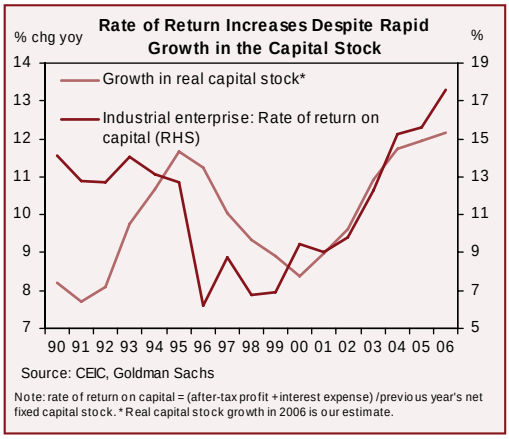
2. Return on capital is solid, on an uptrend and substantially exceeds the official lending rates. Since this issue is crucial to our view, we will examine it from several angles.

- **Rate of return vs. growth of capital stock based on macro data.** An investment boom will eventually turn into a bust if actual rates of return fall short of firms' over-optimistic assumptions. Thus, a divergent path between the actual rate of return on capital and the growth rate of capital stock tends to be a good indicator of over-exuberance. NBS data indicates that the rate of return on invested capital has risen steadily since the late 1990s, exceeding historical high levels and showing no signs of divergence from the speed of real capital accumulation. Interestingly, based on the same methodology and database, a significant divergence did show up during the 1993-1995 investment boom-bust episode.



Note: MSCI Index 12-month forward at end-September of the previous year

Source: CEIC, Factset, Bloomberg, Goldman Sachs Strategy Research



Source: CEIC, Goldman Sachs

Note: rate of return on capital = (after-tax profit + interest expense) / previous year's net fixed capital stock. * Real capital stock growth in 2006 is our estimate.

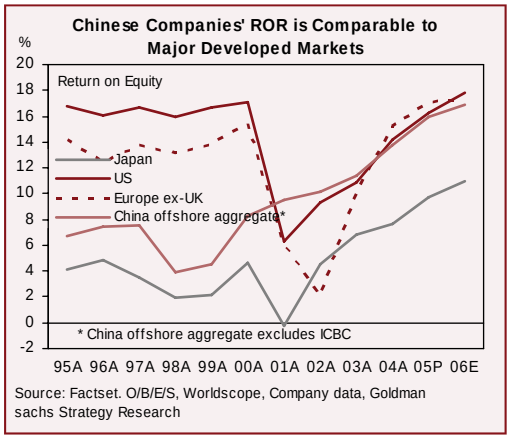
- **Return on equity of listed companies.** The financial reports of overseas-listed Chinese companies (a total of about 300 companies in our sample) are audited according to international accounting standards. Here again, the popular perception that Chinese companies generally deliver mediocre shareholders' returns finds little support. Chinese corporates' return on equity (ROE) has been solid and has risen steadily in the last few years. And our China strategy team notes that aggregate market ROE for Chinese companies is comparable to other developed markets.

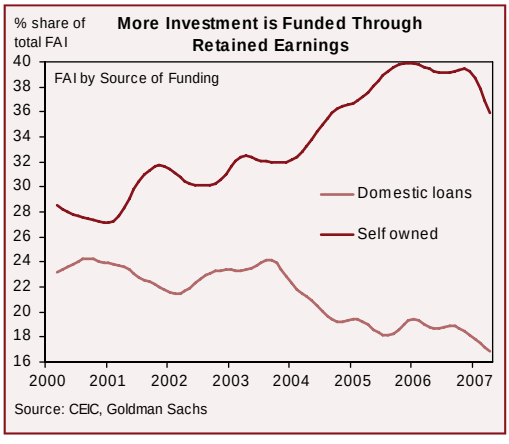
- **Rate of return calculated by the OECD.** The OECD undertook a study on corporate profitability using detailed company financial data obtained from the NBS in 2005. It finds significant improvement in corporate profitability in recent years, which has primarily come through improvements in the allocation and use of capital. The improvement in return on capital from very low levels was most notable for state-controlled companies, although the returns at private companies are still higher.

3. Corporate China is modestly levered and investment is funded mostly through retained earnings. Bank financing only provides about 20%-25% of the funding source for China's FAI, and its share has been declining. The bulk of the investment spending has been funded through retained earnings. As a result, Chinese companies are able to gradually de-leverage and reduce their dependency on debt to finance their capital needs despite their rapid expansion.

The high credit-to-GDP ratio (114% as of June 2006) in China does not reflect high corporate leverage, because there is little corporate bond financing. For example, even though the credit-to-GDP ratio in the US is only 44%, the size of its corporate bond market is more than 100% of GDP, compared with about 4% in China. Therefore, the high credit-to-GDP ratio in China reflects more the limited development of non-bank financial markets rather than the high leverage of corporates.

4. Share of capital returns in national income has been rising. If profit growth continues to outpace the overall GDP growth, the share of national income that accrues to capital must be rising. This is indeed consistent with what the flow of funds data suggests. The share of capital income has been rising steadily since the late 1990s, while the share of labour income has been falling. This is in stark contrast to the early 1990s, when corporates had dismal earnings growth despite the macro boom.



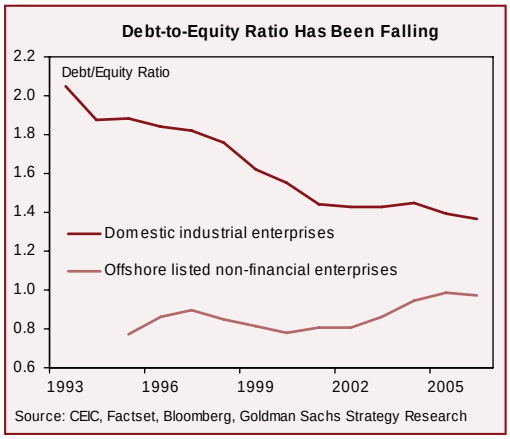


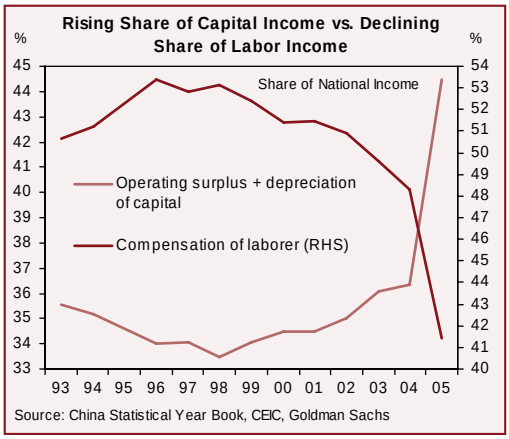
5. Corporate China would have earned higher returns if commodity prices were lower. China is a net (and growing) importer of oil and most commodities. Therefore, high and rising commodity prices present a negative terms-of-trade shock, which should be damaging to its aggregate corporate profitability. In other words, strong earnings from oil and commodity producing companies in China must come from strong earning capabilities of domestic downstream industries. Hence, had commodity prices been lower because of better global supply, Chinese corporate earnings would have been higher.

6. Profit margins are steady at improved levels, and the PPI-CPI inflation gap does not signal a profit squeeze. Using the total-net-profit-to-sales ratio as a proxy, we find that average corporate profit margins began to rise in 2003 and have remained at cyclical high levels in the last few years, despite the significant cost increase in raw materials. The empirical correlation between corporate profitability vs. the PPI-CPI inflation gap is strongly positive, and this positive relationship also applies to downstream industries. If there is any empirical causality, the data seems to suggest it is the rise in PPI inflation that tends to indicate better profit growth.

What does China's ICOR tell us?

The incremental-capital-output ratio (ICOR) can also be used to measure investment efficiency. The ICOR estimates the marginal investment needed to generate an additional unit of output. A rising ICOR could indicate that investment is becoming less efficient, but the estimated ICOR also tends to rise as an economy becomes more capital intensive. Using the revised GDP data, we estimate China's current gross ICOR at 4.4 and net ICOR at 3.1. These are not high compared with other economies during similar stages of development. Contrary to many other countries' experiences, the underlying long-term trend of gross ICOR has declined from 5.0 to 4.4 since reforms started in 1978. Moreover, past experience of some more developed economies and other Asian economies suggests that it is only natural for China's ICOR to rise in the future as the economy undergoes further industrialisation.





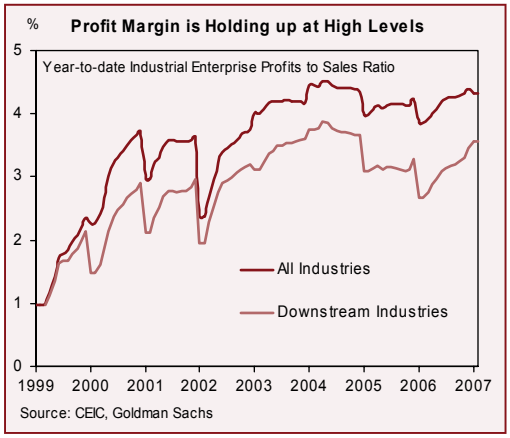
Why Are Investment Returns So High?

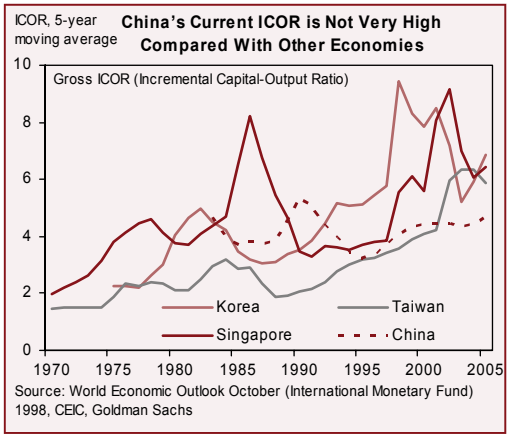
In a classic development model by Lewis (1954), where there are numerous surplus labourers in the agricultural sector waiting to be absorbed into the industrial sector, the faster the capital accumulates, the more rapid the growth is, and the more the income distribution tips towards profits. This model still appears to be a reasonable approximation to China to date, since large migration of surplus rural labour to more productive sectors is far from complete. Therefore, theoretically, capital should enjoy a higher rate of return in China compared with economies with higher capital-to-labour ratios. Furthermore, the integration of Chinese labour into the global production chain has arguably been accelerated by China's entry into the World Trade Organisation (WTO) in late 2001, and has thereby contributed to a higher rate of return on capital and higher income distribution towards capital globally.

The significant improvements in reported corporate earnings in the past few years may well reflect two central strands of China's economic development. The first is the continuing oversupply of labour in the countryside. Although the country has already seen significant surplus rural labour migrate to more productive sectors, this process is far from complete. Theoretically, capital should enjoy a higher rate of return than in countries where the capital-to-labour ratio is higher.

The second strand is the significant productivity gains in the overall economy. We have found that total factor productivity (TFP) gains averaged 3.5% per annum during 1978-2004, and accounted for 38% of GDP growth, more than the contribution from capital accumulation.

We see these productivity gains as a form of 'reform dividend' stemming from policy efforts to transform China from a centrally-planned regime to a more market-driven system. Wide-ranging SOE restructuring in the late 1990s and WTO entry have fuelled another, ongoing, boom in efficiency gains. Critically, WTO membership has provided the government with the mandates to deregulate and open the remaining strongholds of state-owned industries, in particular in the service areas, where inefficiencies are most prevalent. SOEs' financial performance has improved markedly, thanks to the aggressive introduction of competition, tightened budget constraints and corporate restructuring. More importantly, the share of SOEs in total industrial output is now around 20% compared with above 80% in 1978. In the meantime, investments undertaken by private enterprises have grown faster than those by the





Productivity gains contributed the most to China's economic growth

Contribution to growth adjusted for census results (K0 =1411 Rmb bn, α=0.4)	Average Growth (1979-2005) (% chg yoy)	Contribution (percentage point)	Contribution (% share)
GDP (% yoy)	9.7		
Capital Stock (α=0.4)	8.8	3.5	36.5
Labour	1.9	1.2	12.4
Educational Attainment	2.1	1.3	13.7
Total Factor Productivity (TFP)	3.5	3.6	37.3

* Based on revised GDP data

SOEs, resulting in a declining SOE share in total investment. With TFP growing twice as fast as the state-controlled companies, the rise of private industrial enterprises has accompanied an extraordinary improvement in overall economic efficiency, and thereby corporate profitability.

Why Has the Financial Sector's Performance Been So Poor?

In general, the performance of the financial sector should reflect the performance of the underlying real economy. Therefore, the poor performance of China's financial sector, both in terms of the large NPLs at the banking system and the disappointing performance of the domestic equity market, has often been cited as evidence of the unsustainability of China's growth model.

We attribute the discrepancy between strong economic growth and poor financial sector performance to the fact that the state-owned financial sector has mostly served the inefficient SOEs but provided little service—if any—to the most vibrant part of the economy: non-state-owned enterprises. Therefore, the performance of the financial sector does not reflect the performance of the overall real economy. A quick review of the domestic banking system and equity market underscore this point:

- **The banking system.** Despite the substantial growth of the non-state sector in the real economy, the banking system remains predominately state-owned. The high degree of state ownership of financial institutions has been accompanied by a disproportionate concentration of bank lending to the SOEs. Non-state enterprises receive a much lower share of credit allocation than warranted by their importance in the overall economy. The high level of accumulated NPLs (which are a clear manifestation of the inefficiency in credit allocation) has primarily resulted from the government's heavy intervention in lending in the past, along with weak internal risk management. In recent years, NPL ratios have fallen due to the faster growth of the better-performing non-state-owned companies, the improving performance of the surviving SOEs, and the introduction and rapid takeoff of home finance and consumer credit.

- **Domestic equity market.** Despite the poor performance of the onshore (A share) equity market, the equity performance of overseas-listed Chinese companies has more closely reflected the performance of the real economy. For example, the H-share market (consisting of Hong-Kong-listed mainland companies) has generated a total return of about 30% each year since 2002. The disconnect with the real economy is only striking when one looks at the performance of the domestic A-share market, which fell steadily from its peak in 2000 until early 2006. As with the banking sector, we see this divergence

from the performance of the real economy as a result of government control and a focus on SOEs, the worsening sector of the economy. Since 2006, the domestic equity market has staged a strong rebound, meaning that it may track the performance of the real economy more closely in the future.

Private-sector funding points to high returns

With little access to the formal financial sector, private companies are funded by retained earnings generated by high returns, and by the informal financial markets. The People's Bank of China estimates that the informal financial sector was worth roughly $100bn at the end of 2003. In the least developed provinces, 60%-70% of financing for small and medium-sized enterprises comes from informal sources, while the corresponding share is 30% in coastal areas.

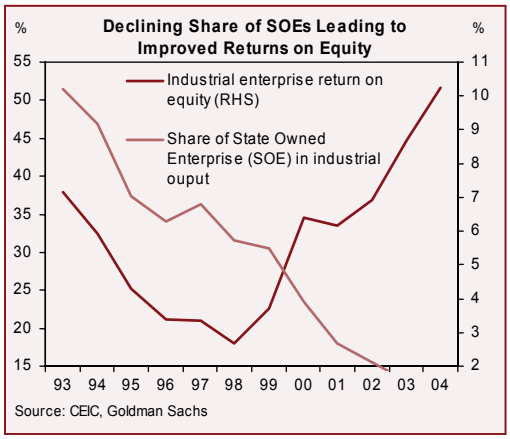
The interest rates charged by informal financial institutions are significantly above the lending rates charged by the state-owned banks. Yet private companies have flourished despite such high rates, indicating their return on investment must be much higher. According to the OECD (2005), about a quarter of private companies earned a rate of return of over 25% in 2003 and almost 30% of companies had no net debt.

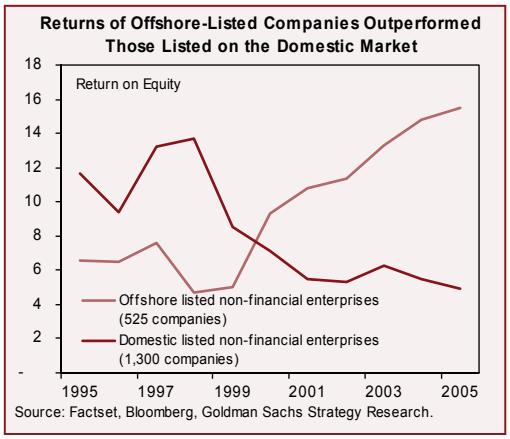
A surge in private equity investment funds' interests in China in recent years is an indirect testimony of the strength of corporate earnings, in particular those of the private companies, as well as of the high returns from providing better financial services.

Conclusions

Undoubtedly, better investment can be attained through better cyclical management and more forceful financial-sector reforms. We believe the main challenge facing China in the next two to three years will be whether it can switch its 6%-7% current account surplus towards domestic demand without creating either a cyclical boom-bust or medium-term risks to its financial system.

On the cyclical front, we believe nominal currency appreciation is the most efficient policy tool for curtailing domestic inflationary pressures in the process of investing more





domestically and helping international demand adjust smoothly. The currency regime shift and the modest appreciation since July 2005 are unambiguously positive for the economy. However, bolder actions are needed before China can truly reduce its reliance on its external demand and develop monetary policy independence.

The challenges of financial-sector reform are more difficult and complex. There is clear room for further improvement in the allocation and use of capital. No doubt quite a few SOEs are still loss-making, some bank loans continue to go sour, and China's capital markets remain significantly underdeveloped.

Even here, however, recent developments have been mostly positive: financial-sector reforms have apparently accelerated, as has currency reform. In addition, the government seems to have realised the importance of domestic demand and the risks associated with a rising trade surplus.

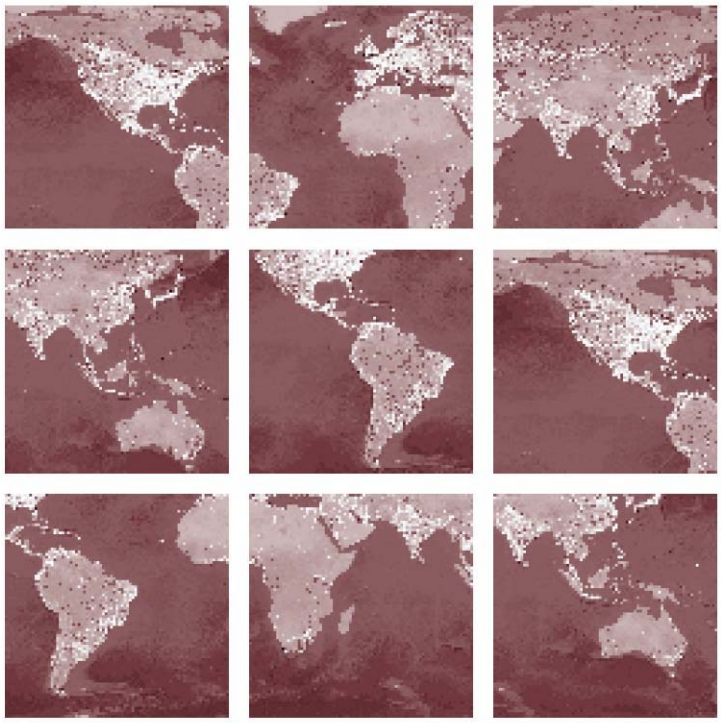
As in many other policy areas in China, much more needs to be done. If China continues to reform, open up, deregulate and become more efficient in the next few years, as it has done in the past 27 years, it should deserve the benefit of the doubt and there is a fair chance that the rebalancing process can be managed reasonably well.

Hong Liang
October 3, 2006

CHAPTER FIVE

THE 'B' IN BRICS: UNLOCKING BRAZIL'S GROWTH POTENTIAL

December 2006



THE 'B' IN BRICS: UNLOCKING BRAZIL'S GROWTH POTENTIAL

While campaigning for his second term, which begins in January 2007, Brazil's President Lula da Silva promised to implement economic policies that would boost GDP growth rates to 5.0%. This growth target sounds ambitious given that, since we published our first BRICs studies in 2003, Brazil has grown only at a disappointing 2.7% a year on average, compared with the 3.7% that we had estimated its long-term growth potential to be.

Brazil has underperformed not only relative to our expectations but also compared with all the other BRICs. Since 2003, real GDP growth rates in China, India and Russia have averaged 10.2%, 8.0% and 6.9%, in each case far exceeding our estimates of their long-term potential (4.9%, 5.8% and 3.5%, respectively).

The disparity in terms of growth performance between Brazil and the other BRICs raises three legitimate questions: (1) Were we wrong about our initial assessment of the growth prospects for Brazil? (2) Should Brazil still be part of the BRICs? (3) Can Brazil boost and sustain higher growth rates in the long term, say at or above a secular average of 5.0% a year?

We remain confident about Brazil's growth potential, at least in terms of what we have envisaged in our BRICs studies. The main reason for Brazil's underperformance is that, until now, the government had been in the process of implementing a stabilisation programme, with a view to achieving macroeconomic stability. This is a key precondition for growth. Thanks to these adjustment efforts, macroeconomic conditions are more favourable now than they have been for decades. The large balance of payments surpluses have been used to prepay external debt and accumulate reserves, while a credible central bank (BACEN) has reduced inflation to 3.0% in 2006.

We believe that the Lula II administration will sustain sound macroeconomic policies and make some progress on structural reforms. Stability should allow real GDP growth rates to move gradually towards Brazil's potential rate of about 3.5%, which is near our BRICs potential growth rate of 3.7%.

We also believe that Brazil could grow much faster, perhaps at a secular growth rate of about 5.0%. For this to happen, the government will have to tackle four difficult structural problems:

- Brazil saves and invests too little. To address this issue, the government will have to deepen and improve the quality of the fiscal adjustment.
- The economy should be opened to trade.
- The government must improve the overall quality of education.
- The government should implement structural reforms to improve institutions, with a view to increasing total factor productivity.

We do not believe that the Lula II administration and Congress will be ambitious enough to implement this politically difficult agenda. Therefore, while Brazil has the potential to grow at or above 5.0%, this is unlikely to happen during the next four years.

Nevertheless, Brazil will remain a valuable 'out of the money' option on growth. In the meantime, it will be an important destination for fixed income and equity inflows, given the high carry trade, the embedded growth option for equities and the reassurance of stable macro policies and sound external credit fundamentals.

How Brazil Stacks Up Against the Other BRICs

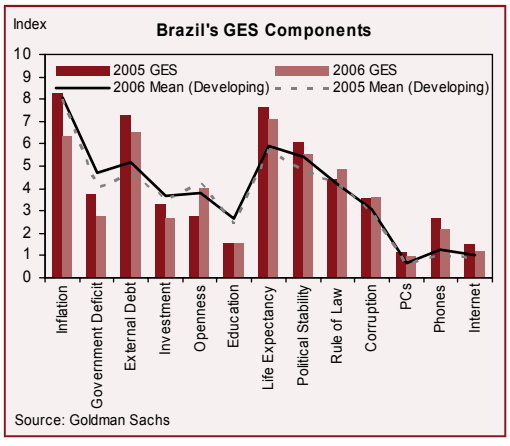
One way to measure Brazil's progress is through the prism of our Growth Environment Scores (GES). Among the BRICs, Brazil showed the largest gain in our 2006 GES scores, moving up seven places, to an overall score of 4.15. However, the increase was not large enough to enable Brazil to catch up with its peers in the BRICs, with China and Russia posting increases to 4.9 and 4.35, respectively.

While Brazil's growth has lagged, the other BRICs have outperformed our estimates of their potential growth rates. We think Brazil falls short relative to the other BRICs in four areas: savings and investments are low; the economy is too closed to trade; the quality of education must improve; and institutional reforms are needed.

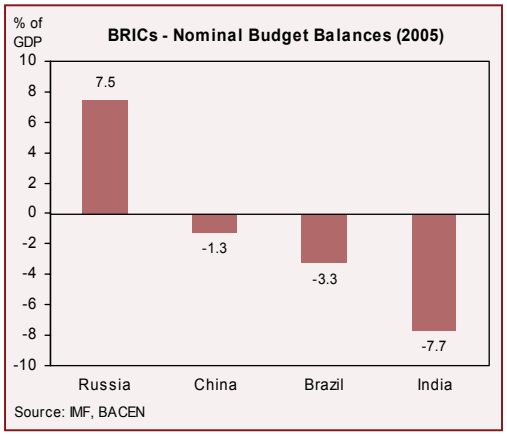
Since 2003, Brazil has made progress towards putting in place the foundations for growth, with particular emphasis on achieving macroeconomic stability. Stabilisation has paid off: inflation has fallen, the external accounts are less vulnerable to external shocks and some progress has been made on reducing the public debt. However, stabilisation has come at a high price. Real GDP growth has averaged only 2.7% since 2003, with the adjustment explaining in part why actual growth rates were lower than the rate of 3.7% used in our BRICs studies. Since 2003, inflation has averaged 7.8%. With inflation declining to 3.0% in 2006, a strong and credible central bank should continue to help Brazil reduce the level and variance of inflation. The success of the inflation-targeting regime should gradually reduce nominal interest rates and develop credit markets; over time, this should stimulate growth.

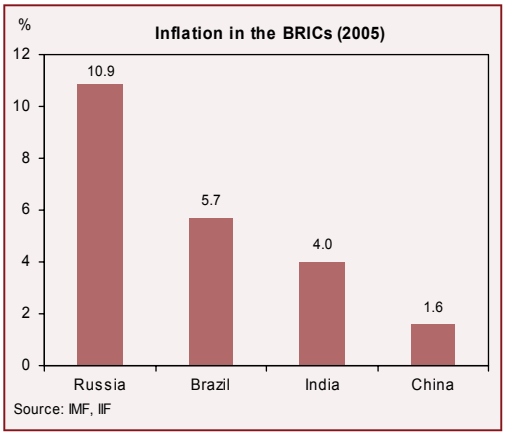
Brazil has also strengthened its external accounts significantly, using its large balance of payments surpluses to reduce its stock of total external debt by one-third, to 18.1% of GDP in 2006, and to bolster its net international reserves almost sevenfold, to US$83bn.

In contrast, progress on the fiscal front has been disappointing. Although the Lula administration raised the primary fiscal surplus to 4.25% of GDP, Brazil still has the second-highest nominal fiscal deficit among the BRICs, and the largest stock of total public debt. The bulk of the fiscal adjustment has been achieved by raising taxes, making the tax burden much higher than elsewhere in the BRICs.



As the indicators of macroeconomic conditions for growth in Brazil are directly linked to its fiscal performance, they are not as favourable as for the other BRICs. In





particular, we note that the investment and savings ratios are extremely low when compared with those in China and India. Although the labour force may continue to grow faster in Brazil than in China and Russia, the secular trend is declining and thus is no longer a strong source of growth for the country.

Brazil has broadened its trade platform since the late 1990s. But with its trade share amounting to just under 25% of GDP, the country is far more closed than China (where trade is almost two-thirds of GDP) or Russia (41% of GDP).

Labour productivity has lagged markedly, largely owing to the deficiencies in the quality of education. If we proxy education by the average number of years of secondary education, Brazil ranks below China and Russia. Brazil has fared relatively better on the technological capabilities front, particularly by increasing internet access and PC access faster than most BRICs other than Russia, and by rapidly expanding telephone access.

Brazil has made important progress in developing its political institutions, due to a great extent to its remarkable stability. Even so, political institutions and the nascent democracy are still evolving, and the atomisation of power inherent in the complex multi-party political system is a large obstacle to rapid implementation of structural reforms. Corruption has also been a problem, draining budgetary resources, undermining the quality of public services and leading to frequent stalemates in Congress, which in turn often stalls progress on the reform front. Brazil's overall legal framework and judicial system compare reasonably well with its BRICs peers, but we believe that they should be modernised and made more efficient, so as to better suit the needs of an open and free-market-oriented economy.

The conclusions from this brief cross-country comparison are clear. In order for Brazil to raise its growth rates and converge towards its peers in the BRICs, the Lula II administration will have to focus on fiscal policy, trade policy, education and modernising institutions.

What Derailed Brazil From Its Path of High Growth Rates?

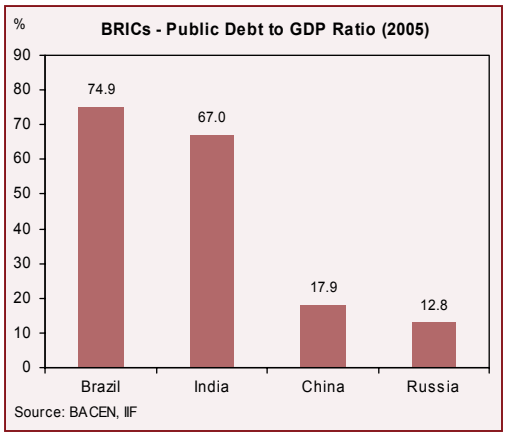
The next step towards assessing Brazil's growth potential is to understand its past. Trend growth has declined since the 1980s. The decline resulted from the macroeconomic instability stemming from a sequence of financial crises, a slowdown in population growth, a drop in domestic savings and investment and an economy that closed itself to international trade.

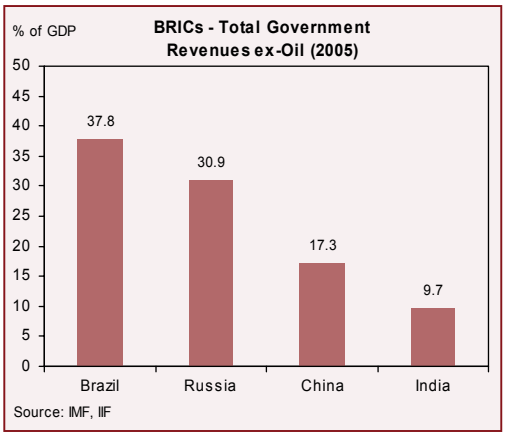
Over the course of the 20th century, Brazil's secular growth rate averaged 4.9%. This is why the 5.0% growth rate is such an important reference in the growth debate. Brazil sustained a secular acceleration of growth until the mid-1960s, followed by a spectacular 'take-off' period lasting one decade, until the mid-1970s. Following the two oil shocks and the LDC debt crisis of 1982, Brazil entered the 'lost decade', marked by financial crises, hyperinflation and economic stagnation. Following the Real stabilisation plan in 1994, Brazil reorganised its finances, eradicated hyperinflation and started to grow again. But the country only managed a fraction of the growth it had achieved up until 1975.

The contributions to growth from capital accumulation, population growth and total factor productivity (TFP) have changed markedly over time. From the early 20th century until the growth take-off period, these three factors contributed almost equally to growth. But as population growth rates have declined since the 1980s, growth has become increasingly more dependent on capital accumulation and TFP. Since the Real plan, growth has primarily come from capital accumulation and improvements in the conditions affecting TFP. TFP currently ranges between 1.3 and 2.0, depending on the quality of economic policies.

If Brazil is to boost growth by relying on savings, investments and productivity, then the data give us reasons for concern.

- The **savings** ratio has fallen considerably since the 1980s, only recovering somewhat since 2002, to about 22% of GDP. Most of the recent recovery has come from the private sector.
- Brazil invests much less than any fast-growing economy does. Indeed, the **investment** ratio to GDP has declined since the 1980s, recovering modestly since 2003, to about 20.5% of GDP. Again, the recovery came almost entirely from the private sector.
- Average **labour** productivity has declined since the 1980s but has recovered somewhat since the Real plan. This is in part because Brazil is inefficient at spending on education and because its labour laws are outdated. Brazil spends almost twice as much (4.1% of GDP a year) on education as China, but even so, it ranks poorly in terms of the average number of years spent in school.
- **Trade** liberalisation has exerted a strong positive influence on TFP, and thus has been a key driver of growth. Although Brazil has recently reduced trade barriers and opened up





the economy to trade, it remains too closed to trade when compared with other fast-growing emerging markets. In fact, the share of Brazilian exports and imports in total world trade has plunged to less than 2.0% from a peak of 4.3% in the 1950s. Since the 1990s, as macroeconomic policies have improved, Brazil has gradually reopened its economy to trade and lifted trade barriers. The large devaluations of 1999 and 2002 also helped to make the BRL more competitive. Together with the boom in the global demand for raw materials, this has increased the degree of openness, with the sum of exports and imports reaching 24.2% of GDP in 2006 from 11.1% in 1990.

In all, we believe it is unrealistic to expect that Brazil will once again grow as quickly as it did during its 'miracle' years, or at the same rate as the Asian economies. This is simply because this phase of rapid growth—propelled by a high level of investment, rapid population growth and easy jumps in growth rates resulting from the elimination of stifling economic distortions—is over.

It *is* reasonable to expect Brazil to grow once again at its secular growth rate of about 5.0%. To this end, the government will have to implement policies that would raise savings and investment, by improving the quality of fiscal policy, and increase the contributions to growth from TFP, through better education, trade openness, investment in technology and institutional reforms.

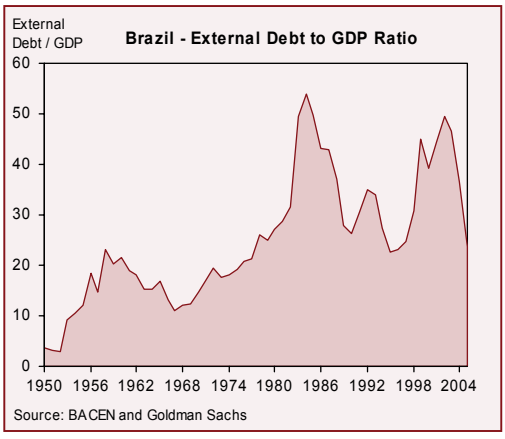
Fiscal Policy Is Key to Unlocking Brazil's Growth Potential

Fiscal policy is a key reason why investment, savings and growth have declined in Brazil. This is because the government has built an onerous welfare state, which has led to ballooning total spending, an increased tax burden and public indebtedness. Fiscal largesse and its associated inefficiencies have crowded out the private sector, ultimately stifling growth.

Over the past seven years, Brazil has tightened fiscal policy to rein in inflation and reduce the stock of public debt. Since 1999, the government has raised the primary surplus of the consolidated public sector to a peak of 5.0% of GDP in 2005, though it reduced the target to 4.25% in 2006. The adjustment has reduced the nominal fiscal deficit to 3.5% of GDP, from almost 7% in 2003, and reduced the stock of net public-sector debt to 49.5% of GDP in 2006 from a peak of 65.5% in 2002.

Although Brazil has tightened fiscal policy and improved its debt dynamics, fiscal policy has two big problems.

- The primary fiscal surplus is not high enough to reduce the debt ratio more quickly.
- The fiscal adjustment has been achieved solely by raising taxes, while real primary public spending continues to grow at double-digit rates.



Rather than attacking the roots of the structural fiscal problems, the fiscal adjustment has only mitigated their effects on macroeconomic stability and debt dynamics. The main casualty of this approach has been growth.

The structural fiscal problem has five main causes: the generous welfare state, which in aggregate is in deficit to the tune of 4.5% of GDP; the system of revenue earmarking, which makes fiscal policy highly pro-cyclical and resistant to spending cuts; the loss of the (regressive) tool of using high inflation to balance the budget; ongoing growth in the civil service, resulting in federal wage costs averaging 5.1% of GDP in 2001-2006; and higher current spending to combat poverty, with social assistance spending currently rising by 20% per year in real terms.

In all, since 1990, primary government spending has increased by almost 11 percentage points of GDP, raising total nominal and primary government spending to 42% of GDP and 34% of GDP, respectively. In order to finance such high levels of spending, during the same period, the government raised the tax burden by roughly the same amount, to 38% of GDP in 2006—higher than in the US and close behind France and Italy.

As a result, the tax system is complex and highly distortionary; it has crowded out the private sector; and it increases informality by encouraging firms and labour to move underground. Informality reduces TFP, because it influences a firm's decisions about size and markets, precluding them from fully benefiting from returns to scale.

In order to finance higher current spending, the government has also cut public investments, reducing the effective ratio of public investment to 0.5% of GDP from 1.0% since 2002. This has accelerated the depreciation of infrastructure, which has also weighed on TFP.

The fiscal imbalances also help to explain why real interest rates are so high: (1) the stock of public debt is large relative to a small stock of private financial wealth; (2) the markets demand a high risk premium because of contractual uncertainty; and (3) heavy taxation and high reserve requirements on sight and time deposits discourage financial intermediation.

Expansionary fiscal and wage policies have increased the risk that the central bank may not meet its inflation target of 4.5%, preventing it from cutting real interest rates faster. Moreover, high real interest rates have attracted large capital inflows, forcing the central bank to continue to buy international reserves to avoid a further appreciation of the BRL.

A Policy Agenda to Boost Growth to 5%

Brazil has made so much progress on macroeconomic stability and has such unquestionable potential that the government should be more ambitious about its growth objectives for the future. With stronger economic policies and comprehensive structural reforms, Brazil could boost real GDP growth rates back to—or above—its secular growth rate of about 5%. Policies designed to improve Brazil's GES score could help make this a reality.

We believe that the Lula II administration would be well advised to implement a growth agenda aimed at boosting real GDP growth to 5.0% a year. We see a desirable growth agenda as including:

- **Raising the savings and investment ratios** to 25% of GDP. The main instrument would be a multi-year fiscal adjustment programme aimed at increasing the primary fiscal surplus to 5.25% of GDP (from 4.25%) solely by cutting current spending. This would increase gross national savings by reducing the fiscal distortions that discourage private savings. Doing so over a decade would reduce the stock of net public debt to about 28% of GDP, from just under 50% today. This would release resources to the private sector in credit markets, help Brazil to achieve an investment grade rating, reduce sovereign bond yields and allow BACEN to cut real interest rates. These developments would attract the private sector into credit markets and bolster private investment and growth.

- **Undertaking social security reforms**, with two objectives in mind. First, reducing the ratio of social security benefits to GDP for both private workers and civil servants. Among other steps, this would involve increasing the retirement age and de-linking social security benefits from the minimum wage. Second, broadening the pool of domestic pension funds by further encouraging private retirement savings. This would deepen the pool of private savings, helping the Treasury to lengthen the average maturity and duration of the domestic public debt.

- **Reforming the fiscal earmarking problem**. The existing adjustor, which is designed to reduce the effective degree of revenue earmarking, should be raised from 20% to 35%, and its life should be extended by a decade. This would allow the budgetary flexibility to cut current spending substantially.

- **Implementing a comprehensive revenue-reducing tax reform** that would lower the tax burden and reduce the allocational inefficiencies of the current system. We would like to see a simpler and more effective federal value-added tax system that would eliminate the existing cascading taxes and the tax wars among states. Reducing taxes on capital gains and eliminating taxes on financial intermediation reform would encourage private savings and investments.

- **Investing in infrastructure**, which would be made possible by the reduction in current spending and which would bolster competitiveness and productivity.

- **Reducing inflation more rapidly**, through tighter fiscal policy and a rebalancing of the macro policy mix. The target might fall from 4.5% today to perhaps 3.0% in four years. Lower debt financing needs by the government and a longer liquid benchmark for the Treasury would allow the local corporate bond markets to develop, helping the private sector to finance its capital spending programmes.

- **Deepening financial intermediation** by reducing the high level of reserve requirements and taxes on the sector, de-emphasising directed credits and relaxing the compulsory savings mechanisms. At only 33% of GDP, total financial system credit to the private sector in Brazil is just one-half to one-third of the credit ratios for fast-growing emerging economies, particularly in Asia. Financial deepening and credit availability are crucial ingredients for an efficient inter-temporal shift of resources and to leverage private investment and growth.

- **Approving the constitutional reform** guaranteeing the *de jure* operational autonomy of BACEN. Until now, the government has allowed only *de facto* autonomy, conducting

monetary policy on technical rather than political criteria. Stronger monetary institutions would likely reduce the risk premia embedded in the term structure of interest rates.

- **Trade liberalisation and trade agreements** should be an important part of the programme. Brazil could use its large trade surpluses to reduce the effective rate of protection and the dispersion of import duties, and particularly to cheapen the imports of capital goods. Reducing trade and current account surpluses would lessen the appreciation pressures on the BRL, which would reduce the high quasi-fiscal costs stemming from FX intervention and reserve accumulation.

- **Pursuing multilateral trade agreements** with large trading blocs such as the FTAA and the EU. Such trade- and growth-enhancing agreements would be much more effective than bilateral and trade-diverting agreements, such as with the Mercosur and Latin American countries. New trade agreements would foster competition, lower domestic prices and expand investments and aggregate supply.

- **Implementing a comprehensive labour reform**, providing the economy with more suitable labour laws and institutions to suit a more dynamic and competitive, services-oriented economy. Labour reforms would reduce the unit cost of labour, increase labour mobility, discourage informality, diminish frictional unemployment and bolster TFP.

TFP is the magical number that explains how to extract more output from the same stock of capital and labour. The TFP is particularly elastic to measures that increase economic efficiency and build or strengthen institutions. Brazil could bolster TFP by investing in technology and by modernising its institutions, through political reform and reform of the judicial system. In this context, the government should implement six specific measures aimed at boosting TFP:

- Improving the quality and increasing the efficiency of the public provision of educational services.

- Improving the regulatory framework and strengthening regulatory agencies, increasing the transparency and dependability of contracts, while enhancing the technical autonomy and governance of the agencies.

- Privatising public services, which would increase efficiency and supply, reduce costs and increase competitiveness. Electricity generation is a key sector.

- Implementing measures to foster economic competition and deregulation.

- Reforming the judicial system to increase the dependability and enforceability of contracts and the rule of law. This should include depoliticising the courts and expediting the judicial process.

- Pursuing political reforms to improve the efficiency and reduce the costs (including corruption) associated with the complex multi-party system. This would expedite the approval of structural reforms to modernise the economy and institutions. It would include reducing the number of political parties, strengthening legislation regulating campaign financing, and altering the systems of checks and balances to reduce the serious corruption practices associated with the legislative process.

The Lula II Administration May Fall Short of the 5% Growth Target

The main economic objective of the Lula II administration is to boost real GDP growth to 5% a year. At the same time, the government plans to maintain fiscal and monetary discipline to preserve price and exchange rate stability. Although macroeconomic stability should lift growth towards the economy's potential of about 3.5% a year, we believe there are two reasons why the Lula II administration will fall short of its 5.0% target. First, the government will not be ambitious enough to address the deep-rooted fiscal problems. Second, politicians may be unwilling to pay the political price needed to approve the more ambitious agenda of fiscal adjustment and reforms needed to boost growth.

President Lula has stated that he believes the foundations for faster growth are already in place. Therefore, he is planning to keep the primary fiscal surplus target at 4.25% of GDP. According to the government, this fiscal stance would be sufficient to reduce the net public-sector debt to about 40% of GDP in ten years. In order to preserve the 4.25% target, the government plans to implement three simple fiscal reforms: (1) reduce current spending gradually, perhaps at the rate of 0.1% or 0.2% of GDP a year; (2) renew the financial transactions tax (CPMF) for a few more years; and (3) renew the revenue-earmarking adjustor at the current rate of 20% for a few years.

The government plans to increase gross fixed investments, particularly in infrastructure. The public sector would finance such investments through a mild compression of current spending; and the private sector would be encouraged to invest by a combination of tax breaks, public-private partnership programmes (PPPs) and lower real interest rates.

The government will maintain the current IPCA inflation target at 4.5% ± 2/0%. Given that actual and expected inflation for the next 12 months are lower than the central inflation target of 4.5%, the government trusts that it will be able to slash interest rates aggressively. President Lula has no plans to approve the central bank autonomy law, but he would maintain the *de facto* operational autonomy of BACEN.

There are unlikely to be changes to the managed floating exchange rate system. The nominal exchange rate will likely continue to adjust to changes in fundamentals, but the government will maintain its preference to avoid a further appreciation of the BRL.

President Lula sees no need for social security reform, believing the social security deficit will be contained by higher social security contributions resulting from faster growth and reduced informality, along with increased administrative efficiency. He supports a gradual tax reform.

President Lula plans a major structural political reform for 2007. However, there is no consensus for such political reform, which would prioritise party loyalty (impeding frequent shifts from one party to another), impose stricter rules on campaign financing and end re-election. President Lula has significant political capital—he was re-elected with two-thirds of the votes cast, and his party roughly maintained its share of seats in the House and in the Senate. Nonetheless, to govern effectively in Brazil's complex multi-party political system, President Lula will need to negotiate with larger parties and offer them some senior cabinet posts. This means it will not be easy to maintain fiscal discipline. Past alliances have been neither stable nor dependable, especially in securing approval for Constitutional reforms, which must be approved by both houses in two rounds and by a two-thirds majority.

In theory, therefore, President Lula will enjoy reasonably favourable initial political conditions to improve the quality of economic policies. However, in practice, the main political obstacle is that politicians do not seem convinced they need to pay the political price that the difficult pro-growth agenda would entail. To be fair, it is early days to be precise about, let alone judge, the economic programme of the Lula II administration. Although indications from the government to investors suggest that the Lula II administration will preserve macroeconomic stability, their policy intentions are modest when compared with the extensive agenda of policies and reforms that we deem necessary for Brazil to raise growth to 5.0% a year.

This means that over the next four years, real GDP growth is likely to range between 3.0% and 4.0%. This would be consistent with most estimates of potential growth rates, which range from 3.0% to BACEN's optimistic 3.3%-4.5%. This would also be in line with the long-term growth rate of 3.7% that we have deemed feasible for Brazil in our BRICs reports. For these reasons, we are comfortable enough to confirm Brazil's BRICs membership.

Conclusions and Investment Implications

Although Brazil's growth performance has been disappointing, we remain comfortable in expecting it to achieve the BRICs dream. The government has made progress in establishing one of the pre-conditions for higher growth—macroeconomic stability. However, progress has been modest in some areas, particularly on fiscal and trade policies, while the public debt, the tax burden and the overall quality of fiscal policy have remained a major drag on growth.

We believe the Lula II administration will be marked by policy continuity, with some progress on the structural reform front. However, we believe that the Lula II administration will neither be ambitious enough nor have the time to implement the demanding agenda of more growth-oriented macroeconomic policies and the structural reforms required to eliminate the obstacles for faster growth. This notwithstanding, the Lula II administration will likely make enough progress on both fronts to raise real GDP growth towards the potential rate of 3.5%.

A more ambitious programme aimed at rebalancing the macroeconomic policy mix and structural reforms could raise Brazil's growth rate to 5.0%. We therefore believe that Brazil is a valuable 'out of the money' option on growth, making the country particularly attractive for equity and long-term corporate investors. This upside scenario is unlikely to materialise during President Lula's second term, due to governance problems and a lack of Congressional commitment to growth-oriented reforms.

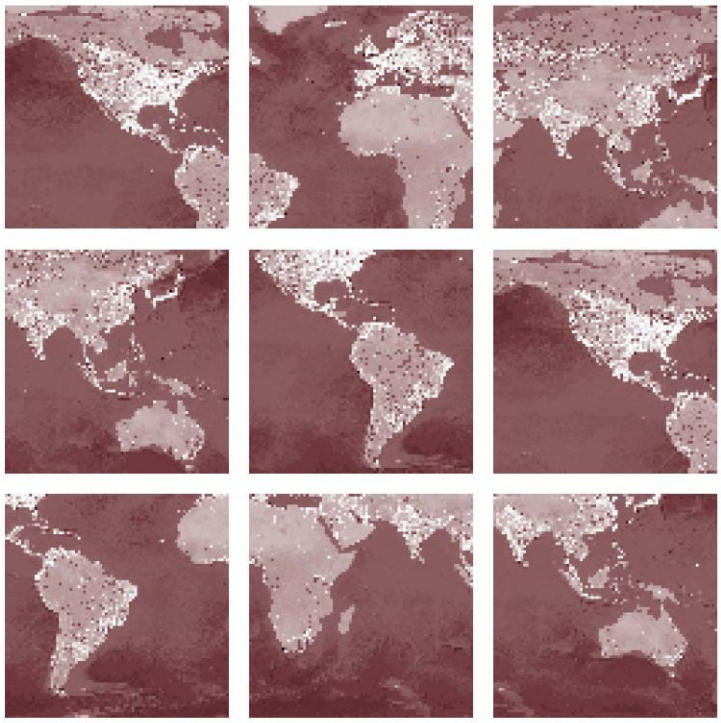
In the meantime, Brazil will remain an important destination for fixed income, equities and direct foreign investment inflows, because of the high carry trade, the value of the embedded option on growth, and its sound macroeconomic policies and external credit fundamentals. Hard currency debt spreads are likely to continue to tighten, as the Treasury buys back global bonds, while rating agencies are likely to upgrade the sovereign to just one notch below investment grade. Modest reforms and not-so stellar growth rates will likely preclude Brazil from becoming full investment grade during the Lula II administration.

Paulo Leme
December 4, 2006

CHAPTER SIX

YOU REAP WHAT YOU SOW: OUR GROWTH ENVIRONMENT SCORES

November 2006



YOU REAP WHAT YOU SOW: OUR 2006 GROWTH ENVIRONMENT SCORES

Maintaining the right set of conditions for growth is a critical ingredient in any country's search to achieve its potential. And a key task for investors in assessing growth potential is to judge how well countries are doing in keeping those essential conditions in place.

Last year, we introduced our Growth Environment Scores (or GES), as an objective summary measure of a broad set of conditions that help to achieve growth potential. We used these GES measures to compare growth conditions across a broad range of countries and to assess the likelihood that our projections for the BRICs (Brazil, Russia, India and China) and the N-11 (the next 11 largest developing economies) might become reality.

One year on, with a full set of more updated information on all of the constituents, we release our 2006 GES. These new rankings provide the very latest view of the GES across 170 countries and reflect how they are changing. In this paper, we provide the details of the 2006 scores and what they mean for the growth potential of the world's economies. In particular:

- We present highlights from the 2006 GES rankings.
- We look at what the GES tells us about the scope for improvement in growth conditions across countries.
- We estimate the growth bonus for each country that would come from improving their GES.

The 2006 GES show important changes for some countries but very little change for many others, highlighting the difficulties many face in trying to raise their potential growth rates. The very poorest countries have generally made progress, but results elsewhere are more mixed. This year's winners include the oil-producing countries (even though resources are not a component of the GES), while others, such as the US, have slipped backwards. The key question that the GES continue to pose is how countries might be able to improve their growth potential. Expecting poor countries to emulate the conditions (education, technologies) of much richer ones is clearly unreasonable. But, as we show here, much can be done—even in terms of achieving 'Best in Class' levels for key growth conditions relative to peers at comparable income levels. The 2006 GES provide some perspective on where the greatest scope for improvement lies.

A key message is that poor countries have more to gain than rich ones from improving growth conditions. The growth bonus from reaching 'Best in Class' levels—even for the highest-scoring developing economies—could be two full percentage points or more, and as high as four percentage points or more for some other important economies. Over a period of 10 or 20 years, such growth bonuses could make very large differences to income levels. They highlight the importance of the challenge of improving growth conditions around the world. Benign global conditions continue to present a window of opportunity to make progress on these measures.

Highlights of Our 2006 GES

We introduced our Growth Environment Scores (GES) in 2005 as a composite measure of growth conditions for 170 countries, aimed at summarising the overall growth environment. We used the GES to rank countries according to their ability to achieve their growth potential and to guide our growth projections for the BRICs (Brazil, Russia, India and China) and the N-11 (the next 11 largest developing economies).

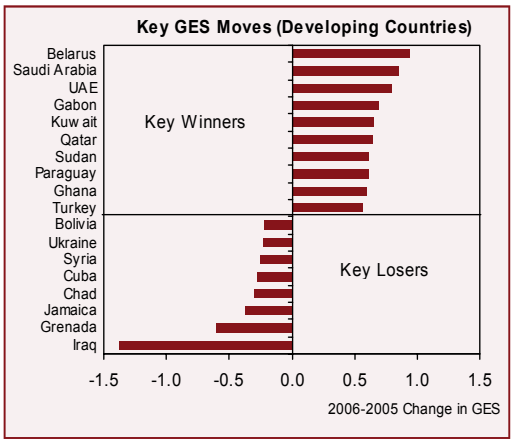
The GES consists of 13 components grouped in five broad categories (see the box on the next page):

- **Macroeconomic stability:** inflation, government deficit and external debt.
- **Macroeconomic conditions:** investment rates and openness.
- **Technological capabilities:** penetration of PCs, phones and the internet.
- **Human capital:** education and life expectancy.
- **Political conditions:** political stability, rule of law and corruption.

One year on, we have a full new set of information. The new 2006 rankings provide a snapshot of how growth conditions have changed and the progress made since last year.

Overall, we see some improvement in developing countries

- Of the 170 countries in our rankings, 124 raised their GES in 2006 compared with 2005. **The largest positive moves were much more pronounced than the falls** registered by the 46 losers.
- We see **no systematic improvement across the major developed economies**, while **developing countries have on average raised their GES**. Progress on inflation, external debt, investment, life expectancy, technology, political stability and corruption have all contributed to that improvement.



How the GES Is Compiled

The GES is designed to capture the main factors known to affect an economy's ability to grow. In the component selection process, we referred to the extensive literature on the determinants of economic growth, in particular Robert Barro's influential research. Each of the variables we include has been found to have a significant and relatively robust effect on growth in various cross-country growth regressions. We also favoured the variables that are available for a large number of countries and are updated on a regular basis. Our main source is the World Bank's World Development Indicators database, although some data (such as schooling, political environment indices and, partially, government deficit) come from other sources.

The 13 variables are:

- **Inflation:** High inflation discourages investment and erodes growth performance.
- **Government deficit** (as % of GDP): High budget deficits can hurt economic stability and push up borrowing costs.
- **External debt** (as % of GDP): Large foreign borrowing raises the risk of external crises and tends to push up real interest rates.
- **Investment rates** (GFCF as % of GDP): High investment rates encourage capital accumulation and growth, though investment should be productive.
- **Openness of the economy:** Proxied by the share of trade as a proportion of GDP (adjusted for population and geographical area). A wide range of studies find that more open economies show a greater tendency for 'convergence'.
- **Penetration of phones:** Proxied by mainlines per 1,000 people. Telephone penetration is a basic proxy for technology adoption. Communications technology may help the transfer of broader technology and techniques that aid growth. Mobile phones are bypassing fixed lines in some poorer countries, but data availability remains patchy.
- **Penetration of PCs:** Estimates of personal computers per 1,000 people are another dimension of communications technology.
- **Penetration of internet:** Estimates of internet usage per 1,000 people, like PC usage, provide another important measure of technology adoption and interconnectedness.
- **Average years of secondary education:** Higher levels of education aid the growth process, with secondary education most consistently identified.
- **Life expectancy:** As a basic measure of health conditions, higher life expectancy has been shown to be powerfully associated with growth performance.
- **Political stability:** One of the World Bank's six governance indicators, measuring perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means. In our GES context, stable political regimes promote confidence and therefore entail higher investment and growth.

How the GES Is Compiled *(continued)*

- **Rule of law:** One of the World Bank's six governance indicators, measuring the extent to which agents have confidence in and abide by the rules of society. Well-defined property rights and generally well-functioning institutions are generally thought to be conducive to higher investment and growth.

- **Corruption:** One of the World Bank's six governance indicators, measuring the extent to which public power is exercised for private gain and the 'capture' of the state of elites and private interests. Increased corruption is likely to have an adverse effect on growth via distorting incentives.

The latest available data (mostly for 2004 and 2005) are converted to a scale from 0 to 10 (0=bad for growth, 10=good for growth) as follows:

Sub-index = 10 * (actual observation – sample minimum) / (sample maximum – sample minimum)

Those variables where higher values are *bad* for growth (external debt, inflation) are also inverted, so that the scales work in the opposite direction (high observations give lower scores). In addition, to prevent extreme outliers from skewing the distribution of some variables, we chose cut-off points to replace the sample maxima and/or minima, as necessary (for instance, we used a maximum of 120% for external debt as a percentage of GDP; a 0% to 40% range for inflation; a -10% to +10% range for government deficit and a 100% of GDP cut-off for openness). The total score is then calculated by finding a simple average of all 13 sub-indices of the components.

- Even more encouraging, **the very poorest countries have almost universally raised their scores**. Of the lowest 30 economies, only three have lower scores than before, as both economic and political outcomes have improved in most countries.

- **Developed countries continue to dominate the top echelons of the GES rankings**, unsurprisingly. The highest-rated developing economy (Qatar) sits in 24th place and almost all the developed economies are in the top 50 on GES.

- **Canada still ranks highest of the current G7** (up to sixth from eighth place), now followed by Germany. Within the major economies, Italy remains the lowest of the group. Many of its components—from political to fiscal and to external debt—are lower than in other comparable countries, and Italy continues to fall significantly short of the other major European economies.

- As in 2005, '**small is beautiful**', with a pronounced tendency for smaller economies to score highly. The best-scoring economies in the developed country group are smaller countries. Sweden ranks first this year, overtaking Switzerland and Luxembourg. But smaller countries in the Pacific, Caribbean and Asia also make a strong showing in the developing country rankings. It may be that smaller, more open economies are more easily managed, or that the penalties for poor policy are higher.

Oil dominates this year's winners, while US slips

2006 has also seen some important changes in scores and rankings in some places:

- The most striking theme is that **oil-producing countries** in general have shown significant improvement in GES and rankings, as the impact of higher oil prices boosted fiscal positions and improved macro conditions more generally. Within the developing country group, the oil-producing **Gulf states continue to rank particularly highly**, largely as a result of outstanding performance on inflation, debt and government budget positions. All six GCC states are in the top 10 developing countries, with Qatar now highest-ranked (from third place last year).

- The **benefits to oil producers go well beyond the Gulf** and many of this year's largest gainers, such as Gabon and Venezuela, have oil. A big question is whether these improvements will survive a fall in oil prices. As we discuss below, that depends on whether they can convert the gains in a narrow range of areas into broader progress, an area of mixed success so far.

- Even outside the oil producers, the scores reflect some **significant moves in the developing world**. Across the world, the biggest drop in the GES this year was in Iraq—as political and macro conditions deteriorated further. Most of the other big 'losers' this year are in Africa, although the region does have some important success stories too.

- Although the changes in developed countries have generally been modest, the **US has taken the largest step back of the G7 countries—**largely on the back of lower scores on fiscal and political attributes.

Regional differences are striking, as Africa dominates the bottom

- Europe, unsurprisingly, scores highly. But even in developed Europe, there are important differences. **The North-South divide in Europe is alive and well.** Southern European economies (Greece, Italy, Portugal) tend to be lower-scoring, held back by fiscal and political issues, while the Scandinavians—with high education and technology use—tend to lead the pack. In Eastern and Central Europe, the Baltic states continue to score better than other former Communist countries, not only due to their high degree of political and economic stability but also to their very high technology uptake.

- The GES casts interesting light on **European political dynamics**. For instance, of the newest group of EU members, most have comparable GES to the lowest-ranked members of the original group. Romania and Bulgaria (due to join in 2007) are somewhat lower. And while Turkey (the most controversial of the candidate countries) still looks significantly different (its GES is lower than other actual and potential EU members), successful macroeconomic stabilisation has seen its score rise rapidly in 2006, so the gap has closed substantially.

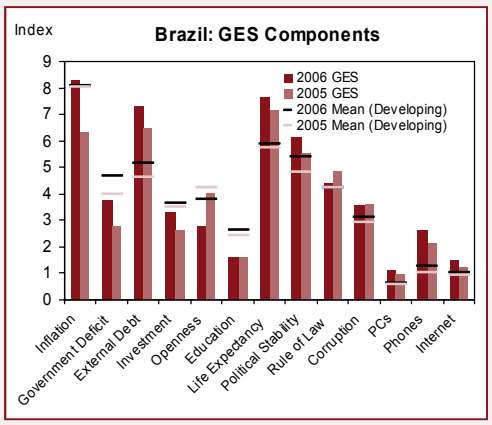
- **Asian economies also continue to rate highly**, helped by a combination of high education scores, and macro and political stability. Korea remains in 17th place, scoring higher than most of the G7 countries and behind only two other Asian countries (Singapore and Hong Kong, at fourth and eighth, respectively).

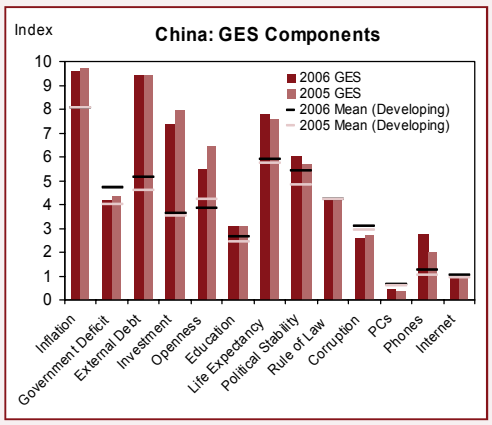
Growth Benefits: Focus on the BRICs and N-11

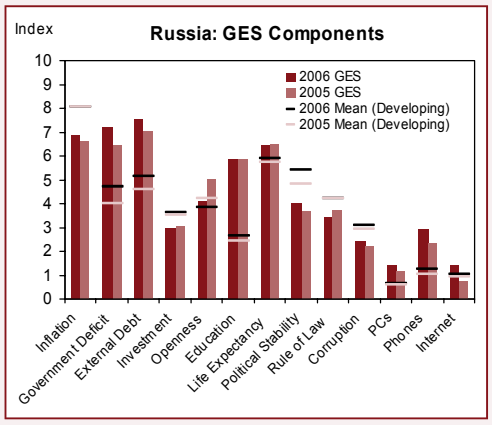
Given our ongoing focus on the BRICs and N-11 economies, we offer a more detailed examination of the shifts in GES for some countries in these groups. The average BRICs GES has moved up by 0.1 to 4.3, while the average N-11 score has remained unchanged at 4.0. In general, the updated GES suggests that the BRICs, and some of the N-11, have made reasonable progress in keeping favourable growth conditions in place and working on their weaknesses, particularly in Brazil, India and Turkey.

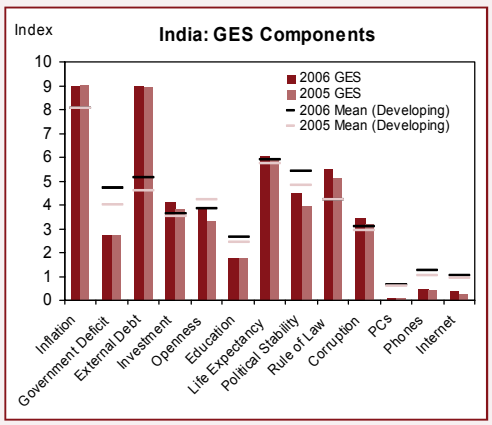
Within the developing country space, an analysis at the **subcomponent level** reveals the variables that accounted for the moves in the BRICs and the two biggest movers in the N-11 (Egypt and Turkey).

- The positive developments that accounted for **Brazil's** seven-place improvement were mainly due to good progress on the macroeconomic stability and technology fronts, as well as higher investment and improved life expectancy. Political conditions, however, deteriorated significantly, limiting further potential gains in the GES.
- **China**'s five-place slippage was mainly down to a slight deterioration in macroeconomic and political conditions. Increased phone penetration provided some support to the index.







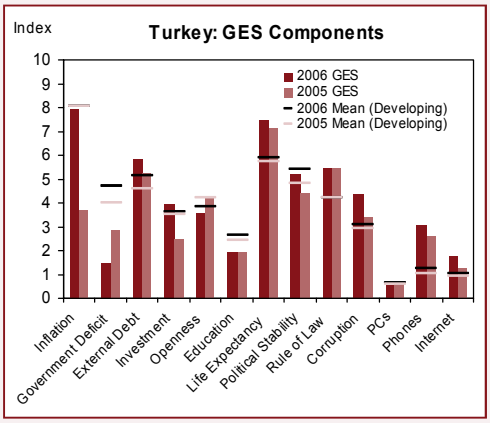


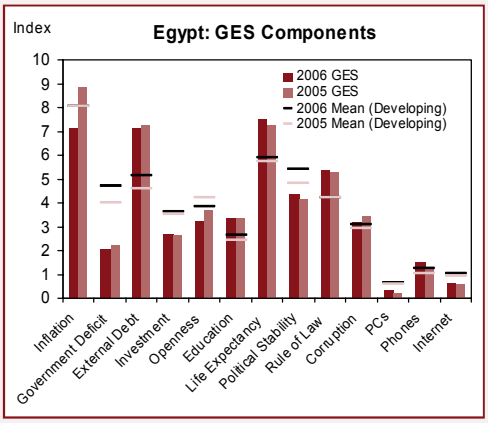
Growth Benefits: Focus on the BRICs and N-11 *(continued)*

- Although **India** lost two places in the ranking, its GES rose on the back of lower external debt, higher investment, greater openness (adjusted for area and population), improved technology (phones and internet) and better political conditions (on all measures).

- **Russia**'s improvement in the GES (reflected in a one-place gain in the ranking) was mainly due to significant progress in macroeconomic stability and technology, as well as some marginal gains on the political front (the rule of law and corruption). Its GES was held down by mild declines in the openness and political stability measures.

- **Turkey**'s 18-place rise was facilitated by lower inflation and external debt, higher investment, improved life expectancy, technology (namely, better phones and internet penetration) and political conditions.





The GES Across BRICs and N-11

BRICs and N-11	GES		Ranking	
	2006	2005	2006	2005
Korea, Rep.	6.9	6.9	1	1
China	4.9	5.0	2	2
Mexico	4.6	4.6	3	3
Vietnam	4.5	4.6	4	4
Iran, Islamic Rep.	4.4	4.1	5	6
Russian Federation	4.4	4.2	6	5
Brazil	4.2	3.8	7	8
Turkey	4.0	3.5	8	11
India	3.9	3.7	9	10
Egypt, Arab Rep.	3.7	3.9	10	7
Philippines	3.6	3.8	11	9
Indonesia	3.4	3.4	12	12
Bangladesh	3.2	3.1	13	14
Pakistan	3.1	3.2	14	13
Nigeria	2.7	2.6	15	15

- The **lowest-scoring group continues to be dominated by African countries**. Afghanistan (now fifth from the bottom) and Iraq (which now has the lowest GES globally) are still the only two countries outside Africa that appear in the 25 worst-ranked countries. Encouragingly, though, there have been some big improvements in several African economies too, including Ghana, Gabon and Cape Verde, as macroeconomic conditions have stabilised.

- We find **big differences within regions as well as across them**. The differences between Bolivia and Chile, or between Indonesia and Malaysia (with the latter having almost double the GES of the former) highlight the potential for large differences even among neighbours.

Encouraging signs in some of the BRICs and N-11

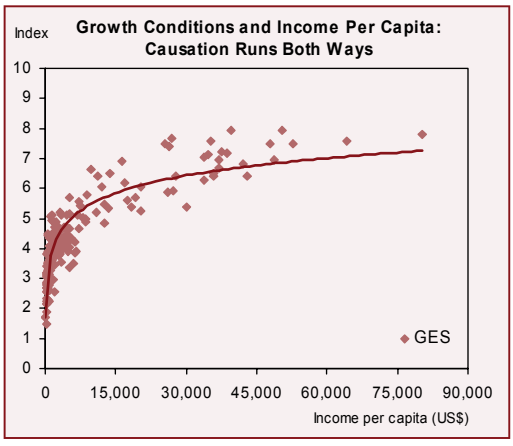
- The **BRICs all remain in the top half of the developing country rankings** and above the developing country mean. The relative ranking of the four countries remained the same, with China ranked most highly (although it moved down five places to 21st), followed by Russia (which gained one place and is now 43rd). Brazil showed the largest gain in its GES, having moved up by seven places to number 51. It was followed by India, whose higher score did not prevent it from falling two spots to 62nd place. The box on the preceding two pages provides details on the drivers for each.

- Among **the N-11**, the most significant moves were seen in Turkey (up 18 places) and Iran (up 11 places), the Philippines (down 17 places) and Egypt (down 20 places). Mexico and Vietnam, despite losing some ground, are still at the top of the spectrum (after South Korea), closely followed by Iran. Nigeria remains at the bottom of the ranking, ceding ground to other African countries, such as Kenya, Mozambique, Ethiopia and Uganda.

Benchmarking the Scope for Improvement

A key question (perhaps *the* key question) is, what can countries do to improve their growth conditions and boost growth? We look now at what the 2006 GES tell us about the scope for improvement.

The principle behind the GES is that progress in the five key areas constituting the GES puts the economy in a better position to stay on the projected growth path. But making changes is easier in some areas than others. In practice, scoring well with some growth conditions is partly contingent on achieving certain income levels, so the causation runs both ways. It is simply not realistic to expect levels of technological connectedness, education and political conditions to be as high in poor countries as they are in rich ones.



Simple scatter plots of each of the GES components against income per capita

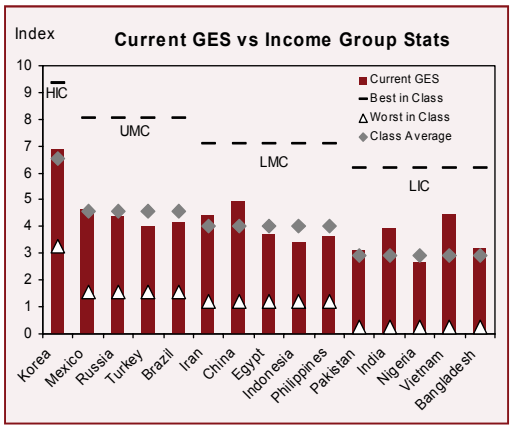
provide a clear illustration of this point. They suggest that conditions such as schooling, technology and political conditions are harder to improve until a country actually becomes richer, since there are few examples of poor countries with very high achievement on these measures. However, other areas—macro conditions, macro stability and life expectancy, for example—show no strong correlation with income, suggesting that these areas in principle can be improved regardless of income levels.

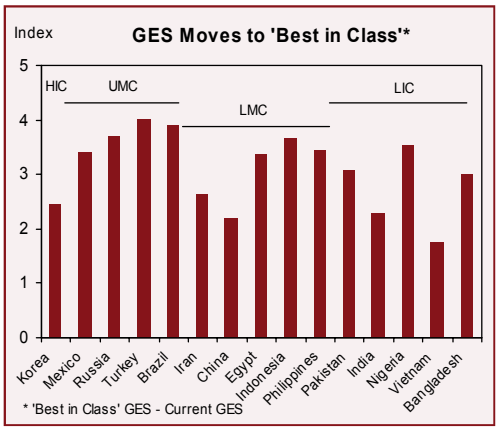
The fact that income levels are a constraint on success in some areas implies that a realistic benchmark of the scope for improvement should compare countries directly to their peers. Using the standard World Bank classification, we split our universe of countries into four groups. We then compared the scores for each country on every one of the 13 GES components to the maximum achieved by countries *in that same income grouping* and calculated the potential moves in the GES for each country to reach the 'Best in Class' (maximum) level. Because no country is, in practice, the highest-scorer on *all* categories, this method points to room for improvement everywhere, although the scope varies widely.

The charts below show the results of this exercise for the BRICs and N-11. For example, if Korea achieved a maximum value on every component within the 'high income group' to which it belongs, its GES would be 9.3, a 2.4-point move from its current value of 6.9. Of the BRICs/N-11 grouping, Vietnam and China are closest to their groups' 'Best in Class' levels (around two points below the best possible GES within their income groups), while Turkey and Brazil have the most scope for improvement.

This kind of benchmarking gives a sense not just of *how much* the GES conditions might be improved but also of *how*. As an example, the same GES improvements that Brazil and Turkey would need to make to reach 'Best in Class' levels appear to come from quite different sources. For Brazil, the main areas for improvement are in macroeconomic conditions, schooling, rule of law, corruption and some technological variables. Turkey, on the other hand, is more likely to achieve GES improvement from greater macroeconomic and political stability, higher life expectancy and technological capabilities, especially PC penetration.

Looking across the countries, it is striking how much the scope for improvement varies. Comparing Libya, Cuba and Lebanon to Malaysia; Angola to Thailand; or Vietnam to Zambia: each shows that countries with similar income levels can have substantially different scope to improve their growth conditions.





- **The scope for improvement is higher in Africa than anywhere else**. Africa's GES lag developing Asia substantially, even though average income levels are similar. While Asia scores more highly on a wide range of areas, foreign debt levels, openness to trade and life expectancy (health conditions) are the source of the largest differences. Encouragingly, many of these are responsive to policy.

- The biggest potential for improvement in developing Asia lies in the macroeconomic conditions category, as well as fiscal outcomes and political stability.

- Similar comparisons suggest that **for Latin America the main weaknesses fall into the macroeconomic conditions and stability categories**, and that progress here might bring substantial growth benefits.

- Despite the rise in GES in 2006, **the oil producers generally show more room for improvement than those with similar income levels**, particularly outside the Gulf. This suggests that many of these economies have not yet converted oil wealth into strong performance in broader conditions for growth—education and technology, in particular—and that their current success is relatively narrowly-based. The latest boost to oil prices, of course, is relatively recent, so there is still time to capitalise on it.

The GES benchmarking also suggests that the **areas where improvement is most needed** differ across income levels.

- For the **richest economies**, the gap between current GES and 'Best in Class' levels is most often largest in fiscal management, openness and technology and much less in terms of basic macro or political stability and health outcomes.

- For **middle-income economies**, the scope for improvement is generally greatest in policy-related areas—fiscal position, openness and debt—as well as in the use of technology.

- For the very **poorest economies**, there is scope to do better across a wide range of dimensions, but life expectancy—and the state of health—stands out as the area where gaps between what most countries *do* achieve and what they *might* achieve is widest. It is here—and also in outcomes for foreign debt, openness and education—where some poor countries have managed very much better outcomes than others. The weakness of basic health conditions—one of Africa's biggest issues—suggests that for this group, very basic conditions continue to hold back growth.

- More encouragingly, looking across the world, the GES imply that **inflation is now an area where substantial widespread improvement has been made**, across a very broad range of countries. Fiscal policy too offers less scope for improvement in general than other factors, again because even poorer countries have generally done quite well on this front.

While the individual scores provide a richer picture than this brief summary, the general lesson is that the source of policy focus is likely to be different over time and across countries. None of this implies that these shifts are easy, but they do imply that other countries at comparable levels of development have achieved the relevant outcomes, and may provide lessons on how to imitate that success.

The Growth Bonus From Raising the GES

The GES benchmarking exercise gives a sense of the scope for various countries to improve growth conditions. As we show here, the growth benefits of improving conditions, and the GES to 'Best in Class' levels, could be substantial.

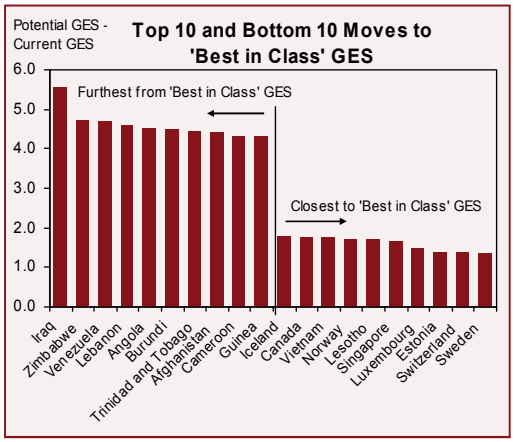
In order to illustrate this point, we looked at a more systematic mapping of the GES into growth outcomes, using a simple econometric analysis of the links between the GES and GDP growth. This evidence supports the notion that a higher GES is associated with higher growth, and with more rapid 'catch-up' on the income levels of the richest countries.

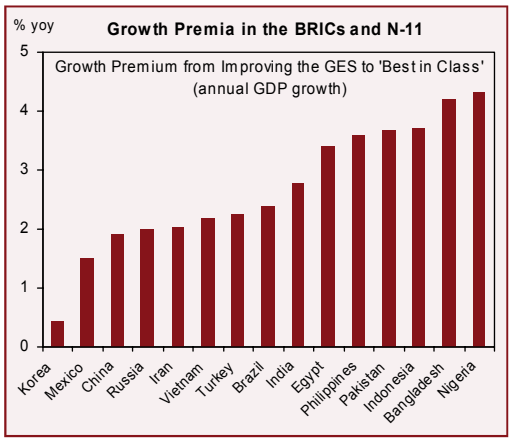
A key finding is that improving the GES helps to increase the speed at which countries close the 'productivity gap' with the most technologically advanced countries in the world (what economists call 'convergence'). As a result, improvements in the GES are more valuable in growth terms for poor than for rich countries. For instance, a one-point improvement in the GES is associated with roughly 1.3 percentage points higher growth for a country with income levels of $500 per capita, but only 0.6 percentage points for a country with income levels of $5,000 per capita.

We can combine our GES benchmarking exercise from the previous section with these models to estimate what the growth bonus for each country would be, if they were able to raise their GES to 'Best in Class' levels for their income group. The growth bonus is a combination of: a) how far the GES can be improved and b) a country's income level, which determines how much improving growth conditions matter. While the econometrics should not be leaned on too heavily, they do give a sense of the potential magnitude of growth benefits from raising GES.

These estimates confirm that the potential growth impact is *much* larger for poor countries than for richer ones. This fits with the notion that a key role of a high GES is to increase the speed of catch-up with the advanced economy group.

A literal interpretation of these estimates suggests that more than half of the high-income group members, or roughly the top 25 countries, would derive no meaningful growth gain from improving their GES. While that almost certainly underestimates the potential gains, it *does* suggest that for rich countries with high GES, further improvements in growth may come more from advancing the technological frontier than from faster 'catch-up' to that frontier.





But at lower levels of income, the improvements are likely to be substantial.

For much of the developing world, the growth bonuses from achieving 'Best in Class' GES are at least two percentage points in *annual GDP growth*. Even for the upper-middle-income group, the growth bonus for some countries runs to nearly three percentage points. It is as high as five percentage points for the lower-middle-income group, and for the poorest countries (particularly in Africa) bonuses of more than five percentage points are common. In fact, because they are usually poor economies, those with the lowest GES generally have *both* the greatest potential to improve their GES *and* the most to gain from doing so.

Again we can use the BRICs and the N-11 as an example. Our estimates suggest Nigeria and Bangladesh would be the two biggest beneficiaries from improving their GES to 'Best in Class' levels, with a growth bonus of over four percentage points in each case. Korea, on the other hand, already being part of the highest income group, would only gain an estimated 0.4 percentage points in growth at the margin. This is both because Korea's GES is already high and because—as a relatively developed country—the impact of improving conditions on growth is lower.

These numbers may not look large in every case, but they are increases in the *annual* growth rate. Through the magic of compounding, small differences in growth can lead to very large differences in income levels over time. For instance, if a country can raise its growth rate by two percentage points a year, within 20 years its income levels will be a full 50% higher. A four percentage-point increase would see incomes well over twice as high over that period.

Looking Ahead: An Opportunity to Do More

The kinds of improvements that these exercises show are not easy to deliver. But they suggest that the task of identifying and addressing obstacles to growth still offers enormous opportunities for progress.

The process of looking at medium- and long-term growth potential across the world's economies remains at the heart of our current research. In particular, we believe the shift in the economic balance of power and the impact on markets if the major developing economies (the BRICs and beyond) can continue to grow still lie at the centre of a wide range of issues. A key part of our task is to determine the odds of success across a range of countries.

Measuring conditions for growth in an objective way—as the GES does—is an inherently difficult task. Issues such as the sustainability of growth—particularly as it relates to the environment—continue to move onto the radar screen as an important additional consideration in judging long-term growth paths. Other nuances of the growth process are hard to capture with a simple scoring method. While we acknowledge these differences, we find the process of benchmarking a useful and transparent starting point for discussing growth potential and policy settings.

While we will continue to investigate ways to improve the GES and our assessment of growth potential, the **key conclusions** from our latest GES are straightforward:

- The GES continue to highlight the substantial differences in the success of the world's economies in keeping solid growth conditions in place.
- While developing countries cannot achieve 'developed country' conditions on many dimensions, there is substantial potential for improvement just to catch up with best practice at any given income level.
- Although there are no easy solutions to improving conditions, the GES benchmarking by income group does provide a clear view of where countries lag behind what other countries in their income groups have managed to achieve. The basic message is that different problems appear to be critical at different levels of development and a country's own priorities—and the highest 'bang for the buck' for policy focus—are likely to vary.
- The evidence strongly supports the fact that higher GES are associated with growth and that the importance of getting conditions right is much more meaningful for poor countries than for rich ones. The potential growth bonuses from improving growth conditions seem to be substantial, without even considering the broader benefits in terms of global political stability.
- Perhaps most of all, the GES offers a perspective on the performance of various economies—free of the rhetoric or subjectivity that can influence those judgments. While the GES will never capture all of the determinants of growth, it has the advantage of simplicity and objectivity.

At the heart of the 2006 GES, we see a relatively optimistic message. There is much that can be done to improve growth conditions, plenty of examples where countries have achieved that goal, and plenty of areas—such as basic macro stability and life expectancy—where sharp improvements seem possible regardless of levels of development. It would be encouraging to see the progress in the poorest countries repeated when we revisit the GES in 2007.

A critical question—highlighted by the recent improvement in oil-producing countries—is whether countries will be able to maintain and improve growth conditions if the global economic environment becomes more challenging. If the backdrop for 2007 remains basically benign, as we currently forecast, it would be good to see countries use this helpful cyclical environment to make deeper changes to their growth environment.

We will continue to use the GES to track progress and to inform our own views on long-term growth prospects, in the BRICs, N-11 and beyond.

Dominic Wilson and Anna Stupnytska
November 8, 2006

What's Missing From the GES?

The GES has the advantages—and some of the drawbacks—of any attempt to quantify growth conditions. Any objective index is bound to raise substantial issues. Four stand out.

- By focusing on a particular set of variables, we have implicitly ignored others. As we discussed last year, we looked at a somewhat broader range of variables (including tariff measures and various other infrastructure-related variables), but were not sufficiently comfortable with either the data quality or their links with growth to include them.
- We have chosen to equally 'weight' our components in the GES. This assumes that all are equally important for growth—which in practice may not be true. We experimented with weighting the components according to their importance to growth as gauged by the cross-country empirical literature. That exercise did not appear to make a substantial difference (although this may be because it was too crudely specified).
- Attempting to quantify a complex environment with a set of quantitative scores tends to result in a bias towards easily available, hard data. The reality is bound to be more nuanced. For instance, the quality of political and policy regimes is probably only partially proxied by the various measures we use, and levels of education can only be crudely captured by years of schooling.
- In practice, the various components of growth are unlikely to be truly independent from each other. Without institutional and political stability, for instance, increasing investment or education may be hard to achieve.

While all of these—and surely many other—criticisms of these kinds of 'scoring' exercises have some validity, we do not think they undermine the value of a systematic approach. Nor are these issues specific to the GES. Other comparable indicators generally raise the same set of issues. Perhaps the closest comparator to the GES is the World Economic Forum's Growth Competitiveness Index (GCI). The all-country correlation between the updated GES and 2006 GCI is as high as 91%, though for just the BRICs and N-11 it is lower, at 78%.

We also continue to consider what might be missing from our core indicators. Rising concerns about climate change and the impact of global warming are attracting attention to the issue of environmental sustainability. A number of international environmental organisations have recently started to introduce quantitative indices to reflect environmental challenges by measuring the depletion of natural resources, ecosystems, the degree of pollution, human health, etc. One of these measures, the Environmental Performance Index, centres on broad environmental protection objectives, linked to the UN's Millennium Development Goals. Interestingly, its correlation with the GES is 81%.

For now, we judge that concerns for the environment and sustainable growth are probably sufficiently different to the notion behind the GES that they may be better addressed separately. The GES uses only objective measures with proven relationships to growth performance. Environmental issues, important as they are, do not fall neatly into that category. Like democracy, they are things that probably capture separate objectives and that at times may be in competition with growth. Paying attention to environmental issues might even be growth-reducing, though the pressures to deal with these issues are rising.

APPENDIX: GES ACROSS COUNTRIES

The GES Across All Countries

All Countries	GES		Ranking		All Countries	GES		Ranking	
	2006	2005	2006	2005		2006	2005	2006	2005
Sweden	7.9	7.7	1	3	Azerbaijan	5.1	4.6	51	61
Switzerland	7.9	7.9	2	2	Latvia	5.1	5.3	52	40
Luxembourg	7.8	8.0	3	1	Bhutan	5.0	5.0	53	51
Singapore	7.7	7.6	4	7	Poland	5.0	5.0	54	52
Norway	7.6	7.6	5	5	Croatia	5.0	5.1	55	48
Canada	7.6	7.6	6	8	Vanuatu	4.9	4.4	56	67
Iceland	7.5	7.6	7	6	Maldives	4.9	4.7	57	56
Hong Kong, China	7.5	7.7	8	4	China	4.9	5.0	58	53
Denmark	7.5	7.4	9	10	Seychelles	4.9	4.8	59	55
New Zealand	7.4	7.4	10	11	Trinidad and Tobago	4.9	4.9	60	54
Finland	7.2	7.3	11	12	Suriname	4.8	4.1	61	84
Netherlands	7.2	7.2	12	13	Cape Verde	4.7	4.2	62	74
Australia	7.1	7.6	13	9	Jordan	4.7	4.5	63	65
Germany	7.0	7.0	14	16	Romania	4.7	4.6	64	62
Ireland	7.0	6.7	15	18	Thailand	4.7	4.7	65	57
Austria	6.9	7.1	16	14	Dominica	4.7	4.2	66	77
Korea, Rep.	6.9	6.9	17	17	Uruguay	4.6	4.2	67	79
United States	6.8	7.0	18	15	Mexico	4.6	4.6	68	59
United Kingdom	6.7	6.4	19	21	Fiji	4.6	4.6	69	64
Estonia	6.7	6.2	20	23	Grenada	4.6	5.2	70	44
Malta	6.5	6.3	21	22	Morocco	4.5	4.3	71	72
Belgium	6.5	6.5	22	19	Lesotho	4.5	4.0	72	87
Japan	6.4	6.2	23	24	Vietnam	4.5	4.6	73	63
Qatar	6.4	5.8	24	31	Macedonia	4.4	4.1	74	83
United Arab Emirates	6.4	5.6	25	33	Iran	4.4	4.1	75	86
Barbados	6.4	5.9	26	28	Panama	4.4	4.6	76	60
France	6.3	6.2	27	25	Bosnia and Herzegovina	4.4	4.1	77	85
Slovenia	6.2	6.1	28	26	Belize	4.4	4.4	78	68
Cyprus	6.1	6.4	29	20	Mongolia	4.4	4.2	79	75
Czech Republic	6.0	5.9	30	27	Russia	4.4	4.2	80	81
Spain	5.9	5.8	31	29	Armenia	4.3	4.1	81	82
Kuwait	5.9	5.2	32	45	Tonga	4.3	4.2	82	78
Slovak Republic	5.8	5.3	33	39	South Africa	4.3	4.2	83	80
Israel	5.7	5.3	34	41	Tunisia	4.3	4.4	84	69
Malaysia	5.7	5.6	35	34	Botswana	4.2	4.2	85	76
Portugal	5.6	5.7	36	32	Dominican Republic	4.2	3.6	86	106
Macao, China	5.6	5.8	37	30	Kazakhstan	4.2	3.9	87	90
Chile	5.6	5.5	38	36	Brazil	4.2	3.8	88	95
Oman	5.5	5.6	39	35	Georgia	4.1	3.7	89	100
Lithuania	5.4	5.3	40	38	Ukraine	4.1	4.3	90	71
Italy	5.4	5.4	41	37	Moldova	4.1	3.5	91	109
Bahrain	5.4	5.1	42	47	Albania	4.1	4.0	92	88
Saudi Arabia	5.3	4.5	43	66	Algeria	4.0	3.8	93	93
Greece	5.2	5.2	44	46	Turkey	4.0	3.5	94	112
French Polynesia	5.2	5.0	45	50	Sri Lanka	4.0	4.0	95	89
Belarus	5.2	4.3	46	73	Jamaica	4.0	4.3	96	70
Hungary	5.2	5.3	47	42	Peru	3.9	3.7	97	101
Mauritius	5.1	4.7	48	58	Argentina	3.9	3.4	98	113
Costa Rica	5.1	5.3	49	43	India	3.9	3.7	99	97
Bulgaria	5.1	5.0	50	49	Guyana	3.9	3.4	100	116

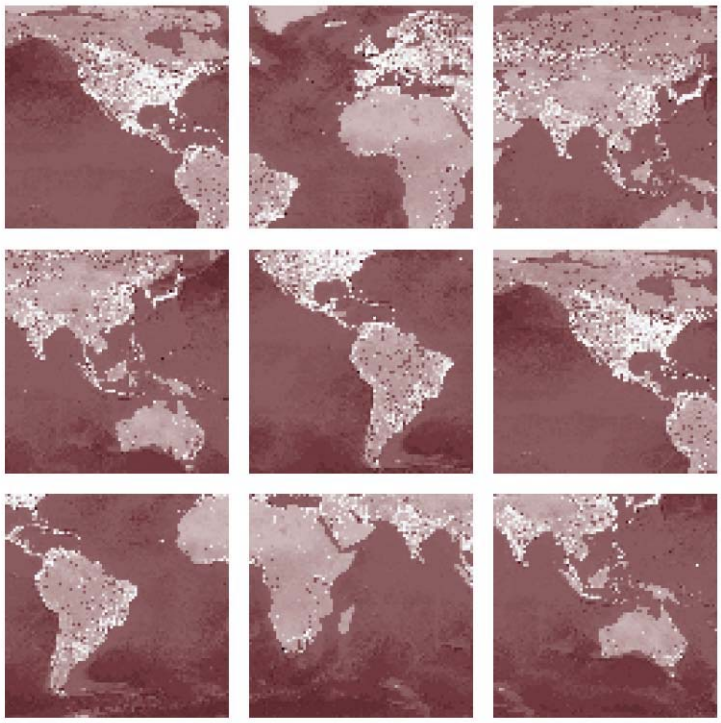
The GES Across All Countries *(continued)*

All Countries	GES		Ranking		All Countries	GES		Ranking	
	2006	2005	2006	2005		2006	2005	2006	2005
Colombia	3.9	3.6	101	103	Kyrgyz Republic	3.1	3.1	137	132
Libya	3.9	3.7	102	99	Tanzania	3.1	3.0	138	138
Gabon	3.9	3.2	103	127	Gambia	3.0	2.8	139	140
Sao Tome and Principe	3.8	3.4	104	115	Bolivia	3.0	3.2	140	123
El Salvador	3.8	3.7	105	98	Congo, Rep.	3.0	2.7	141	143
Ecuador	3.8	3.6	106	104	Lao PDR	2.9	2.5	142	150
Tajikistan	3.8	3.2	107	125	Togo	2.9	2.8	143	142
Namibia	3.8	3.7	108	102	Nepal	2.8	2.8	144	141
Swaziland	3.8	3.6	109	105	Haiti	2.8	2.4	145	153
Serbia and Montenegro	3.8	3.3	110	122	Kenya	2.8	2.6	146	148
Egypt	3.7	3.9	111	91	Cameroon	2.8	2.7	147	146
Paraguay	3.7	3.1	112	131	Mozambique	2.8	2.4	148	151
Philippines	3.6	3.8	113	96	Comoros	2.8	1.6	149	166
Senegal	3.6	3.3	114	119	Uganda	2.7	2.4	150	152
Syrian Arab Republic	3.6	3.8	115	92	Ethiopia	2.7	2.1	151	156
Cambodia	3.5	3.5	116	111	Nigeria	2.7	2.6	152	147
Turkmenistan	3.5	3.6	117	108	Mauritania	2.6	3.3	153	120
Ghana	3.5	2.9	118	139	Cote d'Ivoire	2.6	2.2	154	155
Chad	3.5	3.8	119	94	Angola	2.6	2.1	155	158
Lebanon	3.5	3.1	120	130	Guinea-Bissau	2.6	2.7	156	144
Guatemala	3.5	3.3	121	117	Niger	2.5	2.6	157	149
Indonesia	3.4	3.4	122	114	Rwanda	2.3	2.3	158	154
Burkina Faso	3.4	3.2	123	128	Zambia	2.3	2.1	159	157
Nicaragua	3.4	3.3	124	118	Sudan	2.2	1.6	160	163
Venezuela	3.4	3.0	125	136	Malawi	2.2	2.1	161	160
Honduras	3.3	3.3	126	121	Central African Republic	2.2	1.8	162	162
Cuba	3.3	3.6	127	107	Congo, Dem. Rep.	2.1	1.6	163	165
Uzbekistan	3.3	3.1	128	133	Sierra Leone	2.1	2.1	164	159
Papua New Guinea	3.3	3.0	129	137	Guinea	1.9	1.6	165	164
Eritrea	3.2	2.7	130	145	Afghanistan	1.8	1.5	166	167
Bangladesh	3.2	3.1	131	134	Burundi	1.7	1.2	167	169
Mali	3.2	3.1	132	135	Liberia	1.6	1.4	168	168
Madagascar	3.2	3.5	133	110	Zimbabwe	1.5	1.1	169	170
Benin	3.1	3.1	134	129	Iraq	0.6	2.0	170	161
Pakistan	3.1	3.2	135	126	**Mean**	**6.4**	**6.2**	--	--
Yemen	3.1	3.2	136	124	**St Dev**	**0.9**	**1.0**	--	--

CHAPTER SEVEN

WHY THE BRICS DREAM WON'T BE GREEN

October 2006



WHY THE BRICS DREAM WON'T BE GREEN

Balancing economic development with environmental protection is already—and will remain—a major challenge to our 'BRICs Dream'. Urbanisation, industrialisation and intensive agriculture mean that pressures on the environment are unlikely to abate for decades.

Will breakneck growth in the BRICs result in environmental catastrophe? Will environmental degradation ultimately slow the BRICs' growth and the pace of poverty alleviation? These are among the most frequently asked questions about the long-term challenges to our BRICs projections.

In this issue, we examine a range of environmental challenges facing these countries. Urbanisation and industrialisation are the main 'culprits', but agriculture is also a source of pressure on the environment.

The unstoppable trend of **urbanisation** brings increasing strains on land and water resources. Although Brazil and Russia are already nearly as urban as the G6 (in some cases more so), India and China will face significant growth in their urban populations over the next 25 years. By 2030, the urban share is projected to increase by 50% in China and by 40% in India.

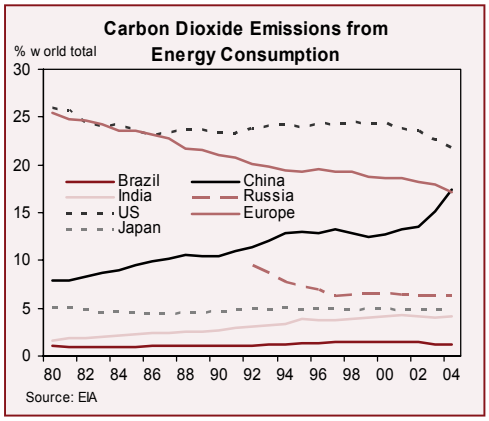
Air pollution is a burgeoning problem and a predictable consequence of the BRICs' growth, given that they are passing through the most energy-intensive phase of development. China is projected to outpace the US as the world's largest carbon dioxide emitter in less than a decade. Fuelled by 4% annual growth in CO_2 emissions, China's CO_2 emissions are projected to be one-third higher than those of the US in 2030, even before the Chinese economy surpasses the US. India's CO_2 emissions could be nearly twice as high as Japan's in 2030.

One way to satisfy the BRICs' rising energy demand would be to reduce reliance on traditional fuels. This can be achieved by improving energy efficiency and by switching towards **alternative energy sources**.

BRICs' consumption of hydroelectricity and other renewable energy is projected to more than double from current levels by 2030, when it will account for one-third of the world total. Expansion in hydropower is likely to be the main driver, particularly in China and India, but hydroelectric projects typically bring a number of negative environmental impacts. Brazil's natural resources also give it scope to increase its reliance on hydropower, ethanol, solar and other alternatives, but it currently has limited scope to undertake the investment needed.

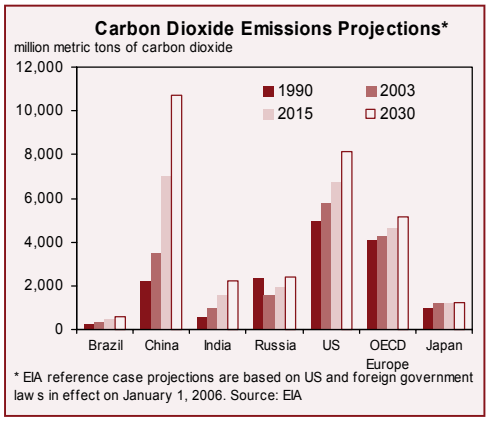
Agriculture too imposes its share of costs on the environment. Agriculture accounts for the vast majority of fresh water withdrawn from the ground in India and China. Even so, only one-third of the cropland in these countries is irrigated, suggesting that agriculture's draw on water resources could intensify. Brazil is perhaps most at risk on this front, since agriculture accounts for 60% of fresh-water consumption, but less than 5% of its cropland is irrigated.

Sandra Lawson, David Heacock and Anna Stupnytska
October 18, 2006



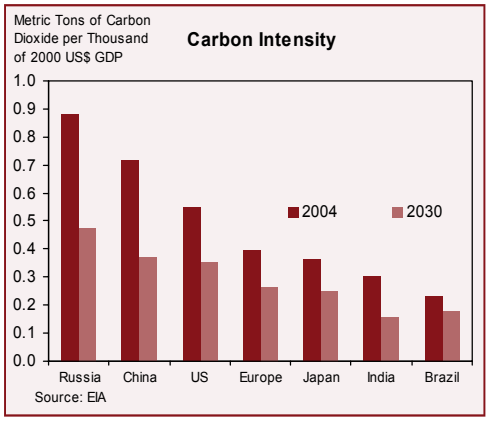
BRICs' Share of Carbon Emissions Is Rising

- The global pattern of CO_2 emissions is shifting as developing countries industrialise while advanced economies shift towards less energy-intensive sectors.
- The developing world already emits nearly half of the world total of CO_2 emissions, with the BRICs alone responsible for nearly 30% of the global total. This is largely thanks to China, where the share has more than doubled since 1980. The collapse of the Soviet Union led to a sharp decline in Russia's industrial base and thus emissions from energy consumption; in 2004 emissions were still just 80% of the 1992 level.



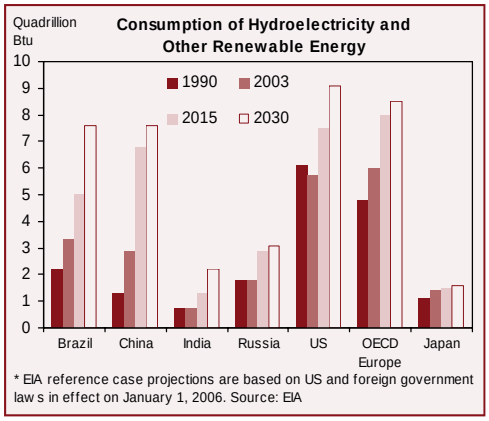
BRICs CO_2 Emissions to Exceed G6 Share by 2025 …

- Thanks to strong growth in the energy-intensive industrial and transport sectors, China is projected to overtake the US in terms of carbon dioxide emissions by 2015. By 2030, China is expected to account for nearly one-quarter of the world total, compared with 19% in the US.
- At the other end of the scale, Russia's emissions are only projected to return to Soviet-era levels in 2030, placing it on a par with India, at 5% of the world total. Brazil will not be a major player; its share of world CO_2 emissions is forecast to remain steady at 1.4%.



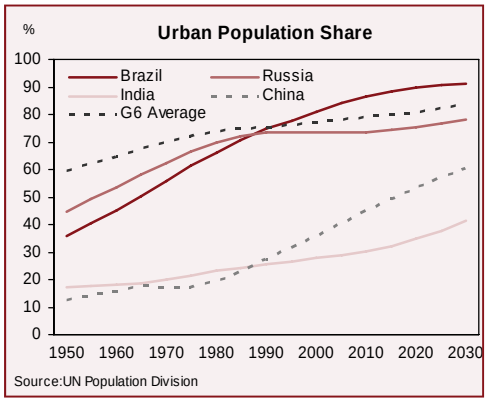
… But Carbon Intensity Is Expected to Fall

- Russia and China have the most carbon-intensive economies, with the two other BRICs lagging the G6 countries. India and China are expected to make the most progress in reducing carbon intensity over time, nearly halving it by 2030. This is likely to reflect rapid economic growth rather than a switch to less carbon-intensive fuels.
- By 2030 carbon intensity is projected to decline across the board, resulting from generally higher investments in improving the efficiency of energy use, and a gradual switch from oil and coal to natural gas and renewables.



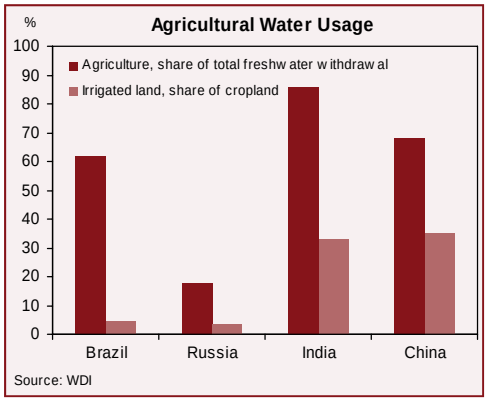
… and Renewables Will Play a Bigger Role

- High prices of traditional fuels, emissions concerns and rising energy demand will encourage greater reliance on renewable energy sources. Global energy consumption from these sources is projected to nearly double between 2003 and 2030, though their share in total consumption is projected to rise only slightly, from 7.8% to 8.6%.
- Brazil already uses nearly as much hydroelectricity as China and the US, despite the size and income differentials. Brazil also has the environmental resources to expand capacity further, but it currently lacks the financial resources to do so.



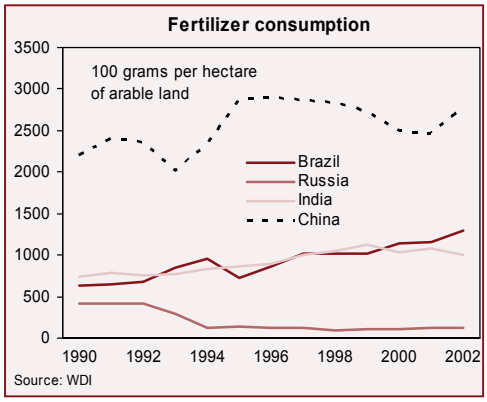
Urbanisation Moving Toward G6 Levels

- Urbanisation will remain a dominant feature in the BRICs in the decades ahead. 57% of the BRICs population now live in urban areas, up from 42% in 1975. The urban population is projected to reach an average 68% in 2030—still lower than the current G6 average of 78%.
- Urbanisation brings environmental issues including water and air pollution, waste disposal and traffic congestion. These challenges will be especially acute in China and India, where the urban share is projected to jump from 41% to 61% in China and from 29% to 41% in India.



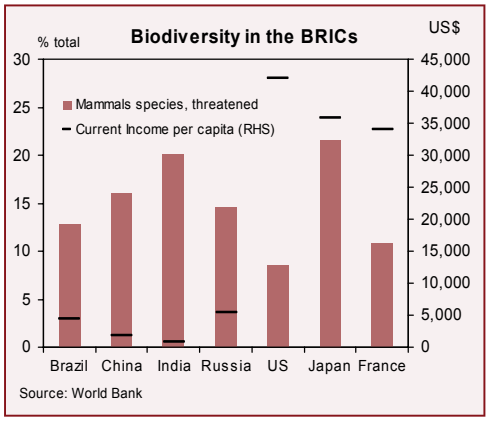
Agricultural Water Usage Is Split …

- Developing and urbanising countries face a dual challenge of supporting intensive agriculture while preserving fresh-water supplies. According to the UN's FAO, the 20% of the world's cropland that is irrigated accounts for 40% of total food production. Worldwide, 70% of total fresh-water withdrawal goes to irrigation.
- One-third of the cropland is irrigated in China and India; in Brazil and Russia, the figure is less than 5%. China's agricultural water use is more efficient than India's: agriculture in China draws only 68% of total water usage, compared with 86% in India.



… Along With Fertiliser Usage

- The FAO estimates that irrigated crop production will need to increase by 80% by 2030 in order to match demand from the developing world. At the same time, it expects irrigated land water use to rise by just 12%, increasing the need for fertilisers to boost crop efficiency.
- Fertiliser usage explains some of the divergence between agricultural efficiency in China and India. China uses 2.8 times as much fertiliser per hectare as India. While this boosts agricultural yields and thus supports urbanisation, it raises the risks of water pollution in both the countryside and the city.



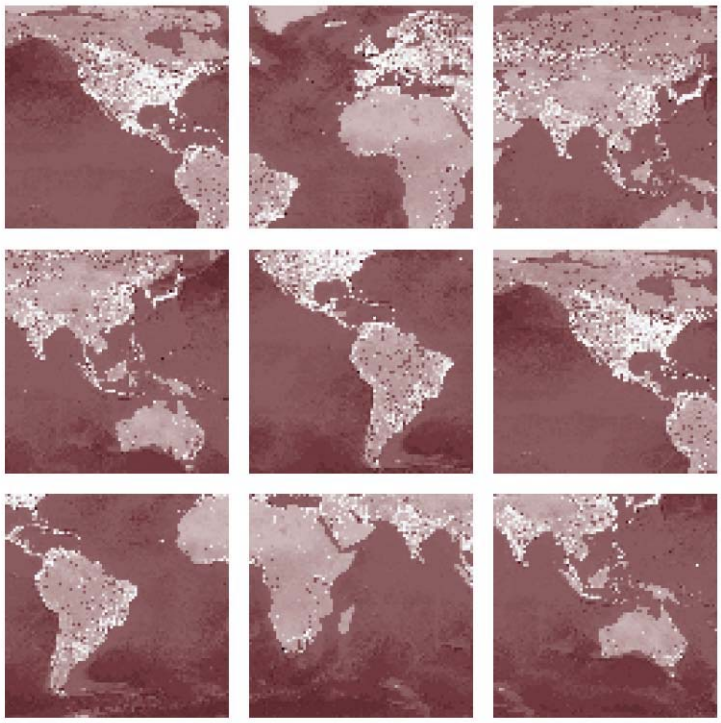
Trade-off Between Biodiversity and Wealth

- Biodiversity is a critical aspect of environmental sustainability. Although industrialisation tends to be achieved at the expense of the environment, the trade-off between growth and the environment becomes more balanced as countries grow richer.
- This is visible in the BRICs and the G3 in measures of shares of threatened species and income per capita. India, poorest of the group, has the highest share (over 20%) of mammals under threat, while US has the lowest share (9%).

CHAPTER EIGHT

WHY THE BRICS DREAM *SHOULD* BE GREEN

February 2007



WHY THE BRICS DREAM *SHOULD* BE GREEN

Last Fall we discussed 'why the BRICs dream won't be green', highlighting the challenges ahead as the BRICs seek to balance economic development with environmental protection. This month we argue that the BRICs dream should be green: these countries will need to play a key role in global efforts to combat climate change, and it is in their own interest to do so.

Urbanisation, industrialisation and intensive agriculture mean that environmental pressures in the BRICs are unlikely to abate for decades. In recent months, environmental issues have come increasingly to the fore, thanks in large part to the publicity surrounding the Stern Review on climate change.

The BRICs will need to play a key role in global efforts to tackle climate change. While it is true that today's industrialised economies are responsible for the vast majority of greenhouse gases (GHG) already in the atmosphere, developing countries are expected to account for 75% of GHG emissions over the next 25 years—with China alone responsible for one-third of the global total. China is already the world's second-largest emitter of carbon dioxide, and is expected to overtake the US within a decade.

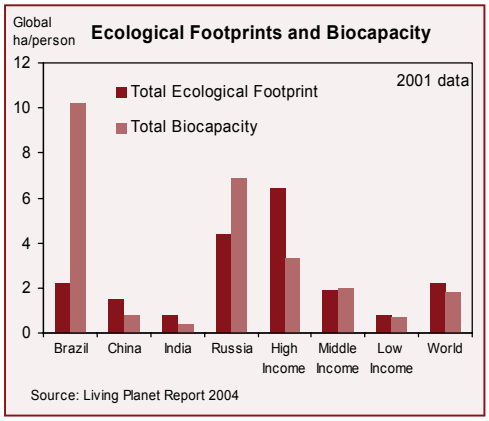
Critically, we think it is in the BRICs' *own* interest to reduce their emissions and pollution, and to pursue a cleaner path of development. The BRICs already face a host of environmental problems, including air and water pollution, rising strains on water supplies and resource depletion.

The BRICs are particularly vulnerable to the effects of global warming. Many of the major cities—Shanghai, Mumbai, St. Petersburg, Rio de Janeiro—are low-lying coastal cities. Rising sea levels could affect significant economic activity, as well as some 600mn people living along the coasts (nearly one-quarter of the total BRICs population).

Climate change could hit other parts of the BRICs economies hard as well. Per capita levels of arable land are well below the global average in China, India and especially Brazil. Higher global temperatures are expected to change rainfall patterns and growing seasons, accelerate glacial melting and create more extreme storms. Agriculture, which accounts for 5%-20% of GDP in these countries, would be especially vulnerable; the risk seems particularly high in India, where agriculture is highly reliant on the annual monsoon.

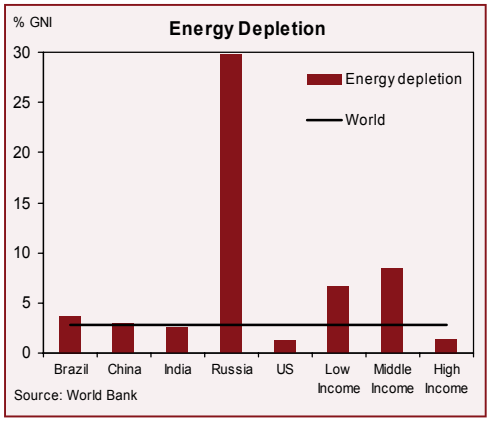
There are some hopeful signs. Forest coverage has increased in China and India since the early 1990s; Brazil is the world leader, by far, in the use of renewable fuels; and India protects a large share of its forests in an effort to conserve biodiversity.

Sandra Lawson, David Heacock and Anna Stupnytska
February 13, 2007



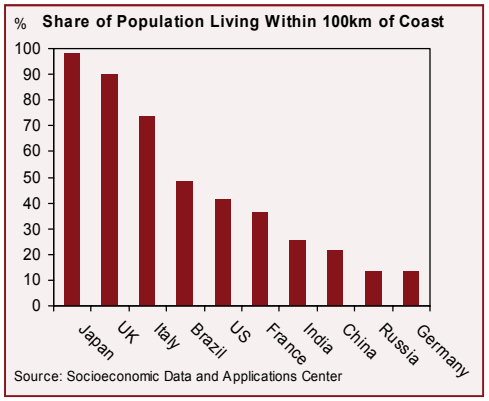
Unsustainable Resource Usage in China and India

- The World Wildlife Fund's 'ecological footprint' (EF) measures a country's natural resource consumption using prevailing technology and resource management schemes. Comparing these demands on nature with the country's biocapacity gives a sense of environmental sustainability.
- On latest estimates, ecological footprints are twice as large as biocapacity in China and India. These are in line with high-income countries and above the world average, indicating that current resource consumption and exploitation are unsustainable. Brazil has one of the highest biocapacities in the world, almost five times its EF, with Russia relatively close behind.



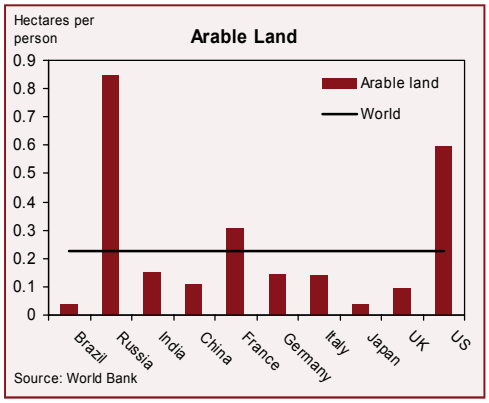
Russia Is By Far the Most Reliant on Energy Depletion

- The share of national income tied to natural resource depletion is problematic, given that natural resources are generally non-renewable and cannot be relied upon for growth indefinitely.
- Among the BRICs, Russia is the most reliant on energy resource depletion (crude oil, natural gas and coal). In 2004, Russia's energy depletion accounted for roughly 30% of its gross national income (GNI), more than 10 times the world average. Brazil is by far the biggest user of minerals, at 1.1% of GNI.



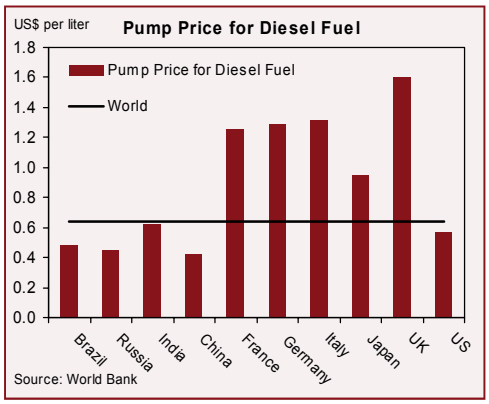
Coastal Cities at Risk, Especially in India and China

- Sea levels are expected to rise more rapidly in coming decades. Some 600mn people—nearly one-quarter of the total BRICs population—live within 100km of the coast.
- Mumbai and Shanghai, with a combined population of 32mn, are both situated on the coast, while Brazil and Russia also have major coastal cities, including Rio de Janeiro and St. Petersburg. A disproportionate amount of the economic activity in these countries flows through these hubs and could be crippled if sea levels rise to critical levels.



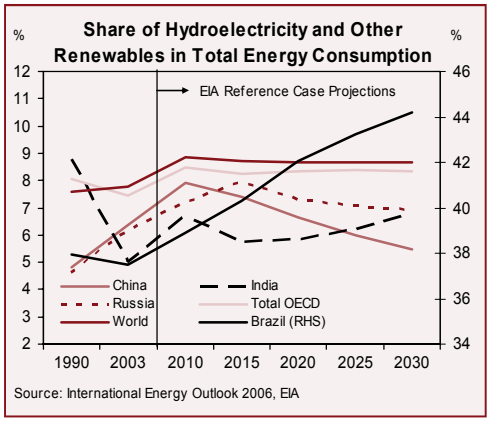
Limited Arable Land Underscores Vulnerability

- Agriculture remains an important sector of the BRICs economies, accounting for an average 11% of GDP in 2005. This is especially true in India (19% of GDP) and China (12% of GDP), where the majority of the population lives in the countryside (roughly 70% in India and 60% in China).
- Arable land per capita is below the world average in all the BRICs except Russia. Changing weather patterns could be devastating, especially for India, which is already reliant on the annual monsoon season.



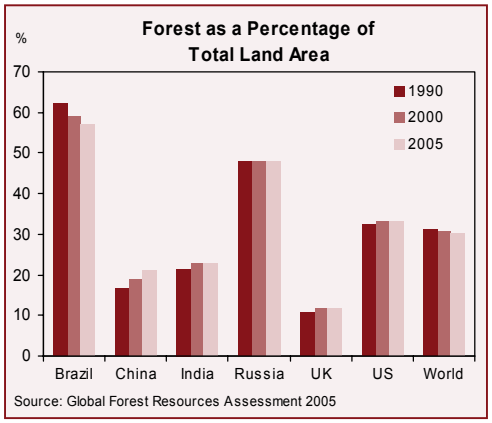
Scope for Increases in Energy Taxes

- As we have shown previously, the energy intensity (energy units per Dollar of GDP) of the BRICs is high relative to both the G6 and the world average. One reason is the below-average tax rates on energy, shown here as the average pump price of diesel fuel.
- India, which was one of the first countries to adopt emission regulations, is the only BRICs country with a higher diesel fuel pump price than the US. China has the lowest pump price for diesel fuel among the BRICs; increased fuel regulation there has been hotly contested.



Brazil Leads in Hydroelectric and Renewables

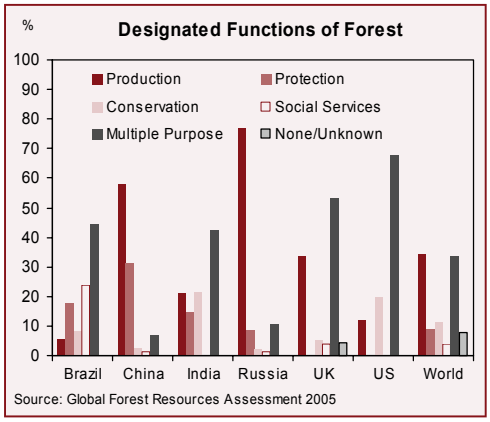
- By 2030, the share of hydropower and renewables in total world energy consumption is projected to increase by 1ppt, to 9%. Growth is likely to come from large-scale hydroelectricity power projects, particularly in China and India. At the country level, renewables in China will become slightly less important relative to other sources.
- Brazil's already impressively high share is projected to rise from around 38% now to above 44% by 2030. As hydroelectricity already accounts for more than 80% of Brazil's electricity consumption, most of the increase is expected to come from biofuels and other renewables.



Deforestation on the Rise in Brazil and Russia

- Russia and Brazil are the most forest-rich countries in the world, with China and India also among the top ten. Overall, the BRICs account for 40% of the world's total forest area. China is the only BRIC with rising afforestation; from 2000 to 2005 it made a significant contribution to a net gain of forests in Asia.

- The net change in the world's total forest area from 2000 to 2005 was negative, estimated at -7.3mn hectares per year. Brazil reported the highest (and rising) rate of deforestation, at -3.1mn ha per year, mainly due to conversion to agricultural land, particularly soy fields. Russia also showed a negative trend, losing forest on a net basis since 2000, having gained ground in the 1990s.



China and Russia Use Forests Mainly for Production

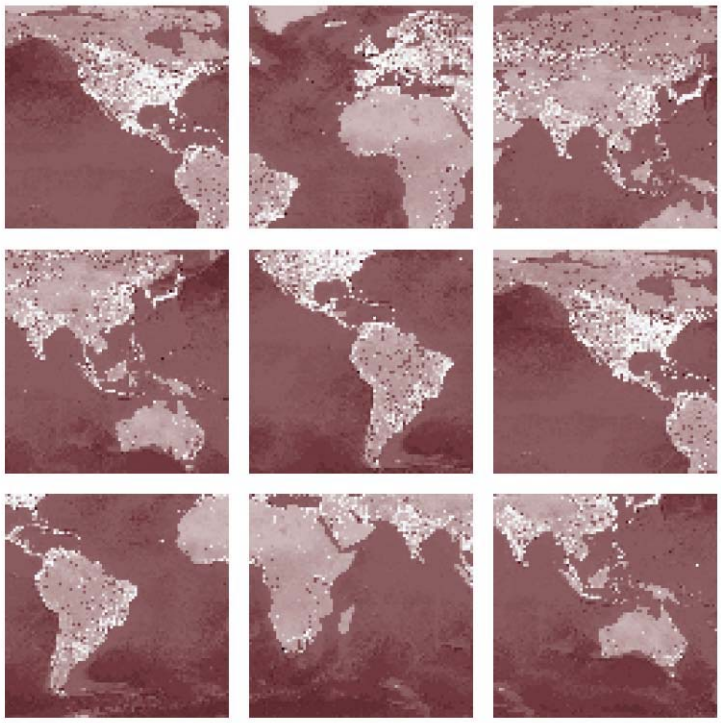
- Production remains the primary function of forests in China and Russia, where almost 60% and 77% of total forest area is used for this purpose, respectively. In Brazil, just 5% of forests is used for production, with the majority used for social and multiple purposes.

- Conservation of biodiversity is relatively important in India, where 22% of total forest area is used for this purpose. This is the highest in the BRICs and slightly higher than in the US. China and Russia report the lowest share of forest designated for conservation, although one-third of Chinese forests are under protection.

CHAPTER NINE

BUILDING THE BRICS: INFRASTRUCTURE OPPORTUNITIES

June 2006



BUILDING THE BRICS: INFRASTRUCTURE OPPORTUNITIES

Infrastructure is a key part of our BRICs story: it is vital to growth and plays an important role in reducing income inequality. We show a snapshot of current infrastructure stocks in the BRICs and highlight a related piece that estimates infrastructure spending over the next five years.

Our 'BRICs dream' envisions a world in which savings, population growth and productivity gains interact with good governance, sensible policies and strong institutions to yield impressive real GDP growth for Brazil, Russia, India and China. Infrastructure is a key part of this story. It is vital to economic growth and plays an important role in reducing income inequality. As globalisation deepens, infrastructure will arguably become even more important for countries seeking a role in the 'just-in-time' global economy.

The charts overleaf provide a snapshot of the current state of infrastructure in the BRICs.

- **Mobile telephony** has experienced explosive growth over the past decade. In 1995 only three people in 1,000 had mobile phones in China; by 2004 more than 250 did. Russia has jumped from fewer than one per 1,000 to levels approaching those in the G6.

- **Electricity** consumption is widely divergent, with Russia using about 70% of the G6 average and agricultural India consuming only 10% of Russia's level. The roles are reversed in roads: India's network is comparable to those seen in the G6 (in quantity if not in quality), while the lack of roads in vast Siberia means Russia has a much smaller network.

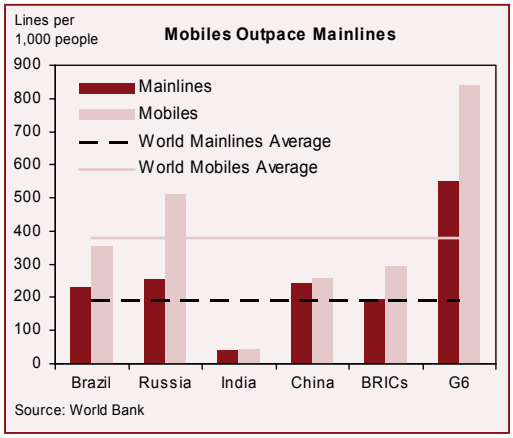
- Access to 'improved' sources of **water and sanitation**, which can have an important impact on productivity, has risen in India and China since 1990. Urbanisation has been a major driver of this progress, although India's gains have outpaced the rate of urbanisation.

We have used our long-term GDP growth projections to estimate the aggregate demand for mainline and mobile phones, electricity generation capacity and roads in the BRICs over the next five years. Our estimates point to aggregate investment of nearly $2trn, which implies annual spending of about $390bn or 8.5% of today's GDP. About 60% of this would support new investment, with the rest for maintenance.

On our projections, roads will account for the largest share of investment in the BRICs (40%), followed by electricity (28%) and mobile phones (27%). Spending on mainline phones is likely to account for just 6% of the total, highlighting the extent to which mobiles have eclipsed mainlines (a story that is true around the world).

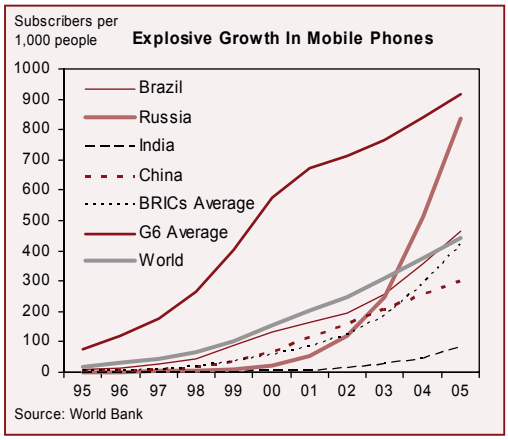
With our longer-term BRICs dream in mind, we have also estimated what is needed to bring infrastructure up to current G6 levels. This is quite a challenge: the aggregate gap between the BRICs and the G6 in electricity, telecoms and rails is a staggering $10trn, or more than twice the BRICs' current GDP. This process of 'catching up' could take about 25 years.

Sandra Lawson, David Heacock and Anna Stupnytska
June 14, 2006



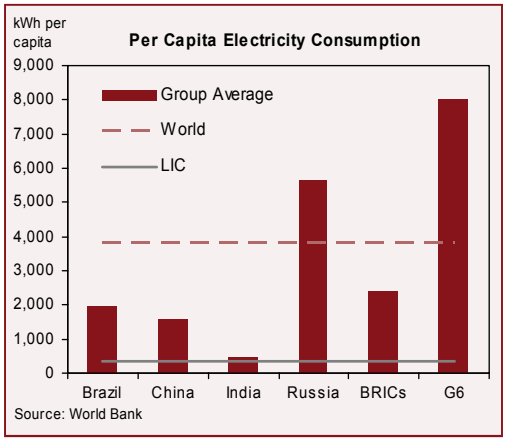
Calling the BRICs . . .

- Both mainline and mobile telephone penetration in the BRICs have seen a sharp increase in the last 10 years, with the number of mainline telephones per capita increasing over 157%, compared with 6% growth in the G6 and 57% growth worldwide between 1995 and 2004. But mainlines have been eclipsed by the phenomenal growth in mobile phones, which now outstrip mainlines worldwide, as well as in each of the BRICs.
- India is the clear laggard in both mainlines and mobiles per capita, despite its growing international role as an outsourcing centre.



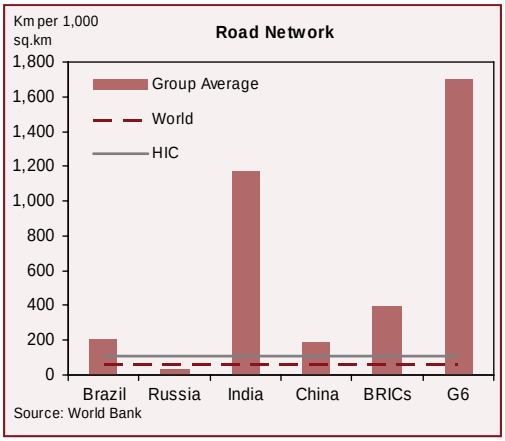
. . . Especially by Mobile

- The prevalence of mobile telephones in the BRICs has grown exponentially since 2000, lagging the developed world by roughly five years. In 2004, the BRICs' average mobiles per capita surpassed the world average for the first time.
- Russia has seen the most rapid increase, with the number of mobiles per capita more than quadrupling between 2002 and 2004. The number of Russian mobile telephones per capita now stands at roughly 61% of the G6 average, versus 35% on average for the BRICs.



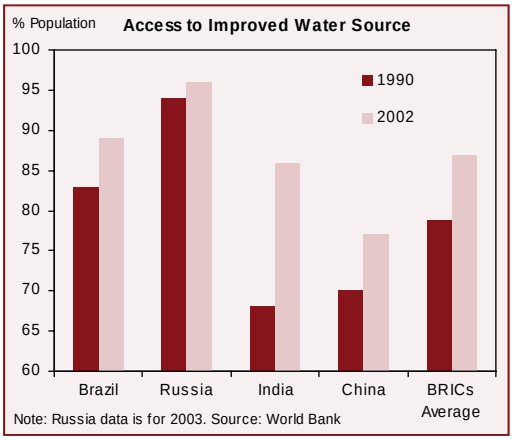
Electricity Consumption Shows Wide Divergence

- Average BRICs electricity consumption is three times lower than that of the G6 and is roughly equal to the world average level.
- Russia is the outlier on the high end; it consumes as much electric power per capita as Italy and about 70% of the G6 average. Per capita consumption in the other BRIC countries is much lower. Per capita consumption in India is just 6% of the G6 level and only slightly above the average of low-income countries globally.



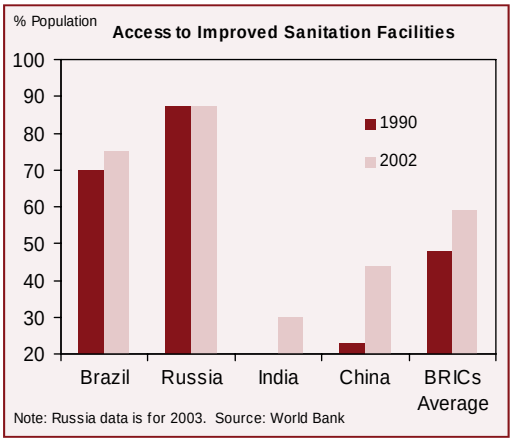
India Leads the Way in BRICs Road Networks

- Road networks across the BRICs are much less developed than in the G6, with road density on average only one-quarter the G6 level.
- This is one sector in which India trumps the other BRICs: its road density is nearly 70% of the G6 average and 18 times the world average. In contrast, Russia is the only BRIC country with road density below the world average, due to the extremely limited network in Siberia.



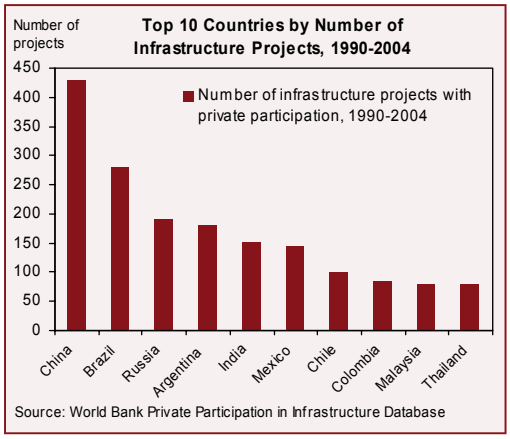
. . . While Sanitation Has Further To Go

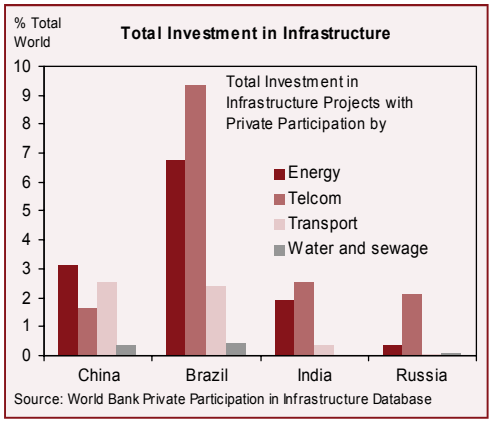
- Access to 'improved' sanitation facilities is also closely tied to the level of urbanisation. However, compared with water access, there is a striking contrast within the BRICs, as 75% of the population in Brazil and 87% in Russia have access to sanitation facilities, compared with just 30% in India and 44% in China in 2002.
- China and India accounted for most of the 11% growth in the BRICs average access to improved sanitation facilities between 1990 and 2002; Brazil and Russia posted only marginal improvement. This suggests that further growth and development is needed to close the service gap between urban and rural populations.



Water Access Increasing With Urbanisation . . .

- 'Improved' water access in the BRICs is closely tied to urbanisation levels. Both Brazil and Russia began with higher levels of urbanisation in 1990, with 75% and 73% of the population living in urban areas, versus 27% and 26% for China and India.
- As the urbanisation gap has closed, so too has access to safe water: progress in India and China pushed the share of the BRICs population with access to improved water sources from 79% to 87% between 1990 and 2002. India's gains have outstripped its pace of urbanisation growth, probably helped by its higher population density.





China Leading by Number of Infrastructure Projects

- All four BRICs are among the top 10 countries ranked by the number of infrastructure projects with private participation since 1990. China tops the list, accounting for almost 15% of total projects, followed by Brazil with 9% and Russia with 6%.
- In Dollar terms, however, Brazil is in the leading position, having received almost 19% of total investment since 1990. China is ranked third (behind Argentina) and India fifth (behind Mexico).

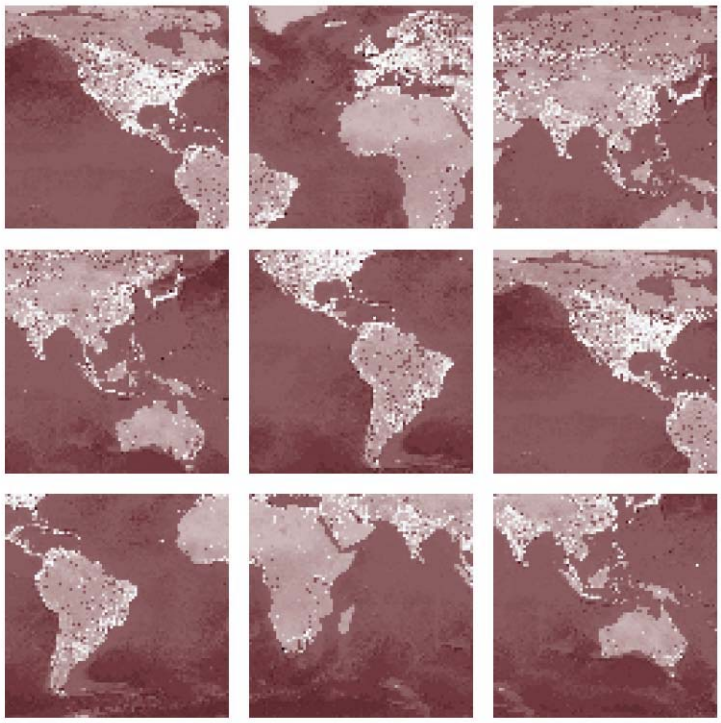
Diverging Stories in Telecoms and Water Investment

- Telecoms has been the most successful sector in attracting private investment, accounting for over 45% of total private inward investment to the BRICs over the past 15 years. Flows fell significantly after the bursting of the technology bubble, and despite a mild recovery in 2004, they remain only half the peak in 1998, when Brazil divested the Telebras system.
- Water has received a mere 3% of total BRICs investment, with most going to Brazil and China. Improvements in regulatory regimes could significantly boost the potential for private-sector investment in BRICs water and sanitation utilities.

CHAPTER TEN

WOMEN HOLD UP HALF THE SKY

May 2007



WOMEN HOLD UP HALF THE SKY

We profile the status of women across the BRICs, where Indian women generally fare worst and Russian women best on a range of educational, health, labour and political indicators. We see scope for upside potential to our BRICs growth projections if innovative and sustained investments in health and education can be made.

In developed and developing countries alike, the Chinese aphorism that 'women hold up half the sky' has long been more aspiration than fact. This is particularly true in terms of women's access to education and healthcare, and their participation in the labour force and in political institutions. Thanks to global economic growth and evolving views of women's roles over the past half-century, however, this has changed, and reality has moved closer to aspiration.

It is difficult—if not impossible—to generalise about the role and status of women in the BRICs, given the diversity of the countries and the many measures of women's status and experiences. However, it seems clear that sustained investments in women's health and education could be a source of upside potential to our long-term BRICs growth projections, which rest heavily on productivity gains and which assume unchanged levels of labour-force participation.

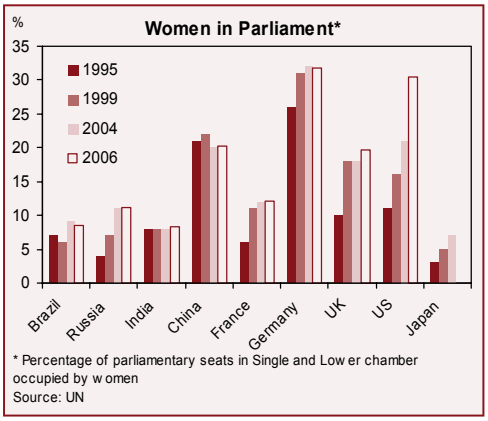
- This potential is clearest in **India**, which posts the worst relative performance on nearly every measure we evaluate. Indian women have the lowest labour-force participation rate, the lowest share of parliamentarians, the lowest life expectancy, the lowest literacy rate, the lowest level of enrolment in tertiary education, and the highest maternal mortality rate. Addressing these problems will require significant investment and innovative policies. If India can achieve this, we could see considerable upside to our current BRICs projections.

- At the other end of the scale is **Russia**, where women generally fare well in comparison not only to the other BRICs but also to the G6. Labour-force participation is in line with high-income countries, literacy is at virtually 100%, and women are strongly represented in tertiary education. The prevalence of HIV in Russia is the highest among the BRICs, but the share of women affected is the lowest. Parliamentary representation is low by G6 standards but still better than in India or Brazil. Overall, the scope for upside surprise arising from an improvement in women's conditions is limited, although Russian women are significant contributors today.

- **Chinese** women largely score well against their BRICs peers, outstripping them in political representation and labour-force participation, but lagging in tertiary education. In health and literacy, Chinese women fare slightly worse than those in Brazil and Russia but better than those in India. Here too, investments in health and education could pay significant benefits.

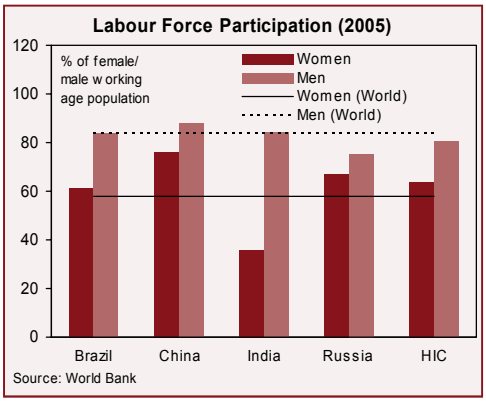
- **Brazil** shows a mix of strengths and weaknesses, pointing to solid upside potential. Female literacy is high, as is access to tertiary education (where women are better represented than in the Eurozone). But maternal mortality is high, and among the BRICs, Brazil has the highest share of women affected by HIV and the highest obesity rate. Political participation is little better than in India.

Sandra Lawson, David Heacock and Anna Stupnytska
May 16, 2007



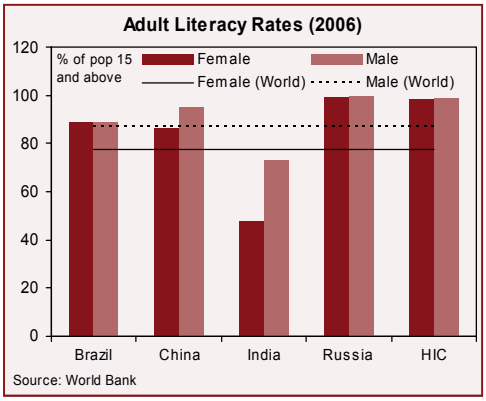
Despite Gains, Women Remain Under-Represented

- Women's participation in formal political institutions has traditionally trailed men's around the world. This holds true for the BRICs. Over the past decade, the share of women in national parliaments has risen significantly in the G6, particularly in the US, but the improvement in the BRICs has been less dramatic.
- China scores best among the BRICs, with 20% of parliamentary seats held by women, nearly twice as many as in Russia. In India, despite the historical experience of a female prime minister, women today hold just 8% of parliamentary seats.



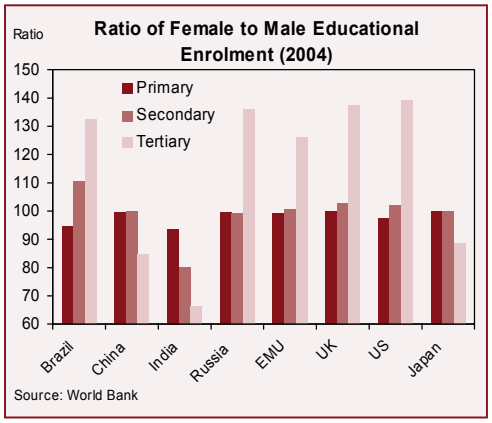
China Has Highest Female Employment Rate

- Increasing women's participation in the labour force is recognised as a critical factor in stimulating growth and in addressing the problems of gender inequality, ageing populations and pension sustainability.
- The gap between male and female participation rates is smallest in Russia; in fact the gap is actually smaller than in any of the G6. China has the highest female participation rate among the BRICs—more than twice as high as India's. China's share has edged down by 2ppt since 2000, while female participation has improved in Brazil and Russia but stagnated at an extremely low level—just 36%—in India.



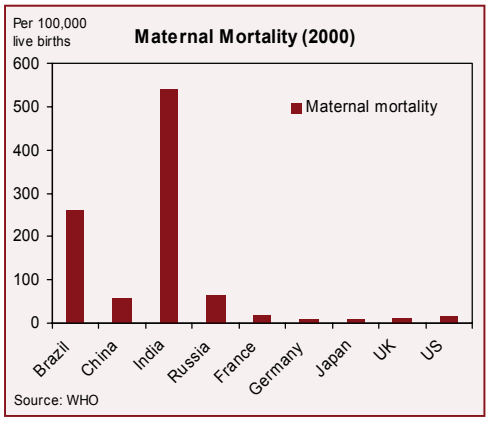
India Fares Worst in Female Literacy ...

- BRICs score well in literacy, a fundamental building block of learning. In three countries, female literacy rates match (China) or exceed (Brazil and Russia) the global average for men. This is true even though the gap between men and women in China is relatively high (9ppt). Russia is the standout, with literacy rates for both men and women at nearly 100%, a touch higher than in the high-income countries.
- The exception is India. Male literacy, at 73%, trails the world average, but the rate for women is far worse—below 50%. However, both men and women have posted an improvement of around 12ppt since 1990.



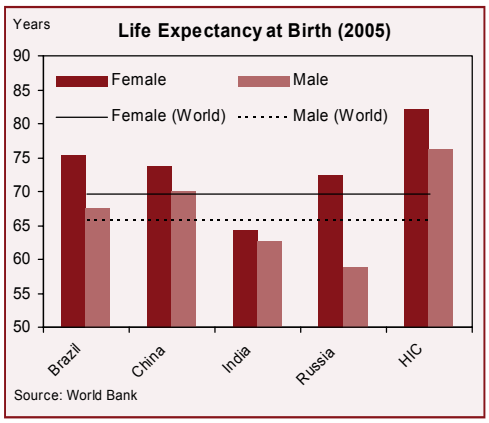
... and Has Largest Scope for Gains in Women's Education

- In developed countries, the level of men and women in both primary and secondary education is roughly at parity, while the number of women enrolled in tertiary schools greatly outnumbers men (with Japan the vivid exception).
- Among the BRICs, India is the clear laggard at every level of education. There are roughly nine women in primary school for every 10 men, eight in secondary school and seven in tertiary—compared with 13 in Brazil and 14 in Russia. China also lags the G6, even Japan, in tertiary education.



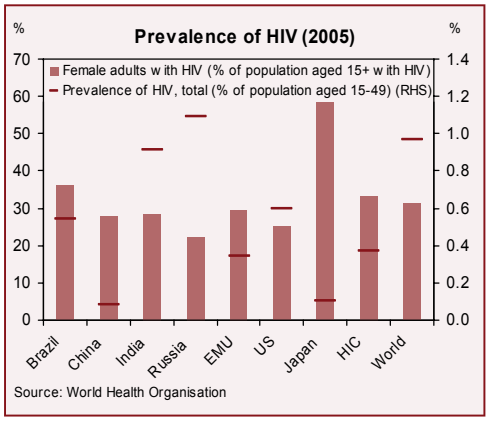
India Faces Acute Problems of Mortality

- Maternal and neonatal mortality remain among the most persistent health problems in the developing world. The UN's Millennium Development Goals call for maternal mortality to fall by 75% and for mortality for children under five to fall by two-thirds, both by 2015.
- These issues also pose a development challenge for the BRICs. India's per capita rates of maternal and neonatal deaths are remarkably high for a country without a recent history of war or ethnic strife, with 540 maternal deaths per 100,000 live births. Brazil also scores poorly, with more than four times as many maternal deaths as China.



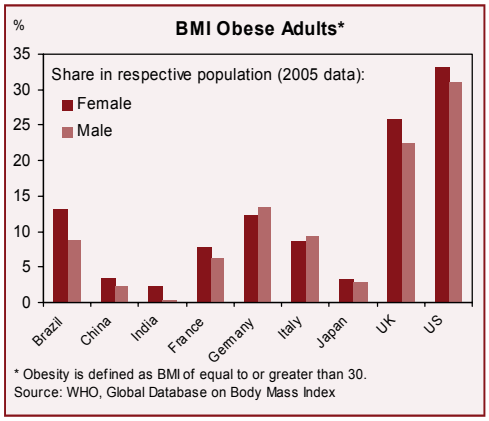
Women Live Longer, Still With Room to Improve

- As life expectancy increases, countries face a new set of challenges, including higher healthcare and retirement expenditures. These issues will be particularly important in the BRICs, where female life expectancy remains significantly higher than that for men.
- Russian women have fared better than men in the aftermath of the breakup of the Soviet Union: on average they now live 13 years longer than men. Life expectancies in India are below the world average for both women and men; for Indian women, life expectancy (64 years) is below even the global average for men.



Brazil Has Highest Share of HIV-Infected Women

- The WHO calculates that more than 40mn people worldwide live with HIV/AIDS, of whom nearly 8mn are in the BRICs. Without adequate prevention efforts, an additional 45mn people may become infected with HIV in low- and middle-income countries over the course of this decade.
- Among the BRICs, HIV prevalence is highest in Russia, though only 25% of the cases are among women. HIV hits women harder in the other BRICs, particularly in Brazil; women in China and India fare slightly better than the world average. Remarkably, nearly 60% of HIV cases in Japan are among women.

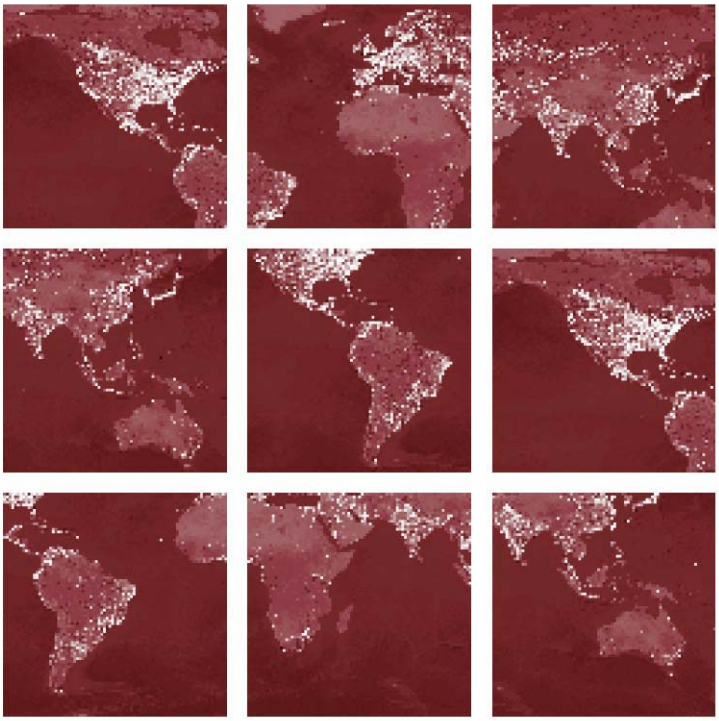


Obesity Is More Prevalent Among Women

- Weight problems represent a rapidly growing threat to the health of populations in developing countries. According to the WHO, two-thirds of overweight and obese people now live in developing countries; by the end of the decade, there will be more obese people in the developing world than in the advanced economies.
- In Brazil and China, more men than women tend to be overweight (though the difference is much smaller than in the G6). But there are more obese women than obese men in most countries. In India, both statistics are still relatively low, as undernutrition remains a problem.

SECTION TWO

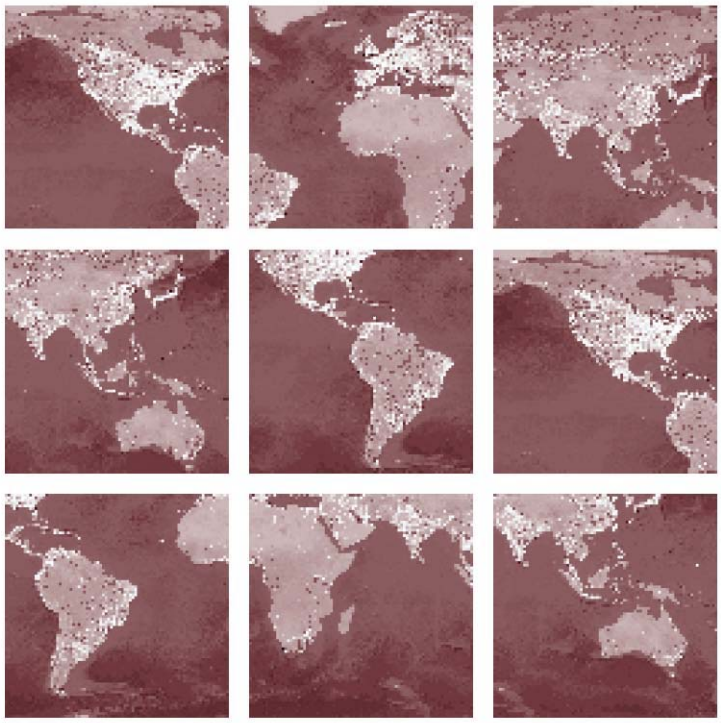
BEYOND THE BRICS



CHAPTER ELEVEN

THE N-11: MORE THAN AN ACRONYM

March 2007



THE N-11: MORE THAN AN ACRONYM

The N-11 Dream

Late in 2005, we introduced the concept of the Next Eleven (N-11). Our purpose was to identify those countries that could potentially have a BRIC-like impact in rivalling the G7. Their main common ground—and the reason for their selection—was that they were the next set of large-population countries beyond the BRICs. The result was a very diverse grouping that includes Bangladesh, Egypt, Indonesia, Iran, Korea, Mexico, Nigeria, Pakistan, Philippines, Turkey and Vietnam—some economies that are well-known to many investors (such as Korea and Mexico) but also many that are not (such as Nigeria, Vietnam, Pakistan and Bangladesh).

With the BRICs story now well-known—and perhaps in places also increasingly well-priced—we continue to be asked about the prospects for this next group of countries. Solid recent performance and some moves towards reforms have begun to pique investors' interest even in the less-well-followed members of the group.

What are the prospects for the N-11 over the next few decades? Can the N-11 'dream' become reality? What are the obstacles to success, and what would need to change to make success more likely? We aim to answer these questions—which we hear increasingly—in this paper.

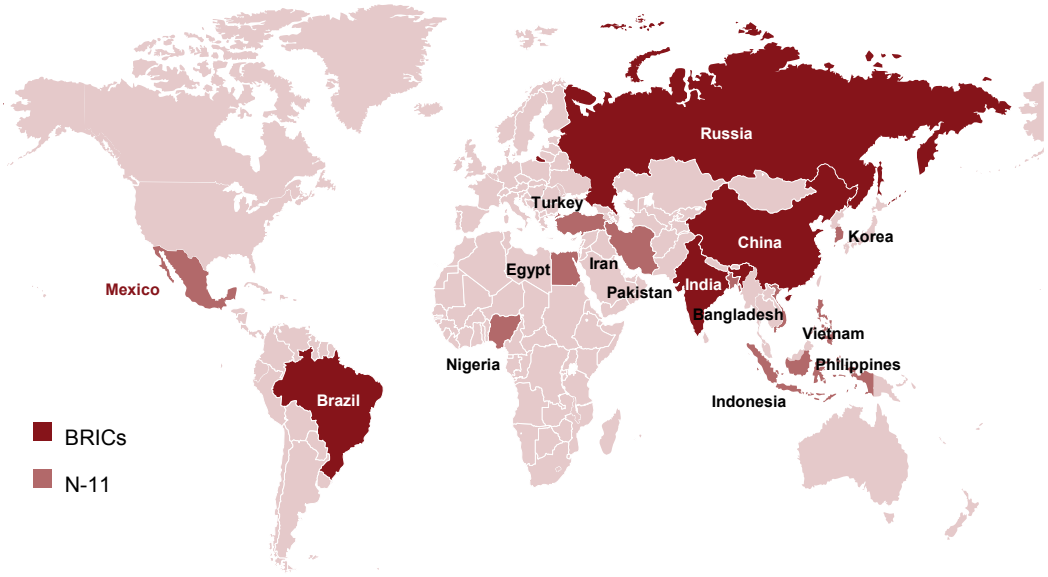
We take a similar approach to our 2003 BRICs analysis, looking in detail at what some simple assumptions for the growth process imply for the N-11 economies, and benchmark these against the BRICs and the G7. We also compare growth conditions, using our Growth Environment Scores (GES), highlighting the strengths and weaknesses across the group.

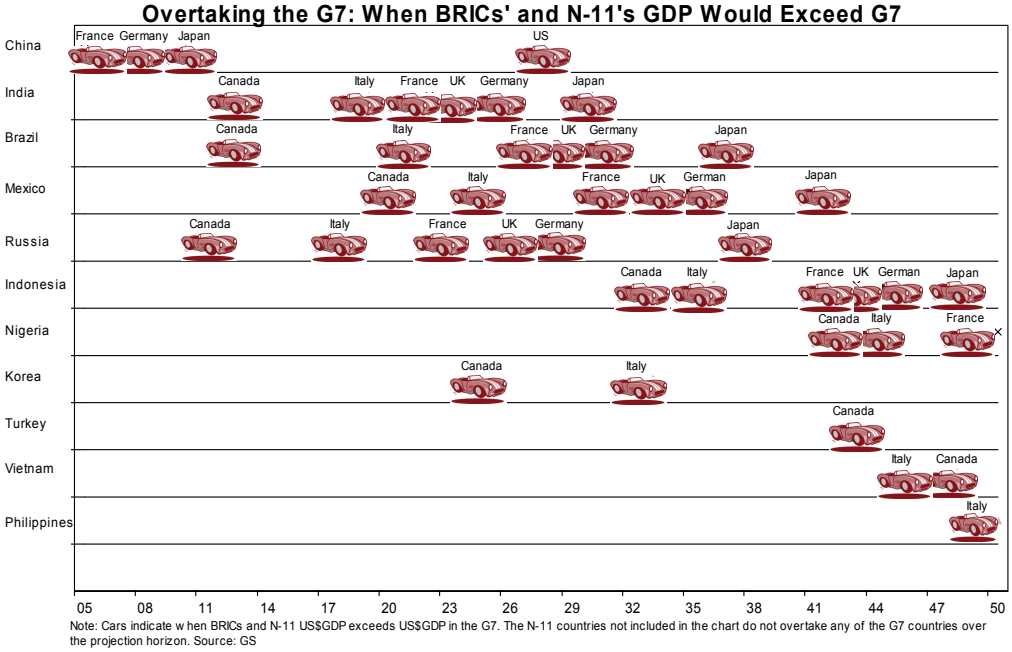
The diversity of the N-11 makes it difficult to generalise. But our projections confirm that many of them *do* have interesting potential growth stories, although their prospects vary widely and some face much greater challenges than others.

There is no question that the BRICs remain by far the bigger global story. Of the N-11, only Mexico, Korea and, to a lesser degree, Turkey and Vietnam have both the *potential* and the *conditions* to rival the current major economies or the BRICs themselves. Other N-11 economies—Indonesia and Nigeria in particular—have the scale to be important if they can deliver sustained growth. But while the rest of the N-11 may not have a BRIC-like impact any time soon, the N-11 as a group may have the capacity to rival the G7—if not in absolute terms, then at least in terms of new growth. And many of them could still deliver the kind of sustained growth stories in sizeable markets that will be increasingly hard to find in the developed world.

As with our BRICs projections, we are conscious of the leap of faith that is needed to believe that this potential might be realised. That is why we labelled our original BRICs projections a 'dream' and why we have focused so much on benchmarking growth conditions. For several of the N-11, that hurdle is even higher. But it is precisely this uncertainty—and the fact that some of these economies lie well off traditional radar screens—that makes parts of the N-11 so intriguing. If some of these economies can defy sceptics and take concrete steps towards

The BRICs, the N-11 and the World





Note: Cars indicate w hen BRICs and N-11 US$GDP exceeds US$GDP in the G7. The N-11 countries not included in the chart do not overtake any of the G7 countries over the projection horizon. Source: GS

addressing areas of weakness, their growth could be much higher. While the grouping may seem less coherent (indeed *is* less coherent) than the BRICs, this potential—and perhaps the diversification offered by their many differences—makes them an interesting group from an investment perspective.

Our GES suggest that concrete progress so far is uneven and modest, although several N-11 members have made their desire to move down this path clearer in the past year or two. They may not succeed, but they do merit closer attention as a result. Our focus here is less to 'pick winners' and more to provide a road-map for assessing the kind of growth that each of the N-11 could deliver and the problems that need to be addressed to achieve this.

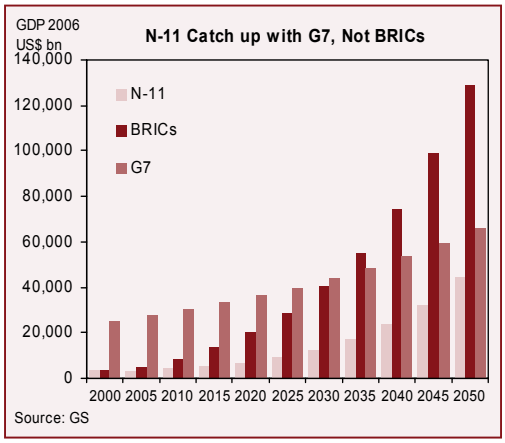
In gauging the chances of success, we are conscious that the recent global picture—high commodity prices, low real interest rates, solid global growth and low market volatility—has been unusually favourable for emerging markets. Until this environment is tested, it will be hard to know whether the recent optimism about some of these economies represents a fundamental sea-change or a cyclical boom. For the N-11, improving growth conditions while the global backdrop is benign is likely to offer the best chance of weathering the next storm, whenever it comes.

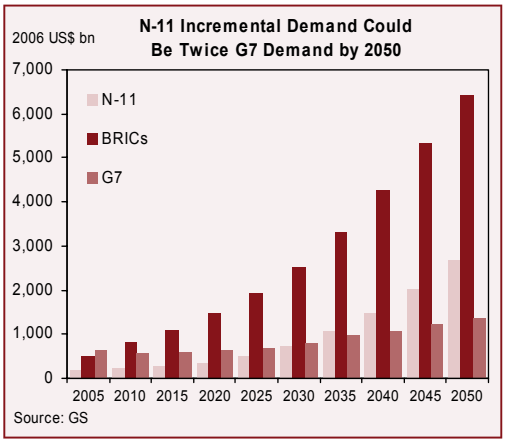
Highlights of the N-11 Dream

Below, we look at the N-11's recent performance, the projections for an N-11 dream, their growth conditions and the potential for change. Here, we summarise some of the key highlights:

Recent performance

- The N-11's weight in the global economy and global trade has been slowly increasing, with a contribution to global growth of around 9% over the last few years.
- Only Vietnam has managed growth comparable to China, Russia and India, but five of the N-11 have averaged 5%-plus growth over the last five years.

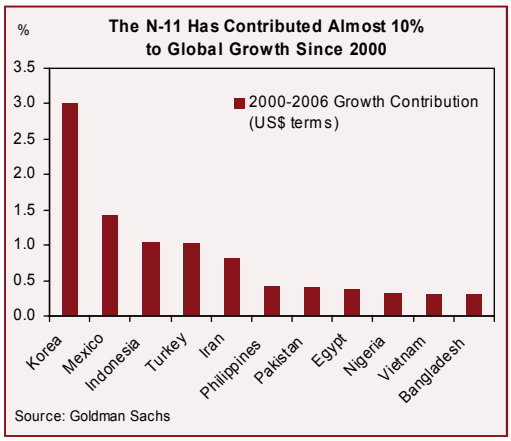


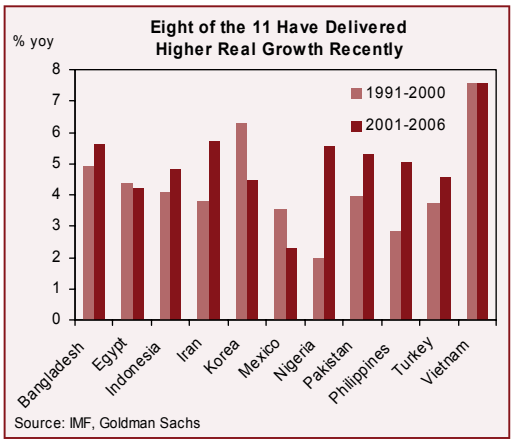


- Growth has generally risen across the group. Recent growth performance has been quite stable, and the dispersion in growth is the lowest in 20 years.
- Equity market performance has varied: five of the N-11 have seen gains of more than 300% since 2003, with Vietnam up a spectacular 500% since 2003 (albeit in a very heavily concentrated index), but risk premia remain high in several places.
- There has been a sharp increase in openness to trade in several of the N-11 over the last five to ten years, particularly in Vietnam, Egypt and Turkey.

Growth prospects

- Although the N-11 is unlikely to rival the BRICs in scale, N-11 aggregate GDP could reach two-thirds the size of the G7 by 2050.
- All of the N-11 have the capacity to grow at 4% or more over the next 20 years, if they can maintain stable conditions for growth.
- Incremental new demand from the N-11 could conceivably overtake the G7 in around 25 years and be twice that of the G7 by 2050, so their growth contribution will rise faster.
- Of the N-11, only Mexico and Indonesia have the potential to rival all but the largest of the G7, but Nigeria, Korea, Turkey and Vietnam might all overtake some of the current G7.
- Even with solid growth, only Korea and Mexico (and perhaps Turkey) are likely to have a reasonable chance of catching up to developed country income levels over the next few decades. The ranking of income levels is less likely to change than the ranking of economic size.
- Other N-11 countries could still see large rises in incomes, with Vietnam potentially the most spectacular, with a more than fivefold increase possible in the next 25 years.
- The shifts towards current developing economies and towards Asia, currently driven by the BRICs, are likely to be reinforced if the N-11 dream becomes reality.





Diversity Within the N-11

As the tables below show, the N-11 are a diverse group on many levels:

- **Broad representation across major regions**, with one economy each from Europe, Latin America and the Middle East; one from Latin America; two from Africa; two from the Sub-Continent; and four from East and South-East Asia. The map on page 132 shows the pattern of the N-11 and BRICs, highlighting the concentration in Asia.
- **Huge variation in development levels**. Korea (although classified as an emerging market in financial terms) is in most respects a developed economy, with income levels more than twice as high as any of the N-11 countries. Along with Mexico, the next richest, it is already an OECD member. Turkey too is quite well-off by developing standards. By contrast, Bangladesh is one of the world's poorest countries.
- **Levels of urbanisation, openness to trade and the role of FDI in the economy** also vary markedly, with the less developed economies showing a strong rural bias and direct foreign involvement in the economy ranging from non-existent (Iran) to significant (Nigeria and Vietnam). But trade shares are generally quite high at 60% of GDP in 2005. Four economies boast higher trade shares than China—the most open BRIC.

BRICs and N-11 2006 Economic Snapshot

	GDP (US$bn)	2001-06 Average GDP Growth Rate (%)	GDP Per Capita (US$)	Population (mn)	Urbanisation (% Total)*	Trade openness (% GDP)	FDI (% GDP)*	Current Account (% GDP)	Inflation (% yoy)
Bangladesh	65	5.7	427	144	25.0	45.8	1.1	-0.3	6.8
Brazil	1,068	2.3	5,085	187	84.2	22.7	1.7	1.4	4.2
China	2,701	9.8	2,041	1,314	40.5	65.2	3.2	8.6	1.5
Egypt	101	4.2	1,281	72	42.3	58.9	6.4	1.8	7.3
India	915	7.2	696	1,113	28.7	33.2	0.8	-2.4	5.6
Indonesia	350	4.8	1,510	222	47.9	58.1	1.9	2.4	13.1
Iran	212	5.7	3,768	70	68.1	54.5	0.0	10.0	14.0
Korea	887	4.5	18,484	48	80.8	72.5	0.9	0.7	2.2
Mexico	839	2.3	7,915	104	76.0	56.6	2.4	-0.4	3.6
Nigeria	115	5.6	919	150	48.3	71.0	3.5	15.7	9.4
Pakistan	129	5.3	778	155	34.8	39.4	2.0	-3.9	7.9
Philippines	118	5.0	1,314	87	62.6	101.0	1.2	3.1	6.3
Russia	988	6.2	6,908	143	73.3	43.4	1.9	10.3	9.9
Turkey	403	4.6	5,551	73	67.3	55.1	2.7	-8.0	10.2
Vietnam	61	7.6	655	84	26.7	143.2	3.8	0.1	7.6

* 2005 data; ** Latest reported
Source: IMF, World Bank, UN, GS

BRICs and N-11 Markets Snapshot

	FX Reserves (US$bn)*	Local Currency/USD (Jan 03=100)	Deposit Rate**, %	Equity Market Indices (Jan 03=100)***	MSCI 12-Month Forward PEs	Market Cap (US$ bn)****
Bangladesh	4.4	119	8.1	261	na	na
Brazil	109.2	57	17.6	497	9.9	824
China	1,157.4	92	2.3	404	17.5	480
Egypt	24.7	105	7.2	418	12.1	na
India	200.7	91	5.5	451	17.9	743
Indonesia	47.3	102	8.1	530	13.4	140
Iran	na	116	11.8	na	na	na
Korea	246.8	79	3.7	278	12.3	809
Mexico	77.0	98	3.5	523	14.3	381
Nigeria	43.2	101	10.5	386	na	na
Pakistan	12.2	104	7.0	541	12.2	49
Philippines	21.9	90	5.6	346	17.5	83
Russia	394.4	82	4.0	549	10.5	932
Turkey	66.3	81	20.4	434	10.1	172
Vietnam	13.4	104	7.1	594	na	na

* Latest reported; **End 2005; *** Local Headline Indices except China where MSCI is used; **** Using Datastream Equity Indices
Source: IMF, World Bank, Bloomberg, Datastream

Diversity Within the N-11 (*Continued*)

- **Population size** is also quite different across the group. While all of the N-11 are (by design) relatively large, and none rivals China or India, populations vary from around 50mn for Korea to well over 200mn for Indonesia.
- **Market development and investor focus** also differ. While five of the N-11 (Turkey, Korea, Indonesia, Philippines and Mexico) are commonly found in emerging market investment indices, the other six generally attract much less interest. The ability to access the markets also varies widely.

Growth conditions and GES

- The capacity to deliver on this growth potential—and underlying growth conditions—varies greatly across the N-11. Korea rates higher than most developed countries, including the US, while Bangladesh, Nigeria and Pakistan rank in the lowest third of all countries.
- Of the N-11, only Korea and Mexico (and to a lesser extent Turkey and Vietnam) appear to have both the potential and conditions to rival the current major economies.
- Korea and Mexico—unsurprisingly as OECD members—are the only economies where most components of our GES are above the developing country mean. Bangladesh, Pakistan and Nigeria have broad and systematic issues across a range of areas. The other economies generally have specific areas of weakness.

Potential for change and growth bonuses

- Within the N-11, Vietnam is the closest to 'Best in Class' levels of the GES, while Nigeria is the furthest away.
- While many N-11 governments appear more focused on enhancing growth conditions, hard measures such as the GES have not yet captured significant broad progress, except in Turkey (and to a lesser extent Iran).
- Since our projections account to some extent for current growth conditions, significant progress in improving growth conditions could lead to substantial growth bonuses in some places beyond these projections. This bonus could be as much as 3%-4% in Bangladesh, Nigeria and Pakistan.

Ranking the N-11 Today and in 2025

	2006 GDP		2025 GDP		2006 Income per capita		2025 Income per capita		Average Growth		GES	
	US$ bn	Rank	US$ bn	Rank	US$	Rank	US$	Rank	2001-06	2007-2025	Index	Rank
Korea	887	1	1,861	2	18,161	1	36,813	1	4.5	3.4	6.9	1
Mexico	851	2	2,303	1	7,918	2	17,685	2	2.3	4.3	4.6	2
Turkey	390	3	965	4	5,545	3	11,743	3	4.6	4.1	4.0	5
Indonesia	350	4	1,033	3	1,508	5	3,711	6	4.8	4.7	3.4	8
Iran	245	5	716	5	3,768	4	9,328	4	5.7	4.2	4.4	4
Pakistan	129	6	359	9	778	9	1,568	10	5.3	5.0	3.1	10
Nigeria	121	7	445	7	919	8	2,161	9	5.6	5.8	2.7	11
Philippines	117	8	400	8	1,312	6	3,372	7	5.0	5.1	3.6	7
Egypt	101	9	318	10	1,281	7	3,080	8	4.2	5.0	3.7	6
Bangladesh	63	10	210	11	427	11	1,027	11	5.7	5.1	3.2	9
Vietnam	55	11	458	6	655	10	4,583	5	7.6	7.2	4.5	3

Source: GS

- These changes would be enough to alter the path of the projections, perhaps dramatically. With a significant improvement to growth conditions, for instance, both Nigeria and Indonesia could rival the smaller of the BRICs over time.

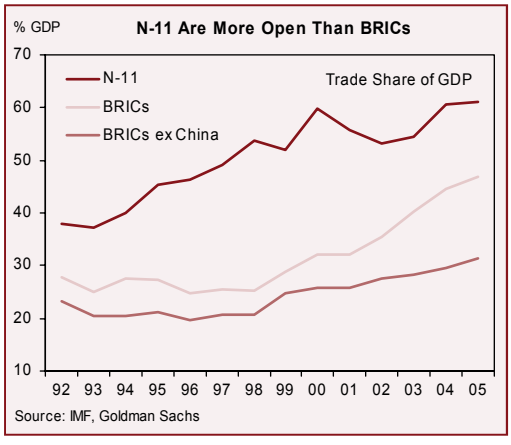
A Good Patch for N-11 Performance

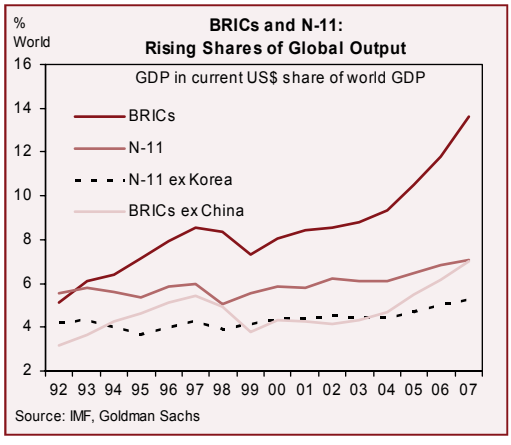
When we conceived the notion of the N-11 grouping in late 2005, our goal was to identify other countries that might have the kind of potential for global impact that the BRICs projections highlighted (essentially an ability to match the G7 in size). As a result, the main criterion was demographic—without a large population, even the best growth stories are unlikely to have meaningful regional or global impact. The result is that the N-11 is essentially a group of many of the large-population, developing economies outside the BRICs themselves. The list includes Bangladesh, Egypt, Indonesia, Iran, Korea, Mexico, Nigeria, Pakistan, Philippines, Turkey and Vietnam. They are similar in terms of population and potential economic size, but beyond that, the N-11 are a diverse group on many dimensions, including regional representation, level of economic and market development and integration with the global economy.

Despite these variations, we have found generally increased investor focus across this group of countries, even in those that have not been in the spotlight much until recently. This increased focus partly reflects a period of better economic performance across the group. Over the last three years, GDP growth across the N-11 has averaged 5.9%, the strongest in 15 years. And while only Vietnam's growth rivals the three fast-growing BRICs (China, India and Russia), six of the N-11 have managed more than 5% growth over the past five years.

This represents a step up from previous years. Comparing the last five years to the decade before, eight of the 11 (Korea, Mexico and Vietnam are the exceptions) have delivered higher growth more recently. Performance has also been more reliable and more uniform than in the past. Not only has the volatility of growth fallen recently, but dispersion in growth across the group has fallen to its lowest levels in decades.

The improved economic performance extends beyond the growth picture. Inflation has fallen in many of the N-11, sharply in some cases, and most of their current accounts are now in surplus. There has also been a marked pick-up in integration with the world economy in some





Our Revised BRICs Projections

In the process of updating, we have also revised our BRICs projections for the latest information and the closer links between conditions and convergence speeds. While our focus here is on the N-11, we detail some of the main changes here, given the large amount of attention the BRICs projections have received.

In general, the new projections show the BRICs as a group growing more rapidly than before. As a result, China surpasses the US earlier (2027 vs 2035) and overtakes more dramatically than before (by 2050 it is projected to be 84% larger rather than 41% before), while India too essentially catches up with the US by 2050, where before it was projected only to reach 72% of the US economy. Both Russia and Brazil's projections are also somewhat higher.

The BRICs as a group now pass the G7 in 2032 rather than 2040. Stronger recent performance, the recent upward revisions to Brazil's GDP (which show the economy there now around 11% higher than previously recorded) and somewhat more optimistic assumptions about productivity growth are the main contributors.

Although the BRICs projections have become more optimistic as a result, our regional economists—at least for China and India—continue to produce work that suggests that their growth paths (at least over the next ten or 20 years) may still not be optimistic enough. For instance, Tushar Poddar's latest work on India suggests that the economy's sustainable growth rate might be around 8% until 2020 (not the average of 6.3% in our projections) and that India could overtake the US before 2050 (see *Global Economics Paper* No. 152 'India's Rising Growth Potential', January 22, 2007).

Our projections could be seen as conservative, as our country economists for both China and India currently believe. However, over a time span as long as the one we have used, there will likely be surprises in both directions. As a broad cross-country comparison, it is also important to stick to a transparent and consistent framework across the different groups.

The advantage of this approach is that it makes results clear and comparable. The disadvantage is that no simple framework will ever take into account all the specific factors that a country expert might see. Looking at those specific factors, our 'official' Chinese and Indian *forecasts* from our economists for the next decade or two would likely be higher than the projections offered here. Our goal is not to provide an explicit forecast (a task we leave to our country economists), but rather to provide a reasonable way of benchmarking potential across a large group of economies.

countries. Trade openness in Vietnam, Egypt, Turkey and Pakistan has increased significantly over the past several years, with the most striking change in Vietnam, where the share of trade in GDP has risen more than 35 percentage points since 2000. The latter three countries, along with Indonesia, have also seen a pronounced rise in FDI shares.

As a result of these shifts, the N-11's weight in the global economy has slowly increased. Their share in global GDP has edged up to 7% today, up around 1 percentage point since the beginning of this decade, and, between 2000 and 2006, the N-11 on average contributed just over 9% to global growth in $ terms. Korea accounted for almost of third of this, with Mexico, Indonesia and Turkey each accounting for over 1 percentage point of the total contribution. The N-11 share in global trade has also grown a touch in the past several years, surpassing 8% in 2005, and their share in global FDI has risen steadily since 2003, reaching 6% of total world flows in 2005. While these shifts are generally less dramatic than for the BRICs, they do show that the last few years have been a period of slowly rising influence.

Reflecting improved economic fundamentals, N-11 equity markets have generally performed well. Market breadth and depth differ enormously, but eight of the 10 that have functioning equity markets have seen gains of more than 200%, with several delivering 'BRIC-like' returns over the period. Vietnam has the best-performing local headline index: it has risen dramatically by over 500% since 2003, outperforming all of the BRICs. For many of the N-11, though, multiples remain lower, so markets trade at a discount to the developed markets and, in general, to the BRICs (with the exception of Brazil).

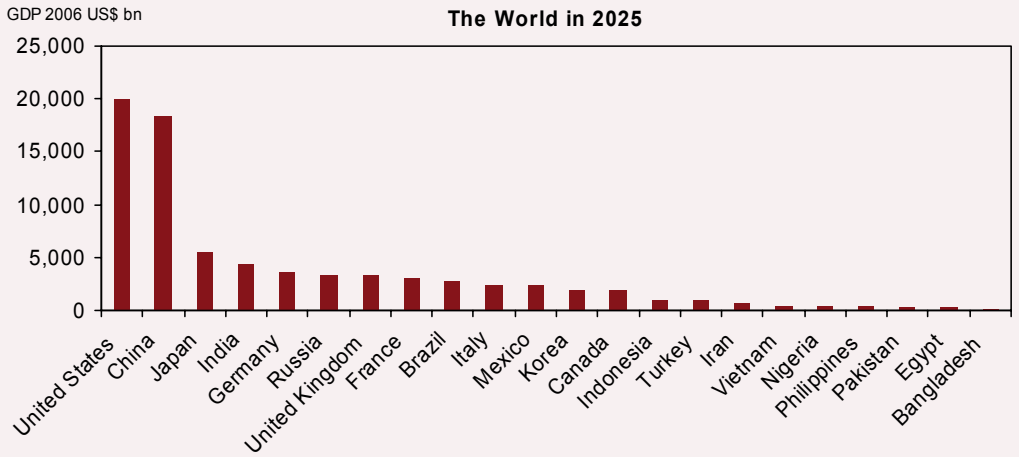
Of course, this improved performance and the key ingredients—robust growth, falling inflation, reduced volatility, strong equities—are part of a broader story of the emerging economies, and a reflection of an economic landscape that has been generally very favourable. So, the degree to which performance has been *distinctive* relative to emerging markets in general varies across the group. Nor does the recent success tell us that this performance is sustainable. We turn to that issue now.

N-11 Projections: Sustained Growth...

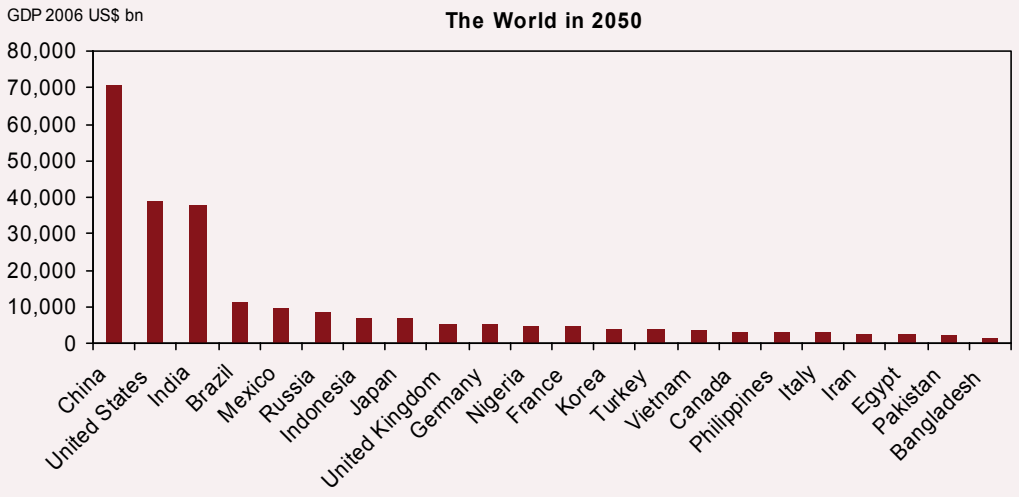
In our 2005 paper, we looked briefly at the growth and GDP projections for the N-11, and compared them to the BRICs and the G7. We update that exercise in more detail here, and in the process update our BRICs and G7 estimates for the latest data.

We are often asked how to interpret these projections. As we have said on many occasions, these are not 'forecasts' but rather a look at what might happen under reasonable assumptions if these economies can stay on their current paths. As before, we use a simple model of growth as a function of growth in the labour force, capital accumulation and a process of convergence in technology with the developed markets that drives productivity growth performance. While the model is a simple one, it allows us to make consistent and integrated projections for the path of growth, incomes and the currency.

One innovation in the latest projections is that we use our measure of growth conditions (Growth Environment Scores, GES) to generate our assumptions on the speed with which productivity catch-up will take place, at least in the initial stages. We have accounted for differences in conditions in each economy in the past by allowing for different assumptions about the speed of catch-up in productivity. We now pin that link down more precisely.



Source: Goldman Sachs



Source: Goldman Sachs

Source: Goldman Sachs

Our updated projections once again reinforce our original conclusions about the unique quality of the BRICs dream. As before, China would still be the largest economy in 2050, followed by the US and India, and the BRICs are now all projected to be in the top five (recent revisions to Brazil's GDP data have helped). The latest data shows the BRICs themselves overtaking the G7 somewhat faster than usual, reinforcing our view that the BRICs 'dream' that we set out in 2003 is still *the* biggest potential story. And both in China and India, our economists think the path may well be faster than our projections.

Although as a group the N-11 will not plausibly overtake the BRICs or G7 in GDP terms even over long horizons, the next few decades could still bring about some crucial changes. In particular, by 2050 the N-11 could also go a long way towards catching the developed countries—growing from just over one-tenth of G7 GDP today to around two-thirds over the next several decades.

Several of the N-11 countries will also move closer to the top. Since small differences in projections across countries should not be taken too seriously, it is helpful to think of the N-11 in groups. Looking at the snapshot for 2050, we can distinguish three broad groups that the countries fall into according to our projections:

- **Countries that could overtake the bulk of the G7 by 2050**. On our projections, both Mexico and Indonesia fall into that category, with the capacity to maintain or reach sizes comparable to Russia and Brazil. Although on the current projections Indonesia still stands slightly behind Japan, only the US of the current G7 would be clearly larger than these two N-11 economies.

- **Countries that could overtake some of the G7 members.** Nigeria, Korea, Turkey and Vietnam all have the potential to overtake some of the current G7 members, with Nigeria potentially the largest of this next group.

- **The rest, which do not catch up with the developed world.** This group includes all other N-11 countries that are unlikely to grow large enough to challenge even the smallest of the G7 countries and would thus continue to contribute quite modestly on a global basis. However, they may ultimately have the potential to become similar to the smaller of today's G7 in terms of size. This group comprises Philippines, Iran, Egypt, Pakistan and Bangladesh.

With the right growth conditions, the N-11 generally have the capacity to deliver continued strong growth, with all of the projections pointing to average growth rates over the next 20 years of over 4%. Vietnam, Nigeria and Bangladesh show particularly strong potential growth profiles, although the capacity to sustain them is probably quite different across the group.

As large and growing markets, relative to a slowing developed world, these economies could offer greatly increased opportunities if the 'dream' becomes reality, even if their global impact is unlikely to challenge the BRICs. As a source of new demand, they could become important quickly. Although the BRICs story remains larger, the annual increase in the size of the N-11 (and so their contribution to incremental demand) is projected to exceed that of the G7 in 2033 and be twice as large by 2050. So, as a source of new growth opportunities, they could potentially be very important as developed market growth slows.

...and Rising Incomes

The projections paint a very different picture for the pattern of average incomes globally. As before, the US may still be the wealthiest of the large economies in 2050 and all G7 economies may remain in the top 10.

The N-11 could also see a substantial rise in incomes. Incomes are generally projected to more than double in the next 20 years, with a spectacular sixfold increase potentially in Vietnam. Only Korea appears to have the capacity to catch up more or less completely in income terms with the richest economies over the next few decades. Helped by a relatively high starting point, its demographic profile and robust growth, it is projected to continue to have much the highest income of the group (as it is now), while Mexico and Turkey are also projected to remain the second- and third-richest economies. Only Vietnam's strong projected growth could drive it sharply up the income rankings within the N-11.

Looking across all the countries, the projections imply four main groups:

- **The 'rich' club**. This group, with incomes of $65,000 or more, would include six of the G7 countries (ex Italy), Russia from the BRICs and only Korea from the N-11 countries. A literal reading of the projections places Korea towards the top end even of the current developed country group.

- **Upper-middle-income group.** These are countries whose incomes surpass the current US level but do not join the ranks of the very richest, with incomes between $40,000 and $65,000. They would include Italy, Mexico, two BRICs countries (China and Brazil) and Turkey. Given that its 2050 income is projected to be in line with current US levels, Turkey could be the richest N-11 country not currently in the OECD.

- **Lower-middle-income group.** This group, with incomes between $20,000 and $40,000, would include many of the N-11. Vietnam and Iran have the potential to become as rich as Germany today. Indonesia, Egypt, Philippines and India might become as rich (or even richer) than the richest N-11 country today, Korea.

- **The low-income group.** With incomes below $20,000, this group would include Nigeria, Pakistan and Bangladesh—the only N-11 economies that are not projected to reach the levels that qualify for high-income status even at today's income levels. However, Nigeria's income is projected to be more than twice that of the other two countries. Even if they only make partial progress towards catching their peers, their projected incomes would still be *much* higher than current low levels.

Growth Conditions and the GES Are Critical for the N-11

Whether these projections become a reality will depend critically on whether growth conditions are maintained. That is arguably an even thornier issue for the N-11 than for the BRICs.

We have devoted a lot of attention to benchmarking growth conditions over the last two years, introducing our GES to provide a systematic way of comparing progress in key areas. The

GES Components in the BRICs and N-11

	2006 GES	1995 GES	Inflation	Gov't Deficit	Ext Debt	Investment	Openness	Schooling	Life Expectancy	Political Stability	Rule of Law	Corruption	PCs	Telephones	Internet
High Income Group Best in Class	***9.3***	***na***	***10.0***	***10.0***	***9.5***	***5.2***	***8.5***	***10.0***	***10.0***	***10.0***	***10.0***	***10.0***	***9.0***	***9.2***	***10.0***
Korea	6.9	na	9.3	5.4	8.2	5.2	4.3	8.0	9.0	7.4	6.9	5.3	5.9	6.2	8.3
Upper Middle Income Group Best in Class	***8.0***	***na***	***10.0***	***7.2***	***10.0***	***7.3***	***10.0***	***5.8***	***9.3***	***8.5***	***8.0***	***7.3***	***10.0***	***4.9***	***6.3***
Mexico	4.6	na	9.0	4.9	8.7	3.4	4.1	3.7	8.6	5.8	4.2	3.2	1.2	2.0	1.7
Turkey	4.0	na	8.0	1.5	5.8	3.9	3.5	2.0	7.4	5.2	5.4	4.4	0.6	3.1	1.8
Lower Middle Income Group Best in Class	***7.1***	***na***	***9.9***	***8.2***	***9.8***	***10.0***	***9.5***	***5.4***	***8.4***	***9.3***	***6.5***	***6.1***	***1.2***	***4.1***	***3.6***
Iran	4.4	na	6.8	6.8	9.8	5.1	3.4	2.9	7.6	3.8	3.6	3.1	1.2	2.5	1.0
Egypt	3.7	na	7.2	2.1	7.1	2.7	3.2	3.3	7.5	4.4	5.3	3.2	0.3	1.5	0.7
Indonesia	3.4	na	7.4	4.4	5.7	3.6	4.2	2.4	6.9	3.2	3.3	2.2	0.1	0.5	0.8
Philippines	3.6	na	8.1	2.6	4.2	2.8	6.0	3.5	7.6	3.9	4.1	2.8	0.5	0.5	0.7
Lower Income Group Best in Class	***6.2***	***na***	***9.6***	***7.6***	***9.0***	***7.4***	***8.0***	***6.0***	***9.4***	***8.5***	***5.5***	***4.3***	***1.3***	***2.3***	***1.7***
Pakistan	3.1	na	7.7	4.0	7.3	2.5	2.4	1.9	6.4	2.6	3.5	1.8	0.0	0.3	0.2
Nigeria	2.7	na	5.5	4.1	6.1	3.8	5.2	1.9	1.8	2.4	2.2	1.3	0.1	0.1	0.2
Vietnam	4.5	na	8.0	4.2	7.1	2.9	8.0	4.5	7.5	7.2	4.3	2.4	0.1	0.8	0.9
Bangladesh	3.2	na	8.3	4.6	7.4	4.2	2.4	1.0	6.0	2.7	3.3	1.4	0.1	0.1	0.0
N-11 Ave	**4.7**	**na**	**8.2**	**4.8**	**7.6**	**4.6**	**5.3**	**3.7**	**7.4**	**5.3**	**4.7**	**3.5**	**1.6**	**2.1**	**2.0**
Brazil	4.2	3.1	8.3	3.8	7.3	3.3	2.8	1.6	7.7	6.1	4.4	3.5	1.1	2.6	1.5
China	4.9	4.3	9.6	4.2	9.4	7.4	5.5	3.1	7.8	6.0	4.2	2.6	0.4	2.8	0.9
India	3.9	3.4	9.0	2.8	9.0	4.1	3.9	1.8	6.0	4.5	5.5	3.5	0.1	0.5	0.4
Russia	4.4	3.3	6.9	7.2	7.5	3.0	4.1	5.8	6.4	4.0	3.4	2.5	1.4	2.9	1.4
BRICs Ave	**4.3**	**3.5**	**8.4**	**4.5**	**8.3**	**4.4**	**4.1**	**3.1**	**7.0**	**5.1**	**4.4**	**3.0**	**0.8**	**2.2**	**1.1**

Source: GS

GES measures 13 components across five broad areas—macroeconomic stability, macroeconomic conditions, human capital, political conditions and technology—to assess the growth environment.

Our projections already explicitly account to some extent for the large differences in conditions across the N-11, since we have used them to determine the speed of catch-up in productivity. But growth conditions—and GES scores—almost certainly play a role in determining the likelihood of the projections. Those with significant weaknesses here are much more likely to disappoint than those that are in better shape, and the projections much less clear as a benchmark.

The table above shows the variation in GES scores across the group, from Korea at the top, which is a standout even relative to most developed countries, to Bangladesh, Pakistan and Nigeria, who all lie in the bottom third of all economies. As a group, the N-11 currently has less favourable GES scores than the BRICs. And while their average score is above the developing country mean, this is entirely due to Korea's high GES—without it, the group average falls below the mean.

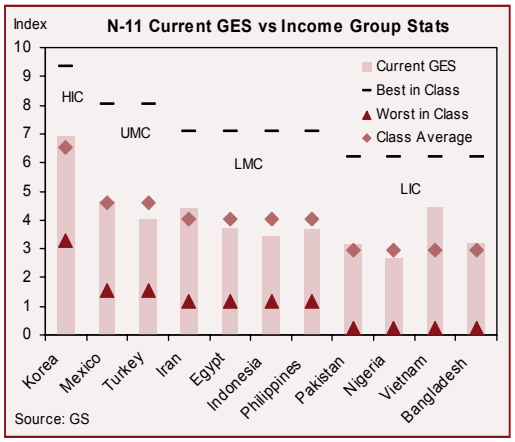
We argued in our GES paper that it is a little unfair to benchmark countries against each other or an average, since success on some components is in part determined by income levels (it is unusual for very poor countries to be able to deliver very high levels of technological penetration, so the causation runs both ways). As a result, in that paper, we compared economies to the best-performing peers at comparable income levels—what we called 'Best in Class' levels. We do the same here.

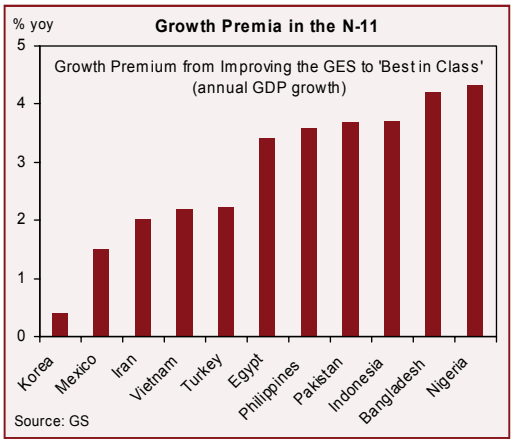
These GES comparisons point to three broad groups in terms of growth conditions:

- Countries with a relatively broadly **good growth environment**, ranking higher than the developing country mean on most measures. This group includes the two OECD countries, Korea and Mexico. Korea is a standout on the GES metric—its score is even above the developed country mean, particularly driven by high levels of technology and human capital. Political conditions and fiscal issues are areas of relative weakness. Mexico stands above the developing world on all components except investment, faring especially well on human capital and macroeconomic stability, but poorly on macro conditions (investment and openness) and technology.

- Countries with **specific weaknesses** in a few areas requiring attention. This group includes Turkey, Vietnam and Iran—countries that on average rank above the developing country mean but underperform in a few areas. All three countries score below the mean on some of the macroeconomic stability variables (government deficit in Turkey and Vietnam, and inflation in Iran). Iran scores poorly on political conditions, and Turkey on openness and technology. While Vietnam lies below the mean in several areas, its weaknesses are largely a function of income. Relative to its peers, it is actually closest to the Best in Class levels of the N-11.

- Countries with **broad-based weaknesses,** which need improvement in almost all categories. This group has the rest of the N-11: Egypt, Indonesia, Philippines, Bangladesh, Nigeria and Pakistan. Even within this group, there is broad variation, and the gap between highest and lowest-scoring is large. The most striking feature is this group's marked weaknesses in political conditions, with all sub-components below the developing country mean (Egypt is a partial exception, ranking relatively well on rule of law and corruption). Fiscal management is another area of general underperformance. Nigeria's life expectancy, levels of education in Bangladesh, and investment rates in the Philippines, Indonesia, Pakistan and Egypt also stand out as issues. In terms of strengths, all countries (except Philippines) are well placed on the external debt category; Egypt and Philippines stand out on human capital; Philippines, Indonesia and Pakistan score well on openness.





Are the N-11 Small-Scale or Late-Starting BRICs?

How should we think of the N-11 relative to the BRICs? Are they simply at an earlier stage of a BRICs-like process, a smaller-scale version of the current BRICs, or something completely different? We look at a number of globalisation and development variables, and compare where the N-11 stand now relative to the BRICs currently and in the past.

Apart from looking at the N-11 and BRICs aggregates, we also add two sub-groups to our comparisons: N-11 ex-Korea and BRICs ex-China. Korea and China are the largest economies within their groups and stand out on a number of parameters, so might skew the aggregates to some extent. It is helpful to see where other economies might also play a role and where these exert most of the influence.

Comparing the N-11 to the BRICs today, the BRICs are a larger grouping, with a 12% share of global GDP compared with around 7% for the N-11, and around twice the population. But the N-11 is already a higher-income grouping (even excluding Korea) and is both more urbanised and more open to trade (the N-11 trade share is 60% of GDP compared with 47% for the BRICs). And while the BRICs has a higher share of global trade now, this is a comparatively recent development, brought on by China's rapidly growing trade (before 2003 the N-11 had the larger share).

Nor is it the case that the N-11 are comparable to the BRICs at some earlier stage in their growth path. While the BRICs in 1995 *did* have a global output share comparable to the current N-11, they were much poorer (around one-third of current N-11 income levels), even less open to trade and more rural on a relative basis than now.

To the extent that there is an informative comparison, the N-11 as a group looks similar in scale and income levels to the BRICs ex-China. But as a grouping composed of a larger number of smaller economies, the N-11 are even more open to trade (roughly double the trade share of the BRICs), a larger share of global trading activity and considerably more urbanised.

These differences in the N-11 profile suggest that the integration of the N-11 into the world economy has already progressed quite significantly, and that the repeat of the BRICs integration story (which has been a great influence on the world economy and relative

N-11 vs BRICs

	Current (Latest available)				1995
Variable	N-11	N-11 ex Korea	BRICs	BRIs	BRICs
Share of Global Output, %	7.1	5.2	13.6	7.0	7.1
Average Income, US$	3,121	2,390	2,596	2,580	903
Share of Global Trade, %	8.4	5.8	10.4	3.6	5.6
Share of Trade in GDP, %	61.2	58.4	46.8	31.5	27.2
Share of Global Energy Consumption, %	8.7	6.7	25.6	12.2	22.3
FDI Inflows as % of World	6.0	5.2	11.9	4.0	13.6
FDI Inflows as % of GDP	1.9	2.3	2.3	1.5	2.2
Population, bn	1.23	1.18	2.78	1.46	2.40
Urbanisation, %	48.9	47.5	40.5	40.4	35.1

Source: IMF, EIA, UNCTAD, UN World Population Prospects Database, GS calculations

Are the N-11 Small-Scale or Late-Starting BRICs? (*Continued*)

prices) over the last decade or two is likely to be a smaller story. That contrast in terms of global impact is probably heightened by evidence of lower commodity usage. The N-11 currently account for around 9% of global energy consumption—only a third of the BRICs' share today. While BRICs' energy consumption has climbed recently, as China and India continue to move through their industrialisation phases and the Russian manufacturing sector slowly returns to its pre-1991 dimensions, the N-11 share of global energy consumption has declined. In fact, the N-11 do not look remotely comparable to the BRICs (with their huge population and heavy industrial base) on this dimension at *any* recent stage of development.

Growth Could Be Much Better If Conditions Improve

In the context of the challenge to underlying growth conditions, the better performance and increased optimism in many of these countries has led to a renewed focus on growth prospects in recent years. Nigeria has set a goal of cracking down on corruption, Turkey's efforts to integrate with the European Union continue, Vietnam has just joined the WTO, and the government in Pakistan has launched a broad-based transparent privatisation programme and undertaken some important reforms (especially in the banking, tax and corporate governance areas) aimed at boosting growth over the next few years.

Our GES scores show that these efforts have not yet showed up broadly in concrete metrics in most places. The N-11's GES on average did not change from 2005 to 2006, though Turkey stood out in boosting its GES on improved macro stability, technology uptake and political conditions. While the GES will never capture all aspects of a country's performance, we would expect sustained improvements in conditions to show up here eventually. It may be that policy measures undertaken now take some time to flow through to hard measures—and in some cases, progress even recently points to the potential for a higher GES outcome for 2007. (Nigeria's fiscal position, for instance, has already improved substantially in ways not captured in the latest GES score.)

The payoff from improving conditions in many places is potentially very large indeed. Late last year, we looked at the growth bonus that would come from improving growth conditions to 'Best in Class' levels across a broad range of countries. The bonuses could be as high as 4 percentage points for the weakest members of the N-11 if they could improve their GES on a broad basis, though it would be much smaller for the best-performing countries.

Even without such dramatic progress, a move halfway in that direction could be what turns the growth story in Nigeria or Bangladesh into something more like Vietnam. A similar and complementary conclusion can be reached by assuming that the speed of catch-up in our models in the weaker members turns out to be faster than current conditions suggest. That kind of shift in growth conditions—implausible though it might seem now—would for instance push Nigeria towards the levels of the smaller BRICs by 2050 and Indonesia perhaps even beyond them! So a lot is at stake. These two economies are the ones whose potential to join the largest economies is most dependent on growth conditions, since others are either too small or already too close to best practice to have a vastly different profile.

While it is easy to think about the downside risks to many of these economies, that kind of analysis suggests that growth might also be much better than we project here if significant changes occur and if these countries deliver on some of their stated intentions. And so the impact of the N-11 and the progress of its members could also be larger than we have set out above.

Characterising the N-11 Dream

Despite the group's diversity on a number of dimensions, the N-11 breaks down more clearly into three kinds of stories.

- The first are those where incomes and development levels are already quite high, growth conditions are in relatively good shape, and the challenge is to maintain and improve the conditions that will allow them to complete the catch-up with the world's richest economies. That story is clear in Korea, and patently applies to Mexico and Turkey too.

- The second is those economies that have been part of the traditional emerging market universe—Indonesia and the Philippines. Here growth has been strong and attention greater in the past, and the challenge is to move firmly back onto a strong growth track.

- The third is a group of economies that has generally not been on the radar screen until recently and which are only now emerging as thought-provoking prospects: Egypt, Nigeria, Pakistan, Bangladesh, Iran and Vietnam. Within this group, prospects and investor focus are already very different. Of these, Vietnam currently has both the highest growth potential and the best chance of delivering it—and has probably received the most attention as a result. But some of the others have already been attracting more attention.

This diversity (exceeding that of the BRICs themselves) highlights the fact that the individual stories and risks are very different across the N-11 grouping. But this very diversity may enhance their appeal from an investment perspective.

The scale of the challenge for many of the N-11 remains enormous, even relative to the BRICs themselves. Even in economies where growth prospects are not the most challenging in the group, the obstacles to a compelling investment story (in Iran, for instance) may still be high. But where progress can be made, some of these growth stories could be significantly *better* than the projections made here.

The N-11: A Different Dream

The N-11 'dream' is in many ways a different kind of story to the BRICs. At its heart, the BRICs growth story is not just about growth. It is about scale and a seismic shift in the pattern of global activity. Although the N-11's influence could grow, as we have shown, it will never be a global story on that level. Certainly, a few of the N-11 could join the world's largest economies and several more may become large regional economies. Their interaction with the BRICs—particularly in East Asia and the Sub-Continent—may also reinforce the kinds of shifts in the global economy that we have identified there. And some—such as Vietnam—seem plausible candidates for the kind of sustained, structural high-growth path exemplified by China and India.

Nor is it right to think of them as an 'earlier' version of the BRICs story. As the box on page 145 discusses, as a group they are already somewhat richer and more integrated into the world economy than the BRICs are now (and certainly than the BRICs were a decade or so ago). This again suggests that the impact of their integration with the global economy is likely to be less dramatic.

The biggest interest in the N-11 has a different source. As a group of potentially large, fast-growing markets, with rising incomes and activity, they could be an important source of growth and opportunity both for companies and investors over the next two decades. If the N-11 can begin to deliver on some of their increasingly stated desires to improve growth conditions (and the challenge before many of them is still very large), they may end up proving to be among the more interesting investment stories of the next decade or two.

Ironically, it is the apparent implausibility of some of these stories that helps to make the N-11 an exciting story. And the recent performance of many of the N-11 is already better than many expected, or perhaps realise.

Two big questions remain. The first is whether a benign economic environment can be turned into broader gains in growth conditions that increase the chances of significant structural improvement. The second is how much the current environment has artificially inflated the performance (and attractiveness) of these and other groupings. We are conscious that we address these issues currently deep into a global recovery and a bull market in EM assets. High oil prices and buoyant commodity prices have also helped several. Without a challenge to that environment, it will be harder to be confident that better recent growth and market performance can be sustained.

As with the BRICs, our goal in fleshing out the N-11 dream is less to predict the future and more to explore the frontiers of what might be possible. In the process, we hope to improve our understanding of some of the big changes in the world economy that may lie ahead. Could Nigeria outstrip Italy? Could Turkey become the second-largest economy in Europe? Could Mexico rival the BRICs? Could Vietnam join the ranks of the major economies? And what would need to happen for these developments to occur?

The fact that these questions are asked (of us and by us) is itself a testament to the shifts in the global economy that are already underway.

Dominic Wilson and Anna Stupnytska
March 28, 2007

APPENDIX: PROJECTIONS IN DETAIL

US$ GDP											
2006 US$ bn	Brazil	China	India	Russia	Canada	France	Germany	Italy	Japan	UK	US
2006	1,064	2,701	915	988	1,266	2,194	2,853	1,821	4,335	2,330	13,247
2010	1,346	4,696	1,264	1,378	1,395	2,366	3,086	1,927	4,602	2,568	14,537
2015	1,720	8,172	1,913	1,908	1,557	2,577	3,329	2,085	4,859	2,860	16,197
2020	2,194	12,676	2,870	2,562	1,708	2,815	3,522	2,238	5,222	3,129	17,981
2025	2,831	18,486	4,353	3,347	1,865	3,055	3,634	2,341	5,569	3,362	20,090
2030	3,720	25,652	6,748	4,269	2,071	3,306	3,764	2,407	5,812	3,627	22,821
2035	4,963	34,374	10,631	5,266	2,314	3,567	4,051	2,460	5,884	3,972	26,101
2040	6,631	45,019	16,715	6,316	2,581	3,892	4,391	2,576	6,040	4,383	29,827
2045	8,740	57,263	25,624	7,411	2,863	4,227	4,718	2,755	6,298	4,786	33,909
2050	11,366	70,605	38,227	8,564	3,164	4,592	5,028	2,969	6,675	5,178	38,520

US$ GDP											
2006 US$ bn	Bangladesh	Egypt	Indonesia	Iran	Korea	Mexico	Nigeria	Pakistan	Philippines	Turkey	Vietnam
2006	63	101	350	245	887	839	121	129	118	403	55
2010	81	129	419	312	1,071	996	158	161	162	454	88
2015	110	171	562	415	1,305	1,312	218	206	215	588	157
2020	150	229	752	544	1,508	1,726	306	268	289	759	273
2025	210	318	1,033	716	1,861	2,284	445	359	401	987	458
2030	304	467	1,479	953	2,241	3,047	680	497	583	1,302	745
2035	451	718	2,192	1,273	2,644	4,083	1,083	709	882	1,740	1,169
2040	676	1,124	3,286	1,673	3,089	5,455	1,765	1,026	1,354	2,322	1,768
2045	1,001	1,728	4,846	2,133	3,562	7,195	2,870	1,472	2,041	3,049	2,569
2050	1,466	2,602	7,010	2,663	4,084	9,343	4,640	2,085	3,010	3,948	3,607

US$ GDP Per Capita											
2006 US$	Brazil	China	India	Russia	Canada	France	Germany	Italy	Japan	UK	US
2006	5,657	2,056	823	6,953	38,255	36,045	34,616	31,328	34,010	38,445	44,386
2010	6,882	3,484	1,067	9,887	40,737	38,380	37,504	33,165	36,182	41,909	47,022
2015	8,427	5,865	1,502	14,031	43,660	41,332	40,622	36,144	38,637	45,993	50,208
2020	10,375	8,861	2,107	19,370	46,183	44,811	43,257	39,246	42,371	49,608	53,510
2025	12,996	12,721	3,005	26,112	48,857	48,429	45,069	41,630	46,404	52,681	57,455
2030	16,694	17,551	4,403	34,402	52,918	52,327	47,301	43,479	49,959	56,398	62,727
2035	21,924	23,528	6,596	43,807	58,008	56,562	51,752	45,243	52,328	61,588	69,030
2040	29,026	30,949	9,924	54,191	63,771	62,136	57,164	48,387	55,738	67,986	76,056
2045	38,149	39,687	14,644	65,627	69,868	68,252	62,709	53,107	60,472	74,459	83,502
2050	49,759	49,576	21,145	78,435	76,370	75,253	68,308	58,930	66,825	80,942	91,697

US$ GDP Per Capita											
2006 US$	Bangladesh	Egypt	Indonesia	Iran	Korea	Mexico	Nigeria	Pakistan	Philippines	Turkey	Vietnam
2006	427	1,281	1,508	3,768	18,159	7,812	919	778	1,314	5,726	655
2010	510	1,531	1,724	4,652	21,599	8,859	1,087	897	1,691	6,191	1,001
2015	627	1,880	2,197	5,888	26,010	11,052	1,332	1,050	2,078	7,671	1,707
2020	790	2,352	2,813	7,345	29,866	13,843	1,665	1,260	2,595	9,526	2,834
2025	1,027	3,080	3,711	9,328	36,812	17,540	2,161	1,568	3,376	12,002	4,583
2030	1,384	4,287	5,123	12,139	44,601	22,545	2,944	2,035	4,640	15,465	7,245
2035	1,917	6,287	7,365	15,979	53,449	29,278	4,191	2,744	6,684	20,325	11,148
2040	2,698	9,443	10,784	20,746	63,924	38,142	6,117	3,775	9,821	26,854	16,623
2045	3,767	14,025	15,642	26,231	75,981	49,331	8,934	5,183	14,266	35,156	23,932
2050	5,235	20,500	22,395	32,676	90,297	63,169	13,014	7,066	20,391	45,658	33,472

Projected Real GDP Growth											
Ave %yoy	Brazil	China	India	Russia	Canada	France	Germany	Italy	Japan	UK	US
2006-2015	3.9	7.7	6.6	4.3	2.3	1.8	1.7	1.5	1.3	2.3	2.3
2015-2020	3.8	5.4	6.0	3.2	1.9	1.8	1.1	1.4	1.5	1.8	2.1
2020-2025	3.7	4.6	5.9	3.1	1.8	1.7	0.6	0.9	1.3	1.4	2.2
2025-2030	3.8	4.0	6.0	3.1	2.1	1.6	0.7	0.6	0.9	1.5	2.6
2030-2035	3.8	3.6	6.0	2.6	2.2	1.5	1.5	0.4	0.2	1.8	2.7
2035-2040	3.7	3.6	5.9	2.2	2.2	1.8	1.6	0.9	0.5	2.0	2.7
2040-2045	3.5	3.1	5.6	1.7	2.1	1.7	1.4	1.4	0.8	1.8	2.6
2045-2050	3.3	2.5	5.3	1.5	2.0	1.7	1.3	1.5	1.2	1.6	2.6

APPENDIX: PROJECTIONS IN DETAIL (*CONTINUED*)

Projected Real GDP Growth											
Ave %yoy	Bangladesh	Egypt	Indonesia	Iran	Korea	Mexico	Nigeria	Pakistan	Philippines	Turkey	Vietnam
2006-2015	5.0	5.0	5.0	4.5	4.2	4.4	5.6	5.1	5.3	4.4	7.8
2015-2020	5.1	4.8	4.4	3.9	3.0	4.3	5.8	4.9	4.9	3.9	6.9
2020-2025	5.4	5.0	4.6	4.0	2.5	4.2	6.2	5.0	5.1	3.8	6.4
2025-2030	5.6	5.4	4.9	4.1	2.2	4.2	6.6	5.1	5.4	3.8	6.1
2030-2035	5.7	5.8	5.1	4.0	1.9	4.1	7.1	5.3	5.7	3.8	5.6
2035-2040	5.7	5.9	5.2	3.5	1.9	4.0	7.3	5.3	5.8	3.7	5.1
2040-2045	5.3	5.6	5.0	2.8	1.7	3.8	7.2	5.0	5.5	3.4	4.4
2045-2050	5.2	5.3	4.7	2.4	1.8	3.6	7.1	4.7	5.2	3.2	4.0

Population, mn											
mn	Brazil	China	India	Russia	Canada	France	Germany	Italy	Japan	UK	US
2006	188	1,314	1,112	142	33	61	82	58	127	61	298
2010	196	1,348	1,184	139	34	62	82	58	127	61	309
2015	204	1,393	1,274	136	36	62	82	58	126	62	323
2020	212	1,431	1,362	132	37	63	81	57	123	63	336
2025	218	1,453	1,449	128	38	63	81	56	120	64	350
2030	223	1,462	1,533	124	39	63	80	55	116	64	364
2035	226	1,461	1,612	120	40	63	78	54	112	64	378
2040	228	1,455	1,684	117	40	63	77	53	108	64	392
2045	229	1,443	1,750	113	41	62	75	52	104	64	406
2050	228	1,424	1,808	109	41	61	74	50	100	64	420

Source: US Census Bureau International Database

Population, mn											
mn	Bangladesh	Egypt	Indonesia	Iran	Korea	Mexico	Nigeria	Pakistan	Philippines	Turkey	Vietnam
2006	147	79	232	65	49	107	132	166	89	70	84
2010	160	84	243	67	50	112	145	180	96	73	88
2015	175	91	256	71	50	119	163	196	104	77	92
2020	190	97	268	74	50	125	184	213	111	80	96
2025	205	103	279	77	51	130	206	229	119	82	100
2030	220	109	289	79	50	135	231	244	126	84	103
2035	235	114	298	80	49	139	258	259	132	86	105
2040	251	119	305	81	48	143	289	272	138	86	106
2045	266	123	310	81	47	146	321	284	143	87	107
2050	280	127	313	81	45	148	357	295	148	86	108

Source: US Census Bureau International Database

Labour force, mn											
mn	Brazil	China	India	Russia	Canada	France	Germany	Italy	Japan	UK	US
2006	123	894	669	97	21	37	50	35	76	37	187
2010	129	917	722	93	22	36	50	35	71	37	190
2015	135	920	789	86	22	36	49	34	68	38	192
2020	139	914	852	80	22	35	47	33	67	37	193
2025	140	896	907	76	22	35	44	31	64	36	195
2030	140	867	952	73	22	34	41	29	61	35	201
2035	139	841	988	70	22	33	40	27	56	35	208
2040	136	827	1,018	66	22	33	39	26	52	35	216
2045	132	800	1,042	61	22	32	38	25	49	35	222
2050	128	751	1,059	55	22	32	37	24	47	34	228

Source: US Census Bureau International Database

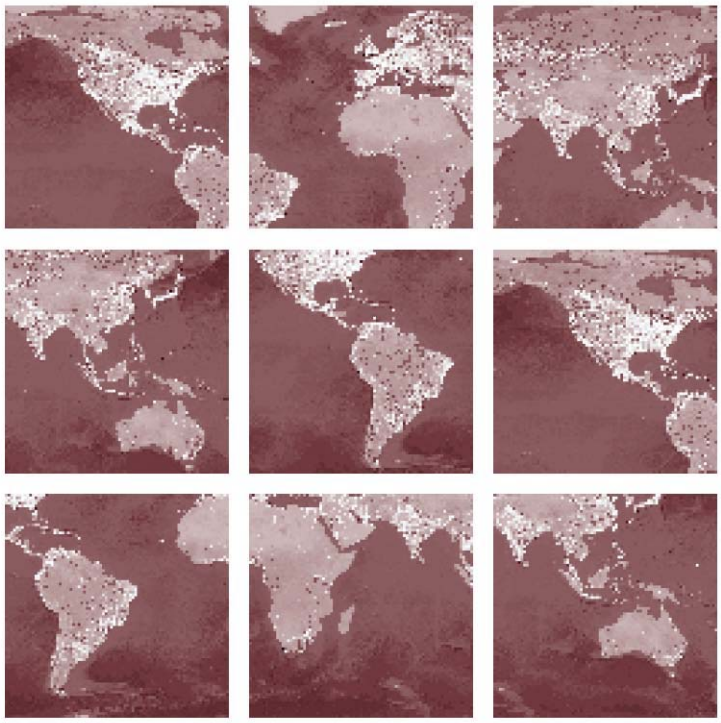
Labour force, mn											
mn	Bangladesh	Egypt	Indonesia	Iran	Korea	Mexico	Nigeria	Pakistan	Philippines	Turkey	Vietnam
2006	91	48	145	44	33	66	70	91	53	46	55
2010	97	52	154	48	34	70	77	103	58	49	59
2015	105	57	164	49	34	75	87	118	64	51	63
2020	115	61	172	50	32	78	98	132	69	53	64
2025	126	66	178	51	31	81	111	145	74	53	65
2030	137	69	182	52	29	83	126	157	79	53	66
2035	146	72	184	52	27	84	142	167	82	53	66
2040	153	74	184	51	25	84	160	176	85	51	65
2045	158	75	184	48	23	84	180	182	88	50	63
2050	163	76	184	44	22	83	201	185	90	48	60

Source: US Census Bureau International Database

CHAPTER TWELVE

CURRENT ANSWERS (AND QUESTIONS) ABOUT BRICS AND THE N-11

July 2007



CURRENT ANSWERS (AND QUESTIONS) ABOUT BRICS AND THE N-11

Where We Stand on BRICs and the N-11

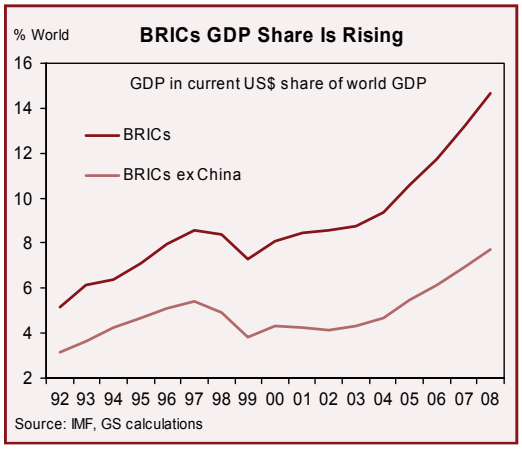
The BRICs story continues to be one of the most, if not the most, important investment themes of our generation, with more and more financial market movements influenced by these countries' economic progress and their actions. Linked to this, and judging from the many questions we receive, the N-11 'concept' also seems to be also gaining increasing traction in the investment community. Let us restate some key aspects of our long-term structural thinking to lay the ground, before answering some of the many questions we receive.

We first mentioned the term 'BRIC' back in Autumn 2001 (*Global Economics Paper* 66: 'Building Better Global Economic BRICs') and argued that by the end of this decade, the share of the BRICs countries (Brazil, Russia, India and China) in global GDP would rise sufficiently to make it clear that the global governance of the world economy would need to change radically in order to incorporate them.

At the time, we presented four alternative scenarios of how the world might evolve up to 2010. In the event, the relative rise of the BRICs economies has been stronger than even our most optimistic scenario had envisioned. By mid-2007, they are already around 13% of global GDP in current US Dollar terms.

We have never suggested that the combined GDP of the four will *definitely* overtake the size of the G7. Our famous 2003 paper (*Global Economics Paper 99*: 'Dreaming With BRICs: The Path to 2050') highlighted the fact that this is *possible* if the BRICs countries achieve their productivity potential. The possibility that the BRICs exceed the G7 in size before 2050 does seem a reasonable 'working model' for business, and the likelihood that they will do so appears to be growing.

In our most recent detailed study (*Global Economics Paper 153,* 'The N-11: More Than an Acronym'), we projected even more optimistic growth paths for the BRIC economies, in which China could overtake the US by 2027 and the BRICs combined could overtake the G7 by 2032. The box on page 155 has more details of our current projections.



As for the N-11, the main goal in introducing this concept was simply to study whether the next group of large developing countries with large populations had the potential to become 'BRIC-like'. We also sought to explain why we had selected only the original countries as BRICs—a question we have frequently been asked. In 2005 we had suggested that, of the N-11, only Mexico had the potential to be as big as the BRICs. However, our most recent paper (published in March) suggests that Indonesia may

also—at least in concept—given its very large population. Importantly, as we discuss below, the N-11 grouping is much more diverse than the BRICs, and in this way it is much more of a 'typical' emerging market investment theme.

Finally, it is important to recognise that even if the BRICs countries do achieve our most optimistic projections, the world's wealthiest nations today will still be the wealthiest in 2050. As we have shown, helping the BRICs and N-11 countries to achieve their potential raises their wealth significantly—and ours too. Globalisation, in the aggregate, is a win-win game.

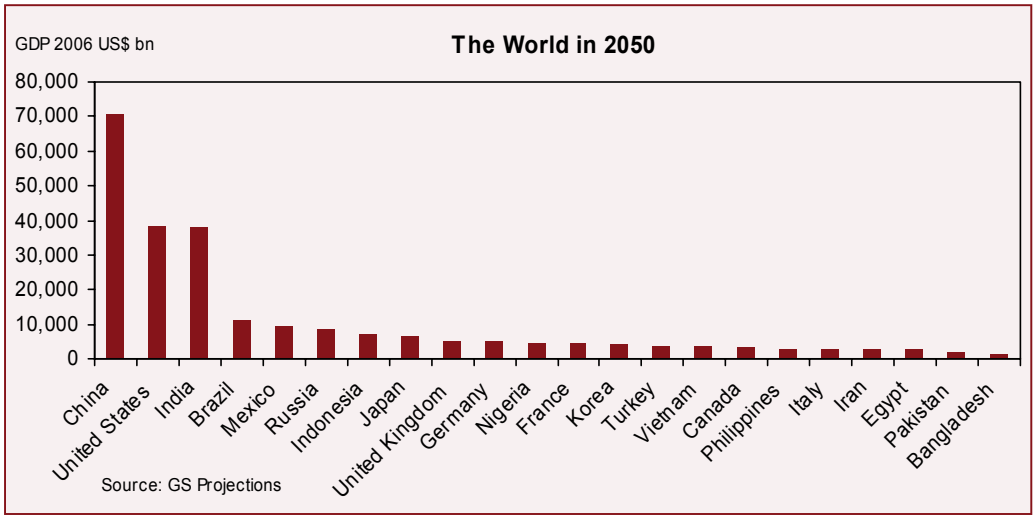
What Is the Latest With the BRICs?

The BRICs phenomenon remains probably the most important economic and investment theme of our generation. Contrary to the tone of some of the questions we now are asked, we have not introduced the N-11 as a 'new theme' because we have 'tired' of the BRICs!

In terms of economic growth, BRICs GDP growth generally continues to rise more quickly than we had assumed in even the most optimistic case in 2001. China recently revised up its 2006 real GDP growth to 11.1%, and last week reported Q2 growth at an 11.9% pace, stronger than expected. In Q1, its 11.1% growth pace actually meant that, for the first time in modern history, China contributed more to world GDP than did the US. (In current US Dollar terms, China is now around 6.5% of global GDP, while the US is just above 30%.)

Brazil is often regarded as the 'least justified' BRIC country, and we have heard much scepticism over the years about our decision to include it. But Brazil is now in the early stages of an accelerating growth phase where real GDP may expand between 4%-5% annually for some time. Brazil remains our current favourite among the BRIC equity markets, and the Bovespa is one of our live 2007 Top 10 macro trades.

China is poised to overtake Germany to be the world's third-largest economy within the next few quarters. Brazil, India and Russia have all risen to around $1 trillion in size; each is about 2% of world GDP, ranking somewhere between 9th and 12th largest in the world.



Our Revised BRICs Projections

Earlier this year we revised our BRICs projections for the latest information on the GES and the closer links between conditions and convergence speeds.

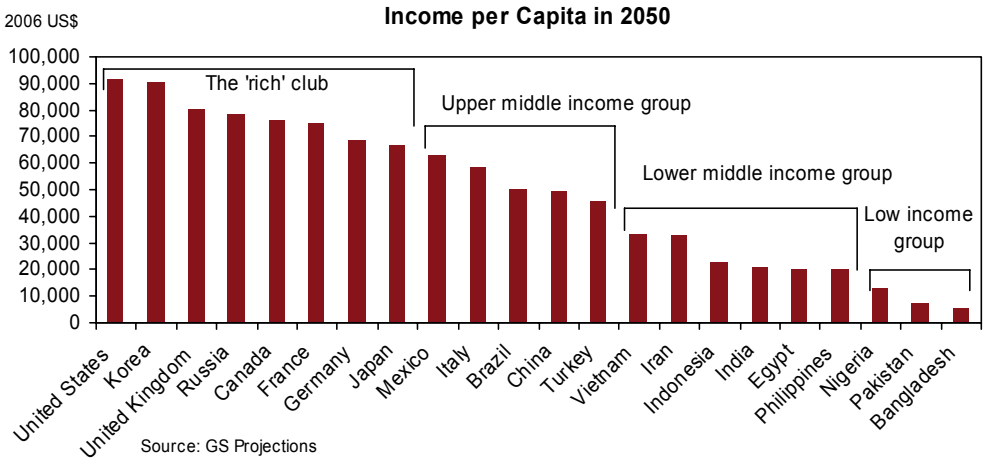
In general, the new projections show the BRICs as a group growing more rapidly than before. As a result, China could surpass the US earlier (2027 vs 2035) and overtake more dramatically than before (by 2050 it is projected to be 84% larger rather than 41% before). India too essentially could catch up with the US by 2050, where before it was projected only to reach 72% of the US economy. Projections for both Russia and Brazil are also somewhat higher.

The BRICs as a group now might pass the G7 in 2032 rather than 2040. Stronger recent performance, the recent upward revisions to Brazil's GDP (which show its economy now around 11% higher than previously recorded) and somewhat more optimistic assumptions about productivity growth are the main contributors.

Although the BRICs projections have become more optimistic as a result, our regional economists—at least for China and India—continue to produce work that suggests that their growth paths (at least over the next ten or 20 years) may still not be optimistic enough. For instance, Tushar Poddar's latest work on India suggests that the economy's sustainable growth rate might be around 8% until 2020 (not the average of 6.3% in our projections) and that India could overtake the US before 2050 (see *Global Economics Paper* No. 152 'India's Rising Growth Potential', January 22, 2007).

Our projections could be seen as conservative, as our country economists for both China and India currently believe. However, over a time span as long as the one we have used, there will likely be surprises in both directions. As a broad cross-country comparison, it is also important to stick to a transparent and consistent framework across the different groups.

The advantage of this approach is that it makes results clear and comparable. The disadvantage is that no simple framework will ever take into account all the specific factors that a country expert might see. Looking at those specific factors, our 'official' Chinese and Indian *forecasts* from our economists for the next decade or two would likely be higher than our BRICs projections. Our goal is not to provide explicit forecasts (a task we leave to our country economists), but rather to provide a reasonable way of benchmarking potential across a large group of economies.



Equities and Companies

In equity markets, while China and Brazil have been enjoying strong performances this year, India and Russia have taken a 'rest' (although in the past fortnight, India has started to move up again). Occasionally, some people ask whether the BRIC markets have become a 'bubble', but apart from generally modest valuations, broader analysis suggests this is far from the case.

In their recent regular presentation of the world's top 500 companies by market capitalisation, the *Financial Times* magazine included 31 from the BRIC economies in total. Interestingly, they were evenly split, with eight each from China, India and Russia, and seven from Brazil. Of these 31, 12 companies were new to the list, and 12 had risen in the rankings since 2006.

If the BRICs' 13% share of global GDP were reflected in this list, then there should have been something closer to 65 companies, i.e. more than twice the actual number. China alone would warrant more than 30 if the list were to reflect its share of world GDP. Given that we expect a relative growth acceleration in the BRICs, we may well see a significant shift in the composition of this list in the years ahead.

Of course, other markets are increasingly dominated by the BRICs. The growth of sovereign investment funds and the Chinese acquisition of nearly 10% of Blackstone are the latest of many examples. In foreign exchange, 2007 has seen the INR join the BRL in enjoying considerable nominal trade-weighted appreciation. There are also very recent signs that the pace of CNY appreciation is accelerating, and we are now forecasting nearly 8.5% further appreciation over the next 12 months. There are even some signs that the RUB is joining the currency party!

To be sure, the BRICs theme remains the biggest thing in town.

Are the BRICs Becoming More Involved in Global Policy Setting?

Unfortunately, only at a snail's pace.

It has now become a regular custom for the G7 and G8 to invite the BRIC countries, and South Africa, to join some of their meetings. At June's G8 Heads of State Summit, they were elevated to the dubious grouping of 'outreach countries'—something many of them may regard as a bit of an insult. On a slightly more encouraging tone, the OECD has announced that it has started dialogue with the BRIC nations about how they can become integrated into the OECD umbrella—which is more than can be said for the IMF.

As we said when we first wrote about the BRICs, their rapidly rising significance makes it imperative that they assume a bigger representative position in all areas of global governance. Whether it be global warming, energy demand and pricing, global imbalances or sovereign investment funds, the optimal global solutions to global challenges both today and in the future require their equal presence. The more time that passes without a faster change in global governance, the greater the likelihood of major policy errors.

FT Global 500: BRICs Companies

Global rank 2007	Global rank 2006	Company	Country	Market value $bn
6	10	Gazprom	Russia	245.91
9	n/a	Industrial and Commercial Bank of China	China	224.79
23	n/a	Bank of China	China	165.51
35	n/a	China Construction Bank	China	128.53
41	n/a	China Life Insurance	China	116.28
50	48	Petrobras	Brazil	105.88
53	n/a	Sinopec	China	104.01
68	n/a	Rosneft	Russia	88.50
74	117	Vale do Rio Doce	Brazil	86.14
95	76	Lukoil	Russia	73.49
103	232	Sberbank of Russia	Russia	70.48
131	234	Unified Energy System	Russia	58.10
152	94	Surgutneftegas	Russia	51.33
166	n/a	Bank of Communications	China	47.07
182	284	Reliance Industries	India	43.87
187	158	Oil & Natural Gas	India	43.21
196	n/a	Ping An Insurance	China	41.67
205	205	Bradesco	Brazil	40.85
208	222	Banco Itau	Brazil	39.72
239	376	MMC Norilsk Nickel	Russia	35.36
244	266	Ambev	Brazil	34.73
257	443	Bharti Airtel	India	33.29
265	n/a	China Merchants Bank	China	32.44
313	286	National Thermal Power	India	28.41
319	367	Tata Consultancy Services	India	27.72
331	362	Banco Brasil	Brazil	26.90
345	414	Infosys Technologies	India	25.83
469	n/a	Reliance Communications	India	19.76
475	n/a	Mobile Telesystems	Russia	19.61
487	n/a	Itausa	Brazil	19.30
500	430	Wipro	India	18.69

Source: Financial Times Magazine 30 June / 1 July 2007

Market values as of 30 March 2007.

Is the N-11 as Good an Investment Theme as the BRICs?

As discussed above, we created the N-11 concept simply to describe the next set of large countries from the developing world, and to analyse their own BRICs 'potential'. They are *not* to be regarded in the same light as the BRICs. This is not least because two of them, Korea and Mexico, are already OECD members. On a large number of measures, Korea is as developed as many of the most developed economies. For example, its 2006 GES (our Growth Environment Score), was 6.9—the same level as the United States.

The N-11 countries are a very diverse group in terms of their stages of economic development and wealth. They are geographically diverse, with six in Asia, three in the Middle East and Africa, and one each in Europe and Latin America. Indeed, the group is so diverse than in terms of a diversified approach to emerging markets, they probably represent a very suitable basket of countries.

In this sense, it is not surprising to see the emergence of N-11 investment funds. These arguably have better diversification properties than many others. As we have argued on many occasions, we would not regard the BRIC countries as typical 'emerging markets' in the truest sense of the phrase. They are a rising and integral part of the modern globalised economy, while at least for now, most of the N-11—except Korea and Mexico—are more 'typical' EMs.

N-11 2006 Economic Snapshot

	GDP (US$bn)	2001-06 Average GDP Growth Rate (%)	GDP Per Capita (US$)	Population (mn)	Trade openness (% GDP)	GES
Bangladesh	65	5.7	427	144	45.8	3.2
Egypt	101	4.2	1,281	72	58.9	3.7
Indonesia	350	4.8	1,510	222	58.1	3.4
Iran	212	5.7	3,768	70	54.5	4.4
Korea	887	4.5	18,484	48	72.5	6.9
Mexico	839	2.3	7,915	104	56.6	4.6
Nigeria	115	5.6	919	150	71.0	2.7
Pakistan	129	5.3	778	155	39.4	3.1
Philippines	118	5.0	1,314	87	101.0	3.6
Turkey	403	4.6	5,551	73	55.1	4.0
Vietnam	61	7.6	655	84	143.2	4.5

Source: IMF, World Bank, UN, GS

Aren't Some of the N-11 Countries Risky?

Of course, some of the N-11 countries are risky! The GES scores for some (Bangladesh 3.2, Nigeria 2.7 and Pakistan 3.1) rank towards the lowest among all the 170 countries that we monitor. Iran is of course a country that invokes particular surprise, but if you look at its GES scores, it scores a relatively high 4.4. Other N-11 countries have higher scores. In addition to Korea's high score (it ranks higher than all the BRICs as well as the rest of the N-11), Vietnam scores a relatively high 4.5 and Mexico 4.6.

This diversity helps to give the N-11 some considerable attractions as a 'basket' of low and high risks. Moreover, it goes without saying that modest steps towards reform in some of the least developed would raise their potential attractiveness considerably.

In some ways, Nigeria is especially interesting. It is Africa's largest country by population, about three times the size of South Africa. It is interesting that Nigeria's current leadership has embraced our N-11 research as part of its goals to become one of the world's top 20 nations by 2020. What an achievement it would be for Nigeria and for Africa if that were to be the case.

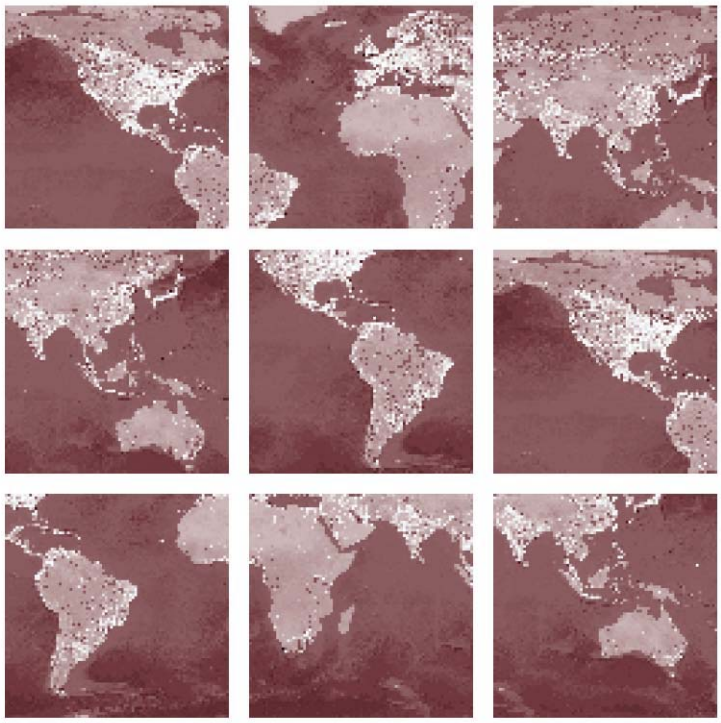
At its broadest level, the N-11 theme relates centrally to the future of globalisation. In all the growing and complex debates about globalisation, it is surely appropriate that some of the world's largest populations develop their economies successfully enough to dramatically raise their living standards. If globalisation cannot help deliver this, then it is right to be challenged. We are highly encouraged that many of the N-11 countries have shown a positive response to our research about their future potential, since it is only by adopting reforms and raising their GES scores that they can they achieve the economic size and wealth that their population sizes should allow for.

Jim O'Neill
July 25, 2007

CHAPTER THIRTEEN

BEYOND THE BRICS: A LOOK AT THE 'NEXT 11'

April 2007



BEYOND THE BRICS: A LOOK AT THE 'NEXT 11'

Which countries will be the next BRICs? We recently identified 11 countries that could rival the G7 over time, even if they lack the scale to become the next BRICs. Here we look at these 'Next 11' (N-11) in the context of several important BRICs themes—energy, infrastructure, urbanisation, human capital and technology.

With the BRICs story largely having moved into the mainstream, we are often asked 'Who will be the next BRICs?'. While the N-11 may not have the same transformative impact on the world economy that the BRICs may realise, they nonetheless present interesting growth stories, and several countries in this group could rival the G7 in time. As laid out in our *Global Economics Paper* No. 153, the N-11 include Bangladesh, Egypt, Indonesia, Iran, Korea, Mexico, Nigeria, Pakistan, Philippines, Turkey and Vietnam.

That paper, by Dominic Wilson and Anna Stupnytska, analyses the growth potential of the N-11 and the conditions needed to realise that potential. Here, we assess their performance and prospects along a range of measures that we have discussed in other *BRICs Monthly* reports: energy, urbanisation, infrastructure, health and technology. Highlights include:

- The N-11, which comprise 7% of the world economy, account for 9% of the world's **energy** consumption and an equal share of global CO_2 emissions, well below the BRICs' 30% share of emissions.

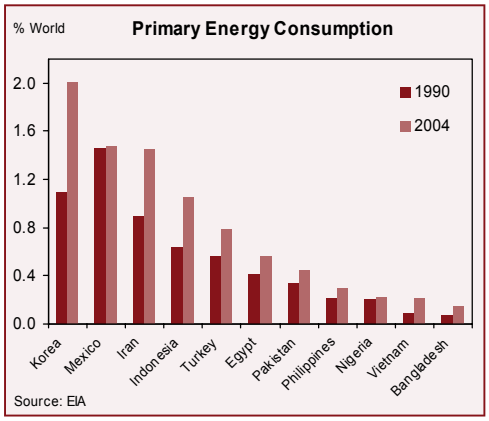
- On the whole, the N-11 are already highly urbanised. In five, more than half the population is urban; some, including Korea, Mexico, Iran and Turkey, are roughly at G6 levels. At the opposite end of the spectrum, Vietnam and Bangladesh remain overwhelmingly rural (some 75%). **Urbanisation** in these countries should support economic growth, particularly by underpinning productivity growth, as has already been the case in China and is beginning to materialise in India.

- Some of the N-11 are attractive destinations for **infrastructure** investment. Four (Mexico, Philippines, Indonesia and Turkey) saw nearly $170bn invested in infrastructure projects between 1990 and 2005. Yet much more is needed going forward. We have previously estimated that the N-11 together require around $600bn—4% of GDP—of infrastructure investment between 2006 and 2010.

- **Human capital** is a critical aspect of the long-term growth story. Life expectancy among the N-11 today (65 years) is in line with the BRICs but nearly a decade below the G6 average. The UN projects that life expectancy rates in the N-11 and the BRICs will converge around the current G6 level (75 years) by mid-century. But health spending will need to rise significantly outside just a handful of the N-11. Pakistan, Bangladesh and Nigeria currently spend less than $25 per head on health each year.

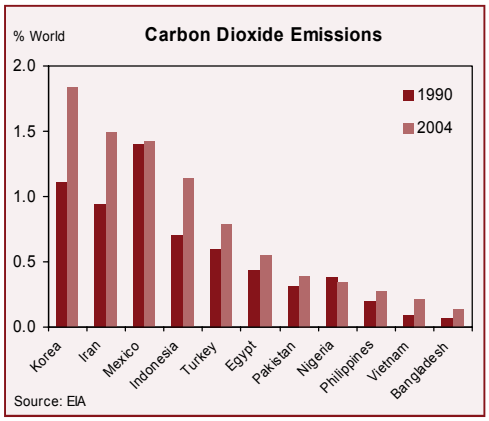
- **Technology** adoption is also important to long-term growth and a key factor in the 'virtual connectivity' that we discussed last month. The explosive growth story in mobile phones is spreading to the N-11, with the poorest countries posting triple-digit growth in recent years.

Sandra Lawson, David Heacock and Anna Stupnytska
April 18, 2007



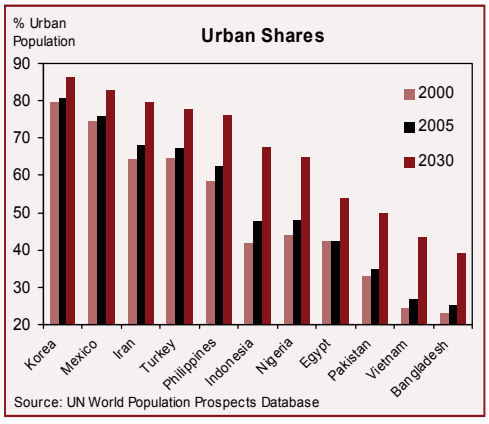
Energy Consumption Increasing in N-11…

- The N-11 together account for 7% of global GDP and 9% of the world's energy consumption, while China accounts for 6% of GDP and 13% of energy consumption. This reflects more industry-intensive economies and less energy-efficient technologies than in the developed world.
- Since 1990, each country's share of world energy consumption has risen. The increase is highest in Korea (by 1ppt) and lowest in Nigeria and Mexico (each a mere 0.03ppt). The latter two have seen a significant improvement in energy intensity. Pakistan is another N-11 country where energy consumption per Dollar of GDP has fallen.



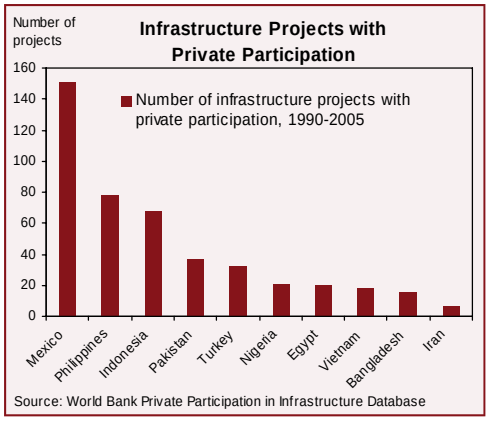
…Leading to Rising CO_2 Emissions

- The N-11 and BRICs together accounted for more CO_2 emissions than the G6 in 2004, making these countries' cooperation critical to future global efforts to curb emissions. In 2004, the N-11 (with almost 19% of the world's population) accounted for 9% of total emissions, compared with 29% for the BRICs and 35% for the G6 (with population shares of 43% and 11%, respectively).
- On a per capita basis, even the largest emitters among the N-11—Korea and Iran—trail the US by an huge margin. Korea's 48mn people account for less than 2% of global CO_2 emissions, and Iran's 70mn for just 1.5%, compared with 20% for the 300mn people in the US.



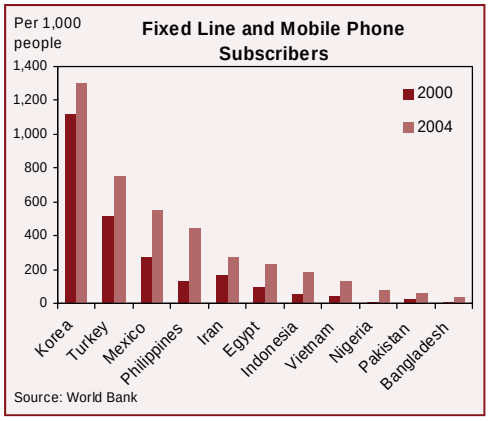
N-11 Urbanisation Potential Is Lower Than That of the BRICs

- Many of the N-11 countries are already highly urbanised. While no N-11 country beats Brazil on this metric, eight of the 11 are more urbanised than China and India. Philippines, Nigeria and Indonesia have seen the largest increase in their shares of urban population since 2000.
- The process of urbanisation should help to underpin growth, particularly productivity growth. Among the N-11, only Bangladesh, Vietnam and Pakistan (and India and China in the BRICs) have a scope for a significant increase in urbanisation over the next 25 years.



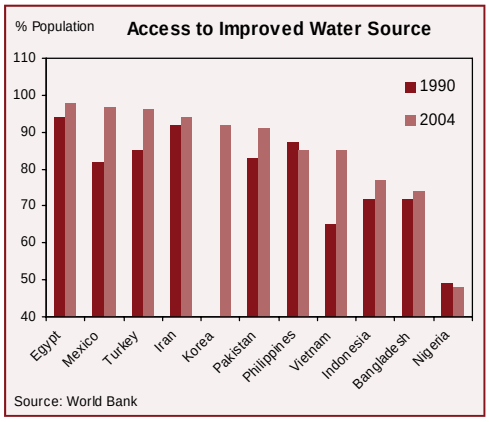
Some Benefit From Private Infrastructure Investment

- Private-sector investment in infrastructure projects has somewhat sidestepped the N-11 since 1990. Only Mexico is among the top 10 developing economies ranked by the number of infrastructure projects involving private participation, trailing the BRICs and Argentina. In Dollar terms, Philippines, Indonesia and Turkey join Mexico in the top 10. These four together accounted for almost $170bn invested in infrastructure between 1990 and 2005.
- Much more is needed to support growth. We have previously estimated that the BRICs as a whole will require $120bn in annual infrastructure spending between 2006 and 2010 (*Global Economics Weekly 06/22*).



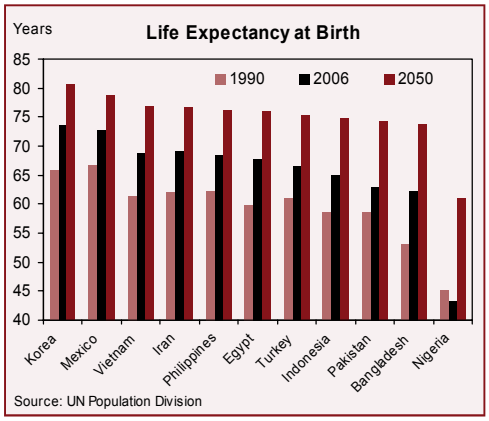
Some N-11 Countries Rival the BRICs in Technology Adoption

- Virtual infrastructure is an important growth driver in the developing world, as we highlighted last month in our look at virtual connectivity. Communications technology in the N-11 has spread fast in recent years.
- In levels of phone penetration, Korea and Turkey rival Brazil and Russia, the two best-scoring BRICs. In terms of growth rates, poorer countries have posted outstanding performance since 2000. Phone penetration in Bangladesh and Nigeria increased by roughly 140%-150% in 2004 (albeit from a low base), mainly driven by mobiles, reflecting a broader trend in many low-income countries.



Expanded Access to Water Has Been Mixed

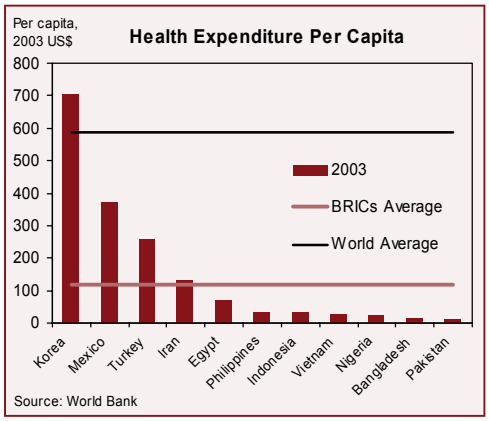
- The water supply picture varies across the N-11. In six, more than 90% of population have access to improved water source, almost as high as levels in the developed world. The other five still have a substantial gap to close.
- The N-11's progress since 1990 in expanding water access has also been mixed. Vietnam and Mexico have shown most improvement, raising their share of population with access to improved water sources by 20ppt and 15ppt, respectively. Yet water access in Nigeria and Philippines has deteriorated even further.



N-11 Life Expectancy to Approach G6 Levels by 2050

- The N-11 countries had an average life expectancy of 65 years in 2006, slightly higher than the estimated 64 years for the BRICs, but nine years below the G6. Both the N-11 and the BRICs are projected to near G6 current life expectancy levels by 2050.

- Nigeria stands out as the clear laggard, with a life expectancy in 2006 of just 43 years, nearly 20 years lower than Bangladesh, and the only country in the N-11 to see life expectancy fall since 1990. As access to healthcare and safe water sources increases, life expectancy there is expected to rise, reaching 61 years by 2050.



The N-11 Surpass the BRICs in Healthcare Expenditure

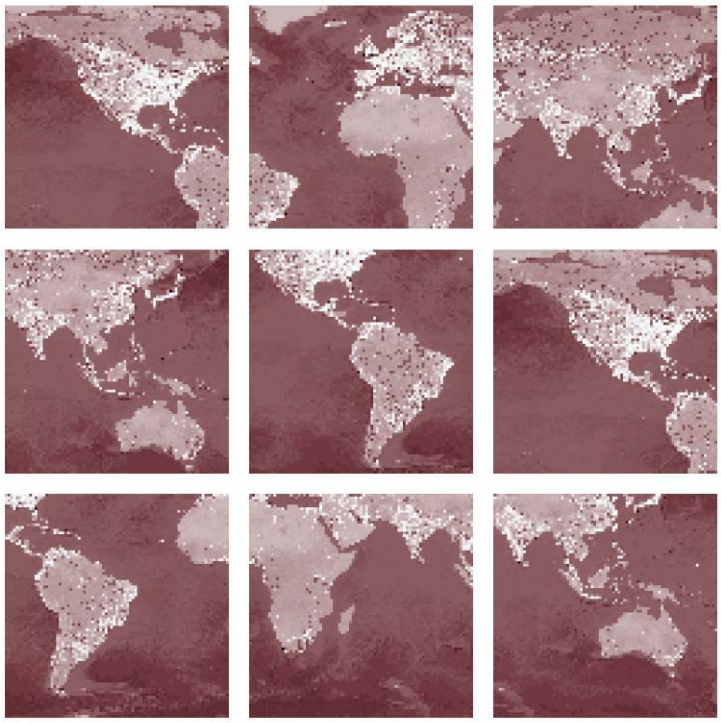
- Per capita health expenditure (both public and private) in the N-11 exceeded that of the BRICs in 2003, averaging $152 against $117 in the BRICs. However, N-11 health expenditure is just one-quarter of the world average.

- Korea's per capita healthcare spending more than doubled between 1998 and 2003, reaching $705. This is well above the $587 world average. Mexico and Turkey also exceeded all four of the BRICs on healthcare expenditure. Pakistan is the marked underperformer, spending just $13 per person on healthcare in 2003, a figure that has fallen 13% since 1998.

CHAPTER FOURTEEN

THE GCC DREAM: BETWEEN THE BRICS AND THE DEVELOPED WORLD

April 2007



THE GCC DREAM: BETWEEN THE BRICS AND THE DEVELOPED WORLD

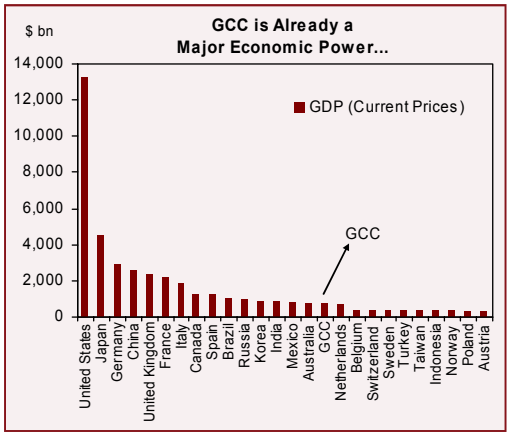
Windfall Comes as a Blessing for the Region

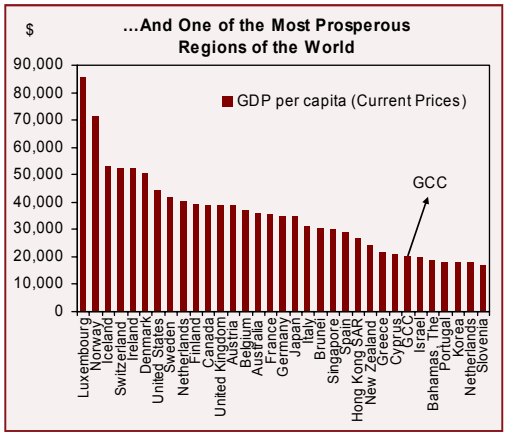
The Gulf Cooperation Council (GCC) countries (Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Oman and Bahrain) have benefited from the surge in global energy prices in recent years. The massive oil and natural gas windfall has allowed GCC economies to improve their overall net foreign asset and fiscal positions over the past four years, and to post strong, investment-driven economic growth. Regional current account and budget surpluses soared to 30% and 23% of regional GDP in 2006, respectively, and economic growth rebounded strongly to an estimated 7% in 2006—well above the 3.5% average for 1990-2002.

This robust economic performance is likely to continue uninterrupted in the next few years, as the region continues to benefit from high energy prices, which will be reinforced by a combination of strong demand growth and supply-side constraints. What is more interesting from our perspective is the region's longer-term economic potential. Not surprisingly, the region's growing importance in energy markets and as a supplier of capital to the rest of the world is commonly acknowledged and widely discussed. What is less clearly appreciated, however, is the ongoing economic transformation of the Gulf region and its long-term economic potential.

The region is becoming an economic power to be reckoned with. The GCC currently boasts a GDP level of about $735bn, comparable to that of such sizeable economies as Mexico ($810bn), Australia ($745bn) and the Netherlands ($665bn). Average regional per capita income is also fairly high, at $20,500, and ranks 27th on a global scale, just after New Zealand ($24,500), Greece ($22,000) and Cyprus ($21,000), and above Israel ($20,000), Portugal ($18,000) and Korea ($18,000).

We believe the region has a lot more to offer as it continues to benefit from strong global energy demand growth in the coming decades. Rapid economic development of the BRICs and N-11 economies will exert considerable pricing pressure on global energy markets, especially in the coming 10 to 15 years. This strong demand-side stimulus will, in turn, secure





an (extra-normal) oil and natural gas windfall for the GCC, allowing the region's economies to sustain very high investment levels and generate strong, welfare-enhancing economic growth in the coming decades.

The region's economic convergence process is unlikely to be as explosive as that of the BRICs or some leading N-11 economies. Economic rigidities, political constraints and general regional instability will likely continue to prevent the GCC from realising its *full* economic potential. But with extra effort, by placing more emphasis on improving the overall investment climate and facilitating strong total factor productivity growth, we believe the GCC can emerge as one of the most prosperous regions in the world in the coming decades.

Strong global energy demand, thanks to BRICs' rapid industrialisation

Our earlier work suggests that global energy demand can potentially grow at an annual average rate of 2.9% p.a. going into 2020, well above the previous 15 years' average of 1.85%. We expect energy demand growth to retreat gradually to 2.1% p.a. through the 2030s and stabilise around 1% p.a. thereafter. The bulk of the demand growth is projected to come from the BRICs economies (especially China and India) as they undergo the highly energy-intensive early stages of their economic development (marked by rapid industrialisation, urbanisation and infrastructure development), and as more subtle demographic factors kick in to pull down economic growth rates gradually.

Our projections do not constitute exact forecasts and are intended mainly to illustrate the potential impact of growing BRICs demand on global energy markets. In reality, supply-side constraints and ensuing price pressures might not allow for such rapid demand growth, and eventually call for greater energy efficiency and diversification into alternative energy sources. This could, in turn, push demand growth (especially for hydrocarbons) somewhat lower. That said, energy (and specifically hydrocarbon) demand is likely to remain strong, supporting relatively high prices in the coming decades—much to the benefit of global energy producers. The GCC, as a major energy supplier, should prove no exception and would benefit from emerging strong demand-side pressures and higher energy prices.

GCC is ideally positioned to benefit from rising energy demand

The region's proven oil reserves stand at 484.3bn barrels and natural gas reserves at 41.4trn cubic meters—accounting for 40.3% of the world's proven oil and 23% of natural gas reserves. The region produces roughly 6.7bn barrels of crude oil and 195.9bn cubic metres of natural gas every year. Even if production levels were to rise substantially through time, the vast natural resource base of the GCC region would still be sufficient to comfortably sustain steady oil and natural gas production for a long time.

The GCC is set to capture an increasingly large share of the global energy pie in the coming decades. The region's share of global oil (22.8%) and natural gas production (7.1%) is currently below its share of proven reserves, which suggests that the GCC will contribute increasingly to global oil and natural gas supply. The IEA estimates that during 2005-2030 roughly 38% of the projected increase in the global oil supply will come from the GCC region, with regional production growing by 72%. GCC natural gas production is also projected to grow by more than 200% during the same period, accounting for roughly 46% of the total projected global increase.

That said, it will be quite a challenge to increase the region's production capacity at a pace that can match the world's growing demand for energy, and considerable capex will be required to bring new capacity on stream. The region's crude oil reserves are abundant, but some of the giant oil fields in the region are ageing gradually, with natural 'decline rates' approaching 12% p.a. in places. Likewise, the region (especially Qatar) boasts some of the largest natural gas reserves in the world, but considerable investment will be needed to bring existing reserves into use.

The IEA (rather conservatively) estimates the total capex needed to sustain a steady 2.2% p.a. increase in crude oil and 5.6% increase in regional natural gas production at roughly $650bn (measured in 2006 prices) in the coming 25 years.

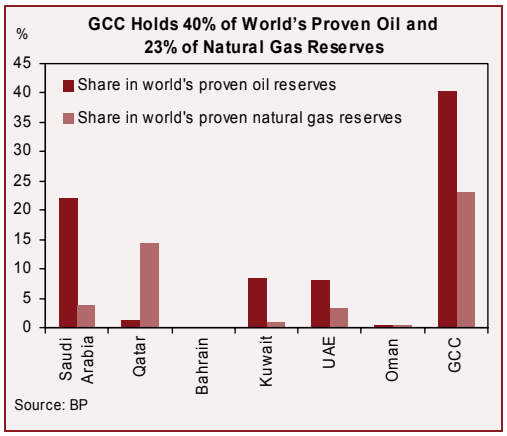
This is a substantial figure, but the GCC governments see further opportunities building in the global economy. Financing is also a less pressing problem for the more prosperous GCC region, compared with some of the African, Middle Eastern and Central Asian energy producers. The latter are subject to more serious sovereign risks and do not enjoy the financial means available to the more prosperous GCC economies. They also face much higher extraction costs upstream.

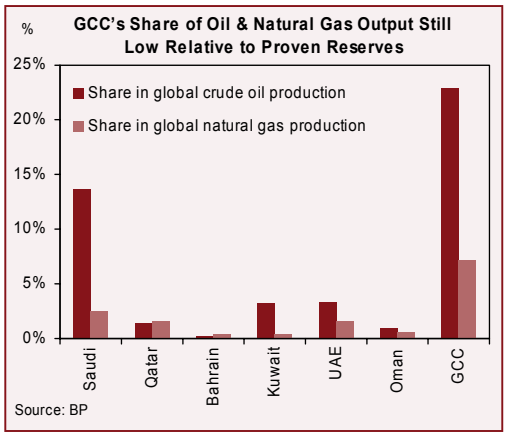
The likelihood of serious 'investment failure' remains relatively limited in the GCC. Hence, the region will most likely consolidate its lead as the world's prime energy exporter. This implies sustained and increasing oil and natural revenue inflow into the region, probably well beyond what we have seen in previous decades.

GCC's net cumulative energy windfall could reach $5trn over 25 years

To put the region's long-term windfall potential into some quantitative perspective, we projected GCC oil and natural gas revenues going into 2030. We developed two scenarios: base and the historical trend.

Our **base scenario** more or less captures the picture we have depicted above: i.e., sustained, strong global demand for carbon-based fuels, coupled with robust capex growth and steady capacity expansion. We set all parameters in line with our global energy demand forecasts. Specifically, we assume:





- Oil and natural gas exports from the region will grow on average by 2.5% and 5.5% p.a. during 2005-2030, consistent with our global energy demand growth projections.

- We set the average oil price at $48/bbl, above the $35/bbl post-war average (both measured in 2006 prices). We basically assumed that prices would prove 'sticky' in the coming 15 years, due mainly to strong demand growth and supply-side constraints. Beyond 2020, we assumed that the pressure would ease as new production capacity comes on stream and as demand pressures moderate somewhat, allowing the oil price to retreat gradually towards $40/bbl. We also assumed a flat $6.5Mbtu for the average natural gas price (measured in 2006 prices).

- We assumed $1.2trn capex (measured in 2006 prices) during the forecast period, well above the $650bn projected by the IEA. As such, we accounted for potential supply-side challenges involved in raising production levels to match growing demand.

The **historical trend** scenario is intended mainly to put this in context. We set all key model parameters (i.e., prices and the net export growth rate) at their respective 35-year averages. This period encompasses two major oil shocks (1974 and 1979), one major investment cycle (1972-1982) and three regional wars (Iran-Iraq and the two Gulf Wars), all of which led to major price increases.

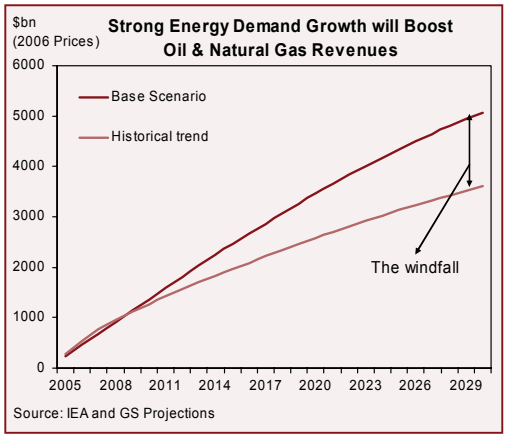
- We assumed 1.8% net crude oil export growth and 3% natural gas for the forecast period, well below the assumptions of our base scenario.

- We set the average crude oil price at the historical $35/bbl average and natural gas at $4.7Mbtu, both flat as measured in 2006 prices.

- We set capex at $600bn, in view of the very low extraction costs that have prevailed throughout the region in the past four decades.

Needless to say, our projections are highly stylised and do not constitute exact revenue forecasts. But the exercise gives a good sense of the windfall that is likely to accrue in the coming decades. Our main findings are as follows:

- **A huge windfall.** The oil and natural gas revenues projected under the base policy scenario remain well above what is suggested by the historical trend scenario—implying an extra-normal revenue flow. Specifically, measured in NPV terms (using a discount rate of 6.5%), projected cumulative oil and natural gas revenues for the 2005-2030 period amount to $5.1trn in the base scenario, significantly higher than the $3.6trn implied by the historical trend scenario.



Green Policies Could Imply Slower Hydrocarbon Demand Growth

The growing energy needs of the global economy will exert considerable pressure on the world's natural resources and the environment. The IEA's projections suggest that global CO_2 emissions are set to increase by 50% by 2030, given current energy consumption patterns, efficiency levels and the growth trend (1.75% p.a.). Our own energy demand projections are considerably more aggressive than the IEA's projections, assuming an average annual consumption growth rate of 2.5% in the coming three decades. Other things being constant, this implies an explosive growth in CO_2 emissions. At some point, consumers might have to switch to more environmentally friendly policies that would help check CO_2 emissions, emphasising increased energy efficiency and the use of alternative (non-carbon-based) energy sources. This could lead to somewhat slower demand growth and perhaps lower prices going forward.

However, the transition to a greener world will take time, and, more importantly, the world economy will continue to depend on carbon-based fuels as its primary energy source for two reasons:

- Carbon-based fuels constitute the most robust energy source available and will continue to play a key role in meeting the world's growing energy needs. A major technological breakthrough on alternative energy sources could change this picture fundamentally. However, it would probably take considerable time, investment and (ironically) carbon-driven energy input to develop, introduce and (perhaps more importantly) diffuse the new technology, and subsequently adopt it for mass consumption. Such a breakthrough is currently not on the cards.

- Kicking the world's growing carbon-based energy addiction would require strong political commitment and cooperation among consumer countries. Environmental concerns are becoming more widely expressed among key decision makers globally, and there are some encouraging signs that policy makers and politicians are taking environmental constraints more seriously. However, a lot still needs to be done in the US and even in Europe. It will not be easy for rapidly developing emerging market economies (especially the BRICs) to secure a more energy efficient path to economic development.

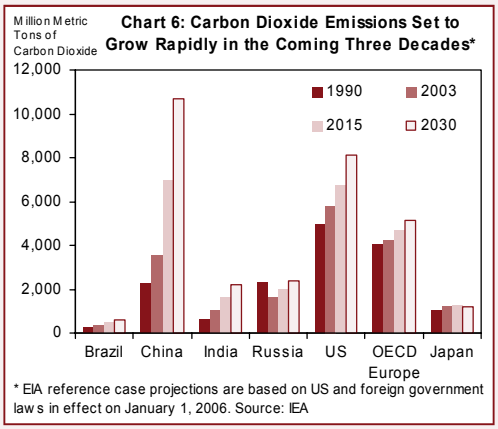
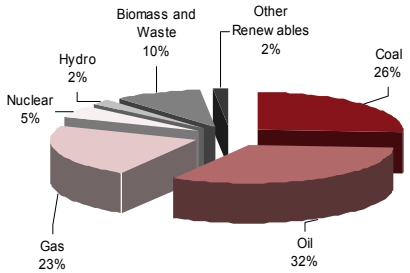


Chart 6: Carbon Dioxide Emissions Set to Grow Rapidly in the Coming Three Decades*

* EIA reference case projections are based on US and foreign government laws in effect on January 1, 2006. Source: IEA



Carbon-based Fuels will Remain the Primary Source of Energy in Coming Decades

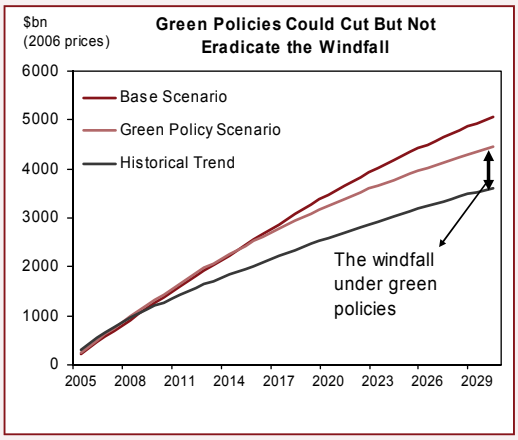
Source: IEA

Green Policies Could Imply Slower Hydrocarbon Demand Growth *(continued)*

Widespread implementation of environmentally friendly economic policies could reduce the oil and natural gas windfall substantially. However, we think this is unlikely to eradicate the windfall entirely. Technological path dependency and strong demand from the BRICs and N-11 are likely to ensure steady growth in net oil and natural gas exports from the GCC region, and to keep energy prices fairly high through the coming decade. After this point, however, demand growth might slow down and prices might come off, which could push the oil and natural gas revenues somewhat lower, compared with our baseline forecasts. To measure the likely impact of green economic policies on the GCC energy windfall we assumed:

- Crude oil export growth rate at 1.8% and natural gas at 5.2%. As such, we cut 2050 net export volumes by 17.6% and natural gas by 5.8% compared with the baseline scenario.
- Oil prices to retreat gradually from $55/bbl during the 2010s to $35/bbl by 2030. We also assumed natural gas prices at $6Mbtu.
- We arbitrarily assumed $1trn in capital spending, reflecting the substantial costs associated with increasing production while simultaneously replacing a natural decline in upstream capacity.

These assumptions brought the projected oil and natural gas revenue to $4.4trn (measured in 2006 prices and expressed in NPV terms). This is significantly below the baseline $5.1trn but still substantially above the $3.6trn implied by the historical trend scenario. In per capita terms, the projected windfall came in at $103,000, again below the $115,500 implied by the baseline and above the $84,250 suggested by the historical trend scenario.



- **Massive wealth creation.** Population growth is expected to remain fairly robust throughout the region during the forecast period, so there will be more GCC citizens to share the windfall in the coming decades. But reducing our forecasts to per capita terms does not change the picture fundamentally. Our projections put the cumulative per capita oil and natural gas export revenue (again measured in NPV terms) at $115,500 in the base scenario, well above the relatively modest $84,250 implied by our historical trend scenario. With regional (nominal) per capita income currently standing at around $20,500, this implies serious wealth creation in the region during the forecast period under the base scenario.

- **Inflows will peak in the next 15 years**. Our projections suggest that the bulk of the windfall is likely to accrue in the coming decade or so, when we expect BRICs demand to peak and alternative energy use and energy efficiency gains to remain limited. In the base scenario, roughly 65%-70% of the total projected revenues accrue within the next 15 years. Beyond 2020, the pace of revenue inflows 'normalises' somewhat.

Old Challenges and New Opportunities

'Natural resource curse' and regional instability will continue to haunt the GCC

The sizeable windfall implied by our projections suggests that, as a region, the GCC will maintain a structural current account surplus and will be able to sustain high investment levels and generate strong, welfare-enhancing economic growth in the coming decades.

The key question is whether this potential will be realised. Important challenges will have to be overcome, and we also see certain macroeconomic and institutional weaknesses that could undermine the region's long-term growth potential. However, we believe that, with some effort and good economic management, the region can make a leap forward and emerge as one of the most prosperous regions of the world in the coming decades.

We see two main impediments: one related to the broader Middle East risk and the other linked to the so-called 'natural resource curse'.

Projected Oil & Natural Gas Revenues (Total and Per Capita)

	Base Scenario	Green Policy	Historical Trend
Nominal Oil and Natural Gas Exports ($bn)	13,493	10,935	8,234
Nominal Capex ($bn)	1,969	1,395	450
Net Nominal Oil and Natural Gas Exports ($bn)	11,524	9,541	7,784
NPV Net Nominal Oil and Natural Gas Exports (2006 dollars, bn)	5,070	4,449	3,618
NPV Net Nominal Oil and Natural Gas Exports Per Capita (2005 Dollars)	115,687	103,174	84,235
Crude Oil Prices (2006 prices)			
2005	50.6	50.6	50.6
2010	55.0	55.0	35.0
2020	50.0	40.0	35.0
2030	40.0	35.0	35.0
Average Annual Net Export Growth			
Crude Oil	2.5%	1.8%	1.7%
Natural Gas	5.5%	5.2%	3.0%

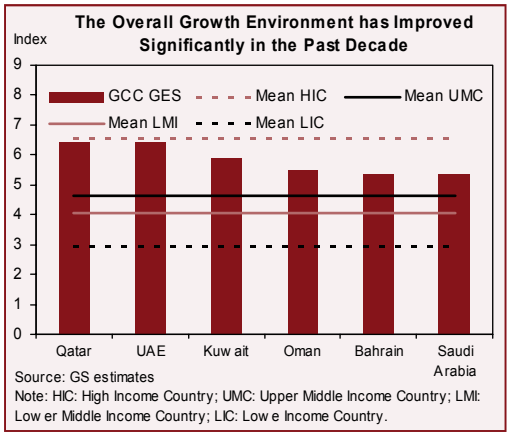
- **Middle East risk.** The GCC is located in one of the world's most unstable regions. Many complex examples from the past and today are well known, including the Arab-Israeli conflict, Iraq's ongoing instability, Iran's external relations and growing friction within different religious faiths. They all still stand as key risk factors that could destabilise the broad Middle East region (and the rest of the world). GCC countries may have to commit considerable resources to enhancing their defence capabilities, diverting resources from possibly more efficient uses. The need to constantly secure domestic political stability surrounding the GCC could dent political and economic reforms, rendering it more difficult to address deep-rooted incumbency problems.

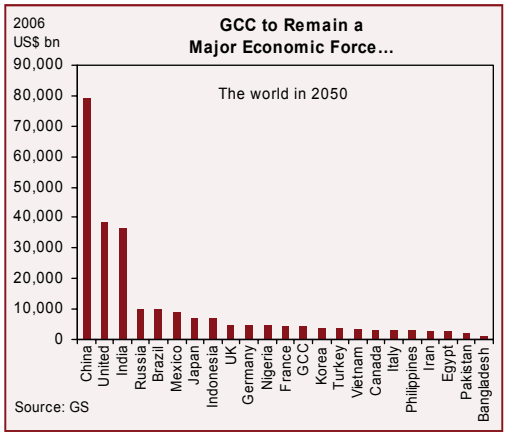
- **'Natural resource curse'.** The GCC represents an extreme resource endowment case, characterised by strong rent-seeking opportunities and relatively weak institutional (market) structures. All too often, networks of patronage and clientelism have led to economic inefficiency. Past windfalls have resulted in dramatic increases in government spending, leading to considerable economic waste. It is possible that any future revenue windfall implied by our projections could repeat past tendencies, creating considerable inertia in the region's transition to a more market-based economy characterised by a more commonly accepted rule of law and strong market institutions.

The GCC's growth environment has improved significantly

The GCC governments now place a great deal of emphasis on economic diversification, openness and market regulation, as well as on infrastructure and human resource development. These reform efforts, combined with the oil and natural gas revenue boon, are helping to improve the overall growth environment and pulling the region's long-term growth potential above the rather disappointing 3.5% average of the past few decades.

Our Growth Environment Score (GES) indices capture the fundamental improvement that has taken place across the region and the solid growth potential. The GES is an objective summary measure of 13 variables that drive productivity and help to achieve a country's growth potential. They help us to assess the likelihood that our projections will be realised. Our recently updated GES measures show a rather encouraging picture for the GCC region. Without exception, the GCC economies now occupy top positions in our global rankings. Specifically, Qatar and UAE rank 24th and 25th, while Kuwait, Oman, Bahrain and Saudi





Arabia occupy 32nd, 39th, 42nd and 43rd places (out of 177) in the GES rankings, above (for example) Greece (44th), Hungary (47th), Poland (54th), China (58th) and Mexico (68th).

Among developing economies, the region stands out: Qatar and UAE rank 1st and 2nd, and Kuwait, Oman, Bahrain and Saudi Arabia follow in 4th, 8th, 9th and 10th place, respectively—all well above the BRICs and the N-11 (save South Korea). Among developed high-income group countries, Qatar and UAE compare quite well with their peers, while Kuwait, Oman, Bahrain and Saudi Arabia also do fairly well—although in the latter group there is considerable room for improvement, especially in human resource development, technology use, political stability and governance. At a minimum, our GES indices show that the region's growth potential remains as good as that of any developing economy.

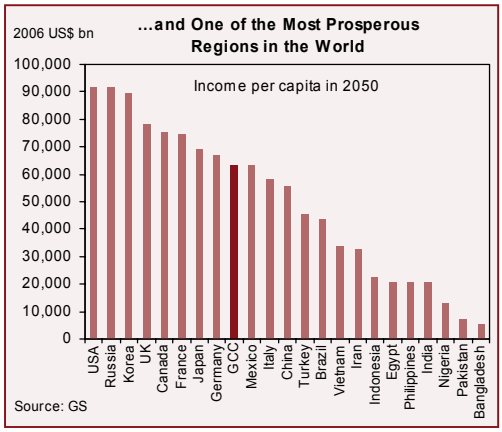
Projecting the Future

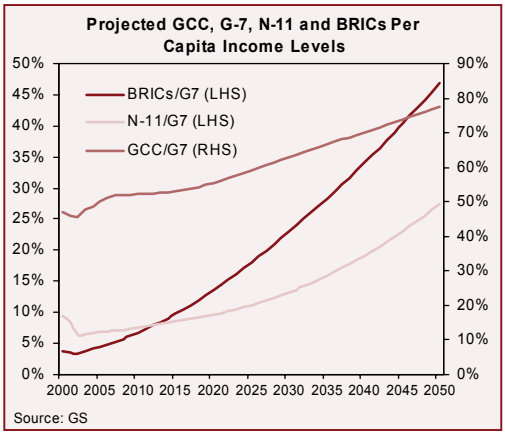
The baseline: Solid growth and rapid convergence

In order to put the region's potential in quantitative perspective, we have employed the GDP projection models first used in our BRICs projections. The model is based on neo-classical growth theory and sets labour, capital and total factor productivity (TFP) as key determinants of long-term economic growth.

In projecting GDP levels for the GCC going into 2050, as baseline, we made a conscious effort to keep our assumptions as conservative as possible:

- **Investment levels at average for past 10 years.** We set the underlying gross investment rate at the average over the past 10 years for each GGC economy; specifically, at 15.2% for Bahrain, 15.6% for Kuwait, 15.7% for Oman, 17.9% for Saudi Arabia, 24.7% for UAE and 28.5% for Qatar. As such, we did not factor in a major improvement in the overall investment climate in constructing our baseline projections, and we assumed reasonably low investment levels, notwithstanding the extra-normal revenue inflow. In other words, we assumed that the region would remain a capital exporter and diversify more gradually going forward.





- **Relatively subdued productivity growth.** Despite the high GES rankings of the GCC economies, we set the convergence ratio (the other key parameter in our projection models capturing TFP growth) at 0.8% for the entire 2006-2050 period. This is towards the lower end of the 1%-1.5% we use for our BRICs and most of our N-11 projections. As such, we conservatively assumed relatively subdued TFP growth for the region, reflecting the overall growth-retarding effects of structural rigidities and geopolitical challenges.

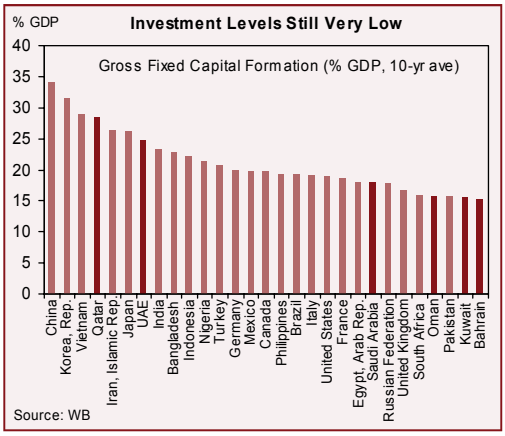
- **Gradual demographic normalisation.** Lastly, we set regional population growth rates around 2%-2.5% until 2015, around 1.5% until 2040 and slightly above 1% until 2050. As such, we assumed a gradual demographic 'normalisation'.

Under these fairly conservative assumptions, our projections suggest reasonably rapid economic growth and convergence. By the first half of the 21st century, the GCC could become comparable to major developed economies—both in terms of size and per capita income levels. Specifically, we project the region's total GDP in 2050 at $4.5trn, or just under the projected GDP levels of Germany ($4.9trn) and France ($4.5trn). We estimate the region's 2050 per capita GDP at $63,250, which compares favourably with that of such leading industrial economies as Japan ($69,000), Germany ($67,000) and Italy ($58,000). Accordingly, we project the income gap with the G7 to narrow significantly, to roughly 77% of the projected G7 average, up from the current 50%.

An alternative 'dream' scenario

The region potentially could have a lot more to offer than our conservative baseline projections suggest. The growth and convergence potential implied by the baseline scenario is no doubt impressive, but it does not suggest as robust a convergence as that of the BRICs or some of the stronger N-11 economies. To realise its full potential, the region will have to put stronger emphasis on improving the overall investment climate, and more importantly on technology and human resource development.

- **Investment levels are low.** The investment levels prevailing throughout the region remain fairly low by international standards. The rapidly diversifying economies of Qatar and the UAE are the big spenders of the region, with average investment levels hovering around 25%-30%. These compare well with the 10-year averages in China (34%), Korea (31%), Vietnam (29%), Japan (26%) and India (23%). These economies are probably testing the limits of their absorption capacity; they are already growing rapidly and can probably do very little to bolster investment levels further without creating more serious macroeconomic imbalances—namely chronic inflation, in goods and services as well as in asset prices. However, Saudi Arabia, Oman, Kuwait and Bahrain are still well behind, with their respective investment levels averaging a mere 15%-18%. Relative to the massive pool of economic resources at their disposal, the absorption level of



these economies probably remains well below potential. They can comfortably raise investment levels and commit more resources to economic diversification.

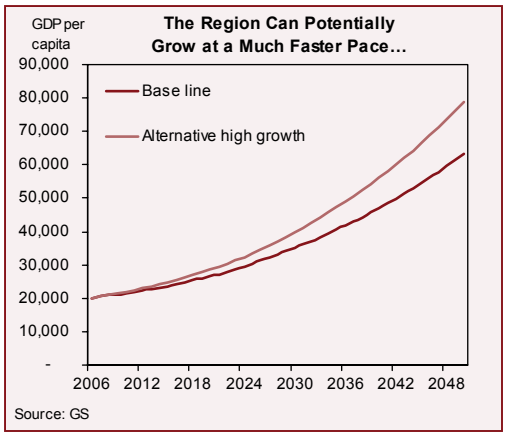
- **The region is lagging its peers in technology use**. Our GES indices also show that the region is lagging behind its peers in high-income countries (HIC) in terms of technology use and human resource development. On technology use, the region is well behind the HIC and resembles more closely an upper-middle-income economy (UMC). The GCC can therefore benefit immensely from greater economic openness, which would help facilitate the transfer of technology and know-how.

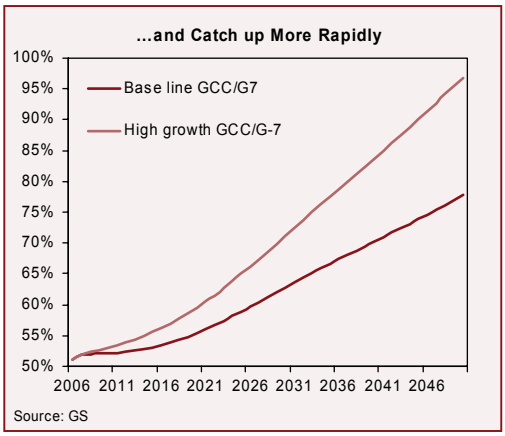
- **Human resource base is not sufficiently strong**. On human resource development, the region is ranked just below the HIC and slightly above UMC averages, but there is still considerable room for improvement. Specifically, the region can benefit immensely from a further improvement in education and health standards, which would help bolster TFP growth and further economic development over the longer term. Another major constraint here is the low female labour participation ratio, which still hovers around a disappointing 25%-30%. There are cultural obstacles here, but the region could benefit immensely from the incorporation of women into the active labour force, which would help strengthen the region's demographic dynamics even further.

In order to demonstrate the hidden potential here, we adjusted two key parameters of our GDP projection models to capture the impact of a more robust investment climate, and stronger technology and human resource base:

- We set the **investment ratio** one standard deviation above the 10-year average for Saudi Arabia (19.7%), Kuwait (21.6%), Oman (18.9%) and Bahrain (19%), and left it unchanged for the region's big spenders, UAE (at 24.7%) and Qatar (28.5%).

- We set the **convergence ratio** at 1% until 2035 and at 1.2% thereafter, above the 0.8% we assumed in the baseline and more consistent with the region's exceptionally high GES scores. This was a view to incorporating the productivity gains to be reaped from technology transfer and diffusion, and human resource development.





Under these assumptions, the region comfortably achieves promotion to the league of advanced economies. Specifically, the region's GDP hits $5.5trn by 2050 (well above the $4.5trn projected in the baseline), overtaking such leading industrial economies as the UK and Germany (both around $5trn) and moving closer to Indonesia ($6.7trn) and Japan ($7trn). In tandem, per capita GDP reaches $78,800 and the income gap with the G7 and the GCC disappears almost completely, with GCC per capita GDP reaching 97% of the G7 average.

As we have discussed above, the odds against this 'dream' scenario are high and there is a risk that deep-rooted structural weaknesses and regional instability might continue to hold back the GCC region from *fully* realising this huge economic potential. It is more likely that the region will grow into a 'dual' economic structure characterised, on the one hand, by ultra modern Dubai-like 'growth-poles' and, on the other, by continuing inefficiency and 'waste' in general resource utilisation.

However, the GCC's long-term economic potential is immense and we firmly believe that, with a bit of effort, the region can capitalise on the new opportunities presented by the fast-globalising world economy and emerge as a leading economic power in the coming decades.

This globally driven economic transformation and development process will also provide some strong support for regional asset prices (particularly to equity prices) and drive regional currency substantially stronger in the coming decades. In that sense, we do not see the GCC solely as a source of capital for the rest of the world, but also as a long-term investment story, with significant upside potential.

Ahmet O. Akarli
April 17, 2007

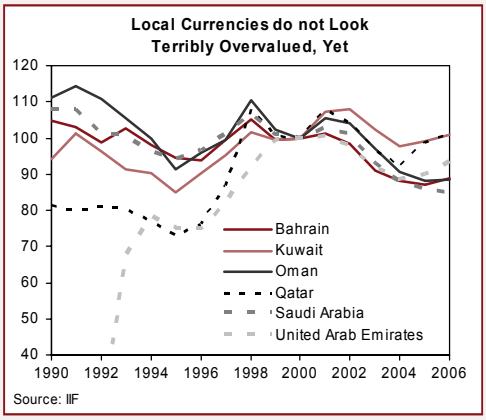
The Case for Greater Exchange Rate Flexibility

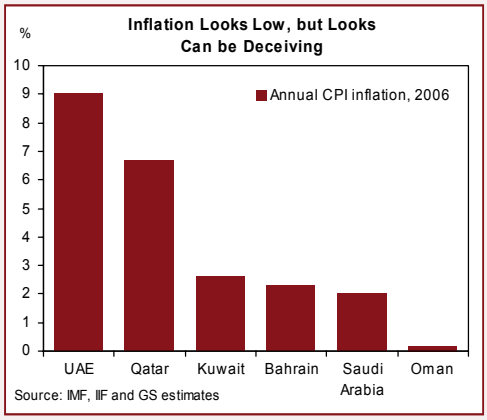
If global energy demand grows strongly in the coming decades and if, as we argue, this secures a steady inflow of extra-normal revenue to the GCC, then it will become increasingly difficult under the current fixed exchange rate regime to reconcile price stability and rapid economic development objectives, for several reasons:

- With local currencies fixed firmly to the US Dollar, the terms of trade shock from high energy prices would be passed on directly to domestic prices, because energy figures prominently in the consumption bundle and as a productive input in the non-carbon sectors.

- The wealth effect of the oil and gas windfall will raise domestic spending, which will fall in part on non-traded goods. Compared with a scenario without the oil windfall, this will result in an appreciation of the real exchange rate (an increase in the relative price of non-traded to traded goods). Resources will also be drawn into the production of non-traded goods and services, and out of the non-carbon tradeable goods sectors. This 'Dutch disease' scenario need not necessarily signal a problem, since an increase in the demand for non-traded goods and services is a natural consequence of greater wealth. It *is* essential that the (relative) reduction in the size of the non-carbon tradable producing sectors does not 'overshoot', and result in an excessive reliance on oil and gas exports. At a fixed nominal exchange rate against the Dollar, the required real exchange rate appreciation can only occur through a rate of inflation of domestic costs and prices that is higher than that in the US and in other Dollar-pegging countries. This higher inflation should only be temporary, however, as the required adjustment involves an increase only in the level of a key relative price. This wealth effect is in addition to the direct price level effect of an increase in the Dollar-denominated price of energy. It would also occur, for instance, if the windfall resulted not from an increase in the Dollar price of oil and gas but from a new discovery of carbon reserves.

- There is also the Balassa-Samuelson effect, which is associated with a successful convergence of domestic productivity levels to those in the advanced countries. If and when successful catch-up or convergence occurs in the non-oil and gas producing sectors of the economy, productivity catch-up in the traded goods sectors will tend to be more rapid than in the non-traded sectors. This means that, if factors of production can





The Case for Greater Exchange Rate Flexibility *(continued)*

flow relatively easily between these two sectors, the relative price of non-traded goods will rise. This supply-side driven real exchange rate appreciation is quite distinct from the demand-driven 'Dutch disease' appreciation described in the previous paragraph. This phenomenon can also be expected to persist for as long as real catch-up or convergence takes place—which could be several decades for the GCC region. With a fixed nominal US Dollar exchange rate, 'Balassa-Samuelson' real exchange rate appreciation requires inflation in excess of that in the rest of the Dollar-pegging world.

- Lastly, although we expect the GCC to be net exporters of capital for the foreseeable future, regional monetary authorities' desire for large foreign exchange reserves and periodic large inflows of private capital can easily lead to excessive creation of money and liquidity. This could lead to excessive domestic credit expansion and speculative excess.

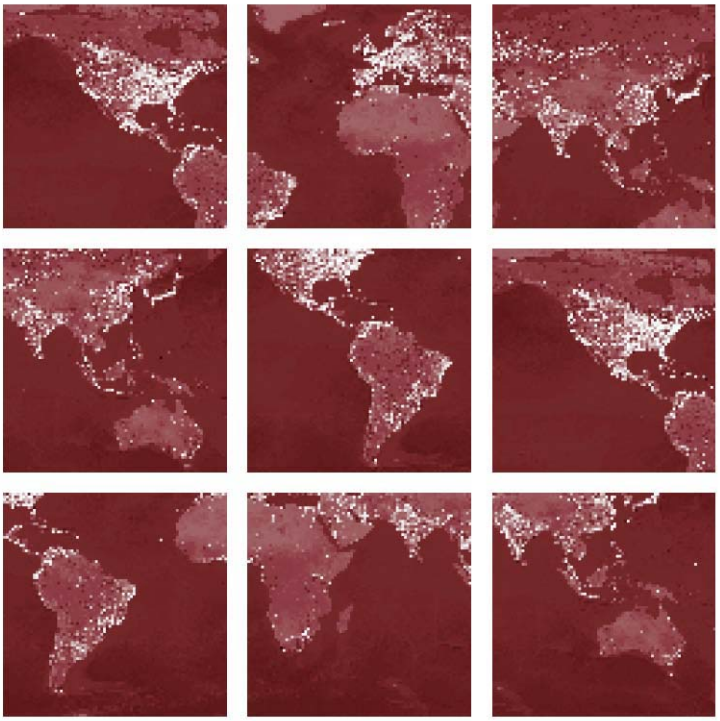
All these factors will make it increasingly difficult to maintain price stability with a fixed exchange rate peg to the Dollar. A more flexible monetary policy regime would make it easier to reconcile price stability and diversification/growth objectives. More effective liquidity management and greater exchange rate flexibility would help absorb the ensuing pressure on domestic prices.

A more flexible exchange rate regime is not without risks. One risk here could be excessive exchange rate appreciation, which could lead to a crippling form of the 'Dutch disease' and undermine diversification efforts. So a more flexible exchange regime would have to be supported by institutional and structural reforms that would enhance the monetary authorities' ability to resist exchange rate overshooting, and would facilitate productivity growth and bolster labour market flexibility. Fiscal policy would need to become increasingly more counter-cyclical, rather than pro-cyclical, so as to smooth the cycles.

At any rate, the transition from existing pegs to a more flexible exchange rate regime would have to be gradual. The Dollar pegs have served well as solid nominal anchors in past decades, and the institutional structure needed to support more flexible exchange rate regimes are not in place. The first step would probably be towards greater exchange rate flexibility, via the adoption of a composite currency basket peg, which would help reduce the inflationary effects of sharp movements in major currency crosses. The next step would be to prepare the institutional basis for the implementation of more flexible monetary policy regimes, placing much emphasis on the development of local debt markets and also proper central bank independence. Lastly, size matters. The GCC countries would be well-advised to maintain a fixed exchange rate among themselves, while introducing greater flexibility in their common external exchange rate.

SECTION THREE

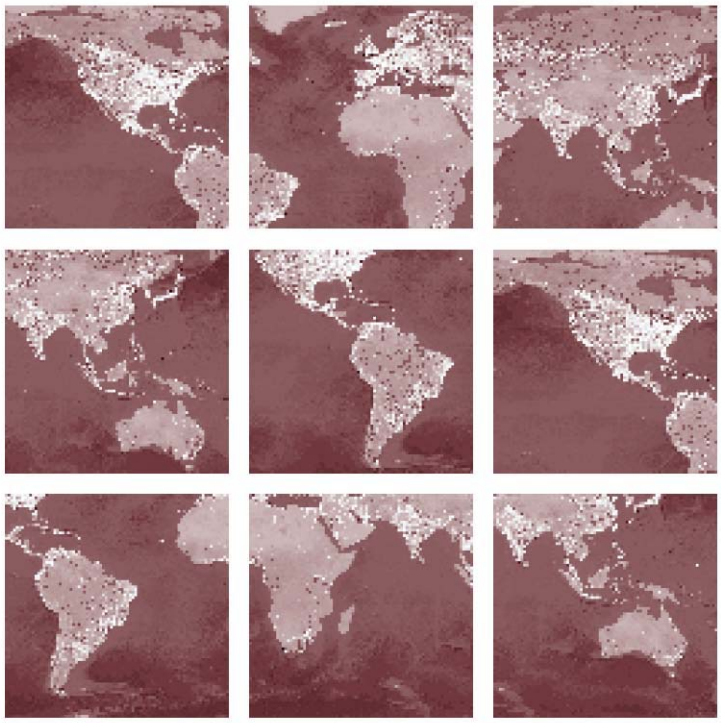
THE NEW GLOBAL MARKETS



CHAPTER FIFTEEN

BONDING THE BRICS: THE ASCENT OF CHINA'S DEBT CAPITAL MARKET

November 2006



BONDING THE BRICS: THE ASCENT OF CHINA'S DEBT CAPITAL MARKET

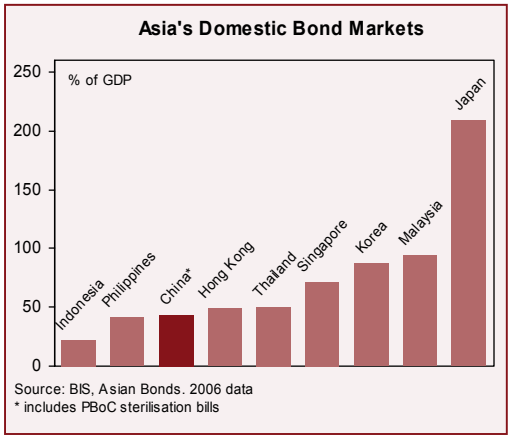
Capital Markets Can Help Underpin China's Growth Prospects

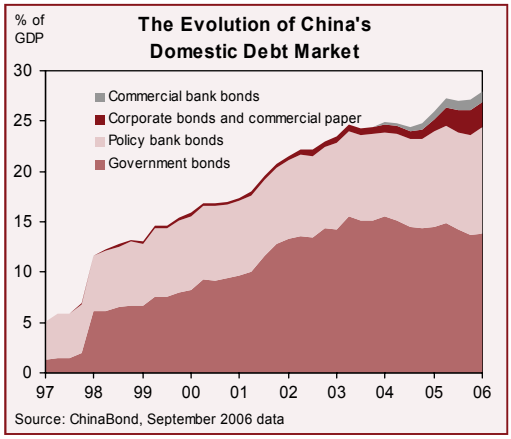
China's remarkable economic growth—averaging around 9% each year in real terms over the past decade—is all the more striking in the context of its relatively underdeveloped capital markets. On the equity side, although a number of important former state-owned enterprises have listed on international exchanges in recent years, the domestic stock market has been weighed down by previous disappointing IPOs, a large overhang of state-owned shares and a protracted ban on domestic listings.

On the debt side, the gap between economic growth and capital markets maturation is even more pronounced. When central bank sterilisation bills are excluded, the stock of domestic bonds soared from just 5% of GDP in 1997 to around 27% at the end of September 2006. Yet the market remains overwhelmingly concentrated in securities issued either by the government directly or by publicly-controlled 'policy banks', while the fast-growing small and medium enterprises, which account for nearly 60% of China's GDP, are severely under-represented. The limited domestic debt market has led to a lost opportunity on the demand side as well, failing to provide attractive investments for China's extremely high level of private savings. Most of these savings are languishing in low-yielding bank deposits.

Two factors have hampered the development of China's debt capital market (DCM) thus far, and could remain impediments limiting its maturation unless they are addressed at the macro policy level:

- First, the government has leaned on banks to assist in the pursuit of its own policy objectives. This is evident in the stringent 'merit-based' approval procedures for issuing corporate bonds, which tend to steer credit on the basis of government priorities. China's extensive network of intra-public-sector lending and borrowing has hindered improvements in corporate governance, increased 'moral hazard' by fostering expectations of government-led bailouts, and ultimately stunted the development of a credit culture and risk-control systems.





- Second, the use of direct quantity and price controls in the conduct of monetary policy. Issues surrounding China's exchange rate system have made this even more complex. To prevent soaring liquidity from fuelling excessive credit creation and economic overheating, the monetary authorities have frequently resorted to direct financial controls rather than more market-oriented instruments, such as interest rates.

In light of these policy preferences and their limitations, China's policymakers have hewed to a cautious and incremental approach to reform in the financial sector. This strategy is probably also influenced by fear of a repeat of the unpropitious experience of the 1980s and early 1990s, when a weak institutional framework, poor understanding of market mechanisms and a focus on retail investors led the nascent corporate debt market to collapse.

Yet the pace of change now appears to be accelerating. Over just the past 18 months, China has introduced greater potential for exchange rate flexibility; instituted a relatively free market for short-term corporate financing; approved a long-overdue new bankruptcy law; begun discussions on streamlining the regulatory framework; and allowed financial institutions and the state pension scheme some scope to invest abroad. In many of these areas, China enjoys the advantage of late-mover status, which should allow it to tap into an increasingly rich vein of international experiences and aim to establish best practices.

We believe that China's DCM has the potential to expand significantly in the years ahead. China's economic size (nominal GDP is estimated at $2.6trn and is set to surpass Germany's soon, at current exchange rates), well-diversified production base and large pool of private-sector savings all argue for a deep domestic debt market capacity.

The benefits from a well-functioning domestic capital market can be significant. By fostering a more efficient allocation of resources both across sectors and along the time dimension, a more robust DCM could facilitate the conduct of monetary policy and underpin the sustainability of the long-running economic boom. Moreover, a strong DCM could help to channel funds into institutional investments, reduce the need for precautionary household and corporate savings, and in turn prove instrumental in reducing the financial imbalances that loom over the global economy.

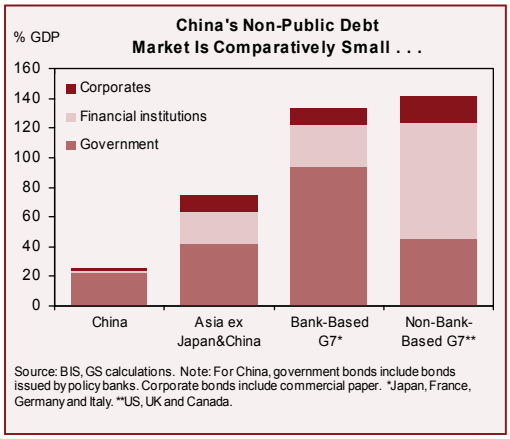
As we stress below, the size of China's DCM should not be the ultimate measure of China's progress towards a more efficient market. Nonetheless, if our growth projections (based on our BRICs framework and the analysis presented in this paper) are anywhere close to the mark, China's public and private debt markets have scope to become a key part of the international fixed income arena over the next decade. Provided further progress is made towards domestic financial liberalisation and capital account convertibility, China's bond market capitalisation could double, from 27% of GDP currently to around 60% by 2016, and could represent between 4% and 10% of G7 fixed income markets at that point—comparable to the share held by the German and French bond markets combined today.

The Current State of Play in China's DCM

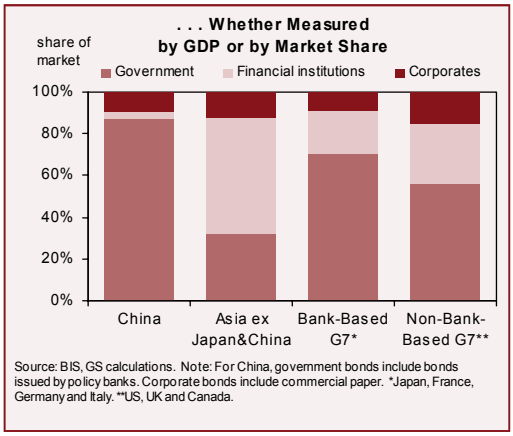
In headline terms, China's debt capital market has experienced remarkable growth over the past decade. From just RMB466bn ($59bn) in 1997, the market has expanded twelve-fold to RMB5.6trn ($707bn) at end Q3 2006. As a share of GDP, it has increased more than four times, from 5% to 27%. Yet this impressive headline growth has not been matched by a comparable process of maturation. The market is overwhelmingly populated by government bonds, which account for around half of the total outstanding debt securities, with the state-owned 'policy banks' representing a further 37%. Non-financial corporate debt of all maturities makes up just 9% of the total. The fastest-growing slice of the market is the commercial paper market, which the People's Bank of China (PBoC) established in mid-2005 in an effort to jump-start corporate debt borrowing.

Turnover is light, with commercial banks and credit cooperatives—who together own close to 75% of outstanding bonds—holding most securities to maturity. 95% of the secondary trading takes place in the inter-bank market, but the term 'inter-bank' is in fact misleading: among the market's roughly 6,000 registered participants are end-users such as mutual funds, insurance companies and some large non-financial corporations, along with the traditional commercial banks and broker-dealers. The other two markets for secondary debt trading (the Shanghai and Shenzhen exchanges and the tiny OTC market) play only a limited role.

To deepen liquidity, the government allowed 'title-transfer' repurchase trading in 2004 ('pledge' repo had already been available for several years) and has since introduced outright forward trading. From end-November 2006, inter-bank market participants will be able to borrow and lend securities against their inventories, in addition to cash collateral. Provided that the accompanying rules on tax and accounting implications are supportive, the short-selling of bonds should be facilitated by this pilot initiative.



Source: BIS, GS calculations. Note: For China, government bonds include bonds issued by policy banks. Corporate bonds include commercial paper. *Japan, France, Germany and Italy. **US, UK and Canada.



Source: BIS, GS calculations. Note: For China, government bonds include bonds issued by policy banks. Corporate bonds include commercial paper. *Japan, France, Germany and Italy. **US, UK and Canada.

China's 'Hybrid' Approach to Monetary Policy

Until the late 1990s, monetary policy in China was conducted through binding credit controls, with the People's Bank of China (PBoC) setting quantitative limits on credit expansion. From 1998, it has operated under a more 'hybrid' framework, in which the PBoC must adjust its own balance sheet to manage the monetary base and to achieve its twin inflation and growth targets. The PBoC influences both the quantity of money and its price by acting on five inter-related levers:

- **The CNY managed 'crawling peg':** Although greater flexibility has been gradually introduced since mid-2005, and the authorities now make reference to movements against an undisclosed basket of currencies, the CNY is still *de facto* anchored to the US Dollar. The ability to steer interest rate policy autonomously relies on the fact that the country's capital account, albeit porous, is closed. In the current setup, China's changes in money supply are to a large extent determined by the amount of foreign capital inflows, the tolerated pace of CNY appreciation, and the rigidity and breadth of restrictions on the free cross-border movement of capital. They also depend on the extent and effectiveness of the Central Bank's 'FX inflow sterilisation' through open-market operations.

- **Open-market operations (OMOs):** OMOs currently represent the main instrument of monetary policy. Since mid-2003 the PBoC has also held weekly auctions for tradable Central Bank Bills. The stock of outstanding Bills, currently totalling around $400bn, has soared since the end of 2004, mirroring the dramatic increase in FX reserves.

- **The discount rate/administered lending and borrowing rates:** Given that the big banks are flush with cash (loan-to-deposit ratios average 65%), most institutions do not need to access central bank refunding and are therefore relatively insensitive to changes in discount policy. Of greater relevance are the benchmark rates for lending and deposit, also set by the PBoC. By setting a ceiling on deposit and a floor on lending rates, the PBoC implicitly guarantees a minimum customer spread, protecting banks' profitability and shielding incumbents. The PBoC also sets coupon rates on corporate bonds.

- **Reserve requirements:** Faced with increasing liquidity in the system, the Chinese authorities have tightened the reserve requirement by a cumulative 300bp from August 2003 to 9.0% currently. Still, institutions hold voluntary 'excess' reserves worth around 3% of deposits, highlighting the fact that changes in mandatory requirements are not particularly binding. Mandatory reserves currently accrue interest at 1.89% p.a., while excess reserves are remunerated at 0.99% p.a.—setting the floor for money market rates. Changes in these rates contribute to overall liquidity conditions.

- **Administrative measures:** While credit quotas have been officially scrapped, both the PBoC and the China Banking Regulatory Commission (CBRC) resort to 'moral suasion' to persuade financial institutions to comply with official lending guidelines. This 'window guidance' is modelled on a system in place in Japan from after WWII until the early 1990s. In light of the difficulties associated with mopping up liquidity generated by the enormous FX inflows, such a strategy of 'benevolent compulsion' has become one of China's most actively used instruments of monetary policy in recent years.

Highly concentrated supply of domestic debt

An overview of the **supply side of the debt capital market** reveals that it is highly concentrated:

- Since the 1990s, the authorities have moved away from borrowing from the Central Bank for fiscal purposes and have instead financed budget deficits through the domestic capital markets. As a result, the stock of **public-sector debt** has risen sharply over the past decade, reaching RMB2.8trn ($349bn or 13.5% of GDP) at end-September 2006. Government securities currently account for 49% of China's total debt stock (we deliberately exclude the PBoC sterilization bills, which have accumulated at a rate of $15bn per month in the year-to-date). The Ministry of Finance manages an auction-based issuance process, but much of the supply is mandated for compulsory take-up by primary dealers.

- **Financial bonds** issued by the three state-owned and government-directed policy banks are worth RMB2.1trn ($264bn, or 10% of GDP) and account for 37% of total bond market capitalization. Funds raised through policy-bank debt are earmarked for state-mandated infrastructure and development projects. Liquidity in these securities on the inter-bank market is comparable to that of government bonds—that is to say, limited.

The other segments of China's DCM are currently small, jointly amounting to $91bn or 13% of market capitalisation. Nonetheless, they are the areas with significant growth potential—if China can undertake the policy and regulatory reforms needed to support them.

- **Commercial banks**, which have been allowed to issue subordinated debt since 2004 and financial bonds since 2005, account for just 4% of the total fixed income market. The majority of the bonds outstanding in this category, which amounts to RMB207bn ($26bn) as of end Q3:06, are issued by the 'Big Four' banks. As long as the level (and growth) of deposits remains as high as currently is the case, commercial banks will have limited incentives to issue financial bonds.

- China's non-financial **corporate bonds** represented just 1.2% of GDP at the end of 3Q2006 (RMB239bn, or $30bn), or just 4% of total outstanding bonds. This is an extremely low figure even when compared with other bank-based economies, such as Japan (around 15% of GDP, according to BIS data) or Germany (close to 5% of GDP). A range of regulations—including issuance quotas, a 'merit-based' approval process and the need for credit guarantees from the major banks—restricts access to the largest firms, leaving private firms and smaller or weaker state-owned firms with virtually no access to the capital markets. Not surprisingly, debt issuance accounts for a mere 1.4% of China's external corporate financing needs, with bank loans providing close to 85% and equities 14%, according to figures published by the PBoC.

China's Bond Market Capitalisation

As of end September 2006	RMB bn	USD bn	% of total
Government bonds	2,771	349	49.6
Policy bank bonds	2,093	264	37.5
Commercial paper	263	33	4.7
Corporate bonds	239	30	4.3
Commercial bank bonds	207	26	3.7
ABS	13	1.6	0.2
'Panda' bonds	2	0.3	0.04
Total	**5,588**	**705**	**100**
pro memoria: PBoC Bills	*3,260*	*411*	

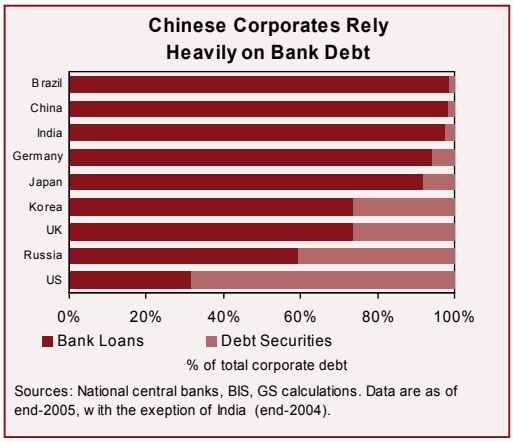
Source: ChinaBond

- One of the most meaningful innovations in China's DCM in recent years has been the establishment of a **commercial paper** (CP) market in mid-2005. At end-September 2006, this segment of the market was already worth RMB263bn ($33bn, or 1.3% of GDP), representing just over half of all non-bank corporate interest-bearing liabilities and nearly 5% of the total market. The attractiveness of the CP market lies mostly in the fact that it provides a cheaper source of funding than corresponding maturity loans. Since commercial paper is largely taken down by banks and mutual funds, credit risk still ends up warehoused mostly by the domestic banking industry. Nonetheless, the CP market offers a forum in which participants can begin to understand and price risk, helping to build a 'credit culture' in China.

- Established in 2005 to help resolve the banking sector's non-performing loans (NPLs) problem, the **structured product** market currently represents only a tiny portion (0.2%) of the market, amounting to RMB13bn ($1.6bn). Future growth is likely to be supported by three factors: the rapid growth in the mortgage market, ongoing housing reforms and the officially-acknowledged RMB1.1trn ($139bn) overhang of NPLs in the banking sector. Legal and regulatory reforms will be needed to improve the governance framework and to increase demand for the equity 'tranche' of securitised assets.

- Lastly, **'panda bonds'** issued by foreign institutions. Since these were authorised in early 2005, the IFC (World Bank) and the Asian Development Bank have issued a total of RMB2bn ($270mn) in RMB-denominated bonds in the domestic market. The government regulates the issue size, the interest rate and even the use of proceeds, which must be used exclusively in China. We see this as the early stages of an effort to open up to a broader range of international issuers. This could help mop up excess liquidity without having to resort to expanding the size of the PBoC's balance sheet.

What is **missing from this list are the 'small and medium-sized enterprises' (SMEs),** which are the engines of economic growth and job creation. SMEs account for some 60% of China's GDP and industrial output and nearly 50% of total tax revenues. They also provide significant employment opportunities, especially in the less-developed regions. At the township level, for example, more than 75% of new jobs are created by SMEs. Yet, despite their critical role in the economy, SMEs have comparatively little access to bank loans and no access at all to the corporate debt market. Instead they are forced to rely on retained earnings and informal private financing channels, including funding from Hong Kong and Taiwan. The World Bank estimates that the 'kerb market' accounts for nearly 8% of China's total financing market, compared with just 1.5% in the OECD.



Sources: National central banks, BIS, GS calculations. Data are as of end-2005, with the exeption of India (end-2004).

Policy constrains the demand side too

As with the supply side, government policy has constrained the growth of the **demand side** of China's debt capital market. This is not for lack of funds. The resources available through China's household savings are enormous, with the national household saving rate at 24% of disposable income—more than three times the OECD average. Most of these

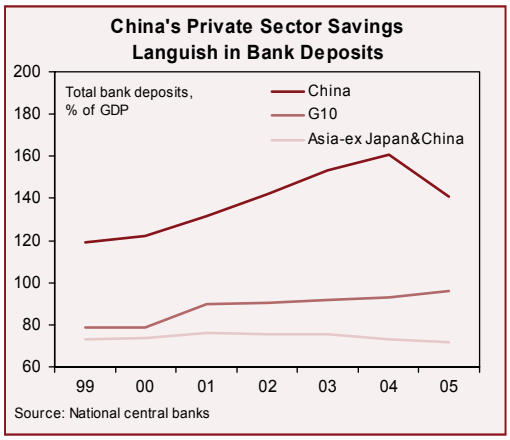
savings are 'precautionary' in nature, reflecting the low penetration of pensions and health and life insurance, minimal access to a consumer credit system and the lack of formal deposit insurance.

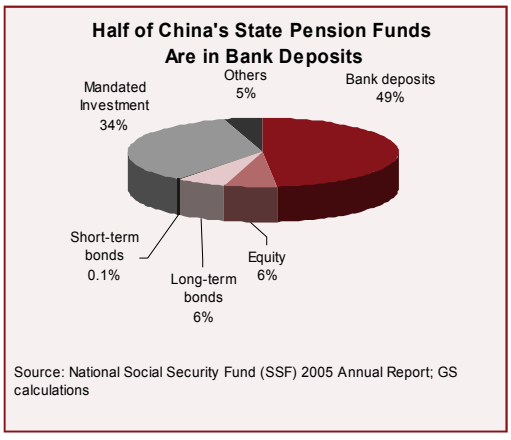
China has not yet been able to channel this deep pool of funds into the capital markets. A prime reason is simply the lack of sufficient investment vehicles to carry funds outside the banking sector. As of end-2005, **bank deposits** were a remarkably high 141% of GDP in China—despite the low rate of return these deposits offer (1-yr deposit rates are presently capped by the PBoC at 2.52%).

Deepening the institutional investor pool will be critical for the development of China's domestic debt market. Numerous empirical studies conclude that the presence of institutional investors is associated with greater liquidity, transparency and efficiency in the secondary market. The latter cannot function properly unless it includes a range of institutions whose differing characteristics lead them to have differing buying and selling interests.

The nascent institutional investor community in China currently consists of several sets of institutions that are emerging to replace the extensive social welfare programmes (which were funded and administered by SOEs) that marked the Maoist period. China formally adopted a 'three-pillar' system of state, occupational and private voluntary pensions in 1997, in line with general practice in developed countries.

- **The 'pillar 1' state pension** is designed to provide a basic minimum pension that is not tied to wages. Its structure is complicated, but the key feature from the standpoint of DCM development is its reserve fund (the National Social Security Fund, or SSF). The SSF's assets have grown substantially since its establishment in 2000, reaching RMB255bn ($32bn) at the end of 3Q2006. Government funding rather than investment returns has driven much of the growth. In addition to direct fiscal allocations, the SSF is by law entitled to up to 10% of the proceeds of sales of government shares in state-owned assets, including the recent listings of three of the 'Big Four' banks. The SSF can invest in a range of domestic assets, including equities and investment-grade corporate bonds; has taken strategic stakes in domestic firms; and has recently been given approval to invest in overseas assets. This investment flexibility is limited, however, by the fact that half its funds must—by law—be invested in bank deposits and Treasury bonds. Tighter investment restrictions have also recently been implemented in response to a pension funding scandal. Given China's worsening demographic position, there is enormous scope for the SSF to expand over time.





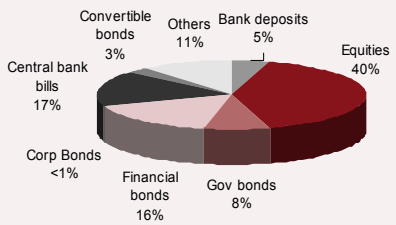
- **Occupational pensions** ('pillar 2'). China's first attempts at building occupational retirement schemes dates back to the early 1990s. The current legislation, effective from May 2004, allows for voluntary private pensions (or 'enterprise annuities'), which are co-funded by employers and employees. Although the enterprise annuity market is tightly regulated, the growing popularity of these vehicles, which are increasingly seen as instrumental for employee retention, has pushed their total assets under management to RMB79bn ($10bn) as of mid-2006, with an estimated 10mn participants. The potential for further growth is extremely high, as long as the regulatory environment remains favourable. According to projections by China's Insurance Regulatory Commission, the 'pillar 2' market could reach RMB 1trn ($125bn) by the next decade.

- The **insurance** sector, part of the private 'pillar 3' savings, is the most important institutional investor in the domestic market today. Having posted 30% average annual growth in premiums over the past 25 years, according to the China Insurance Regulatory Commission, assets under management reached RMB1.6trn ($200bn) at the end of August 2006. This is roughly six times the size of the SSF. Penetration rates for both life and non-life insurance remain low by international standards, and Chinese households' focus on precautionary savings points to continued significant growth ahead. The insurance sector is taking a leading role in moving away from the banking sector: more than half of insurance assets are now invested in the domestic bond market, with nearly one-quarter in financial and corporate bonds, according to official data. Less than 40% is currently in bank deposits, compared with half of the SSF's assets.

- A further component of the private 'pillar 3' savings, **mutual funds**, are also pioneers in the move away from bank deposits. These funds, in the form of collective investment funds and securities companies, have been in existence for several years but have only taken off since commercial banks were authorised to offer them in early 2005. Assets under management, estimated at RMB470bn ($60bn), are expected to grow further in coming years as middle-class incomes expand. A remarkable 40% of mutual fund assets are in equities, and we would expect mutual funds to boost their investments in corporate bonds (currently less than 1% of the total) as the credit culture deepens and the market matures.

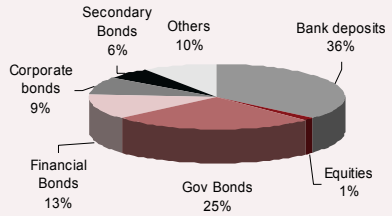
- **Foreign institutional investors** are, as yet, limited to two channels. The Qualified Foreign Institutional Investor (QFII) programme, established in 2002, currently gives qualified foreign institutions access to domestic Treasury, convertible and corporate bonds, as well as

Chinese Mutual Funds Are Largely Invested in Equities



Source: China Fund, 2005 data

Insurance Funds Are Moving Towards Bonds



Source: China Economic Information Network, 2005 data

A New Kid on the Block: China's Commercial Paper Market

In an effort to promote the direct funding of corporations, improve the liquidity of the short-end of the interest rate market and foster a more responsive pricing of credit risk, in May 2005 the PBoC allowed non-financial firms to issue commercial paper (CP).

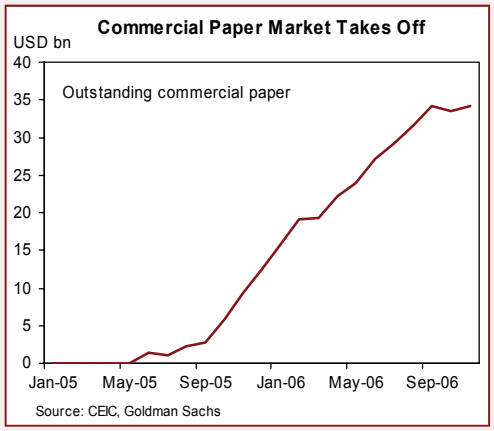
The requirements for tapping this market are notably more lenient than those for accessing the corporate bond market. Issuing firms must have legal status in China, have made a profit over the past fiscal year, and have shown a solid credit history for the previous three years. Moreover, issues need to be rated by at least two of China's five officially registered rating agencies. While the size of issuance is subject to a quantity approval by the PBoC on a firm-by-firm basis, the cost of funds is set by the marketplace. Book-building is managed by a commercial bank, which enters a 'hard' underwriting agreement in exchange for a fee.

Importantly, the underwriter has no legal obligation in the event of default. Should a credit event occur, however, 'moral suasion' exerted on the underwriting bank (backed by the threat of withdrawal of the license to conduct an underwriting business) is understood to act as a 'safety net.' At the time of writing, a decision on the first defaulted CP issue is pending; a bailout would have important negative signalling effects.

CP issuance has literally exploded in the months since its introduction, and as of end-October 2006 was worth RMB263bn ($33bn), already more than the amount of outstanding corporate bonds. There have been 280 issues, with an average size of RMB1.4bn ($170mn).

This dramatic growth trajectory is easy to explain. The CP market gives firms access to cheaper funding. CP also gives commercial banks—the largest buyers—access to a liquid tradable asset with the same regulatory risk-weighting as a corresponding maturity loan (100%), as well as a stream of underwriting fees.

The introduction of the CP market is a welcome development. It has improved liquidity at the front-end of the yield curve (though trading securities from the short side can be a painful experience) and is proving to be a good testing ground for dealers to price credit risk. Its major shortcoming is the legal framework. Absent a tested process for bankruptcy, credit risk will continue to flow from the corporate to the banking sector, with the government acting as lender-of-last-resort. This could potentially amplify, rather than reduce, systemic risks—a fact the monetary authorities acknowledge.



listed A-shares and non-tradable shares (subject to a $10bn quota ceiling). Most of the QFII funds are invested in equities; foreign institutions gained direct access to China's inter-bank market for the first time in 2005, when two components of the Asia Bond Fund initiative made sizeable investments.

- The new **Qualified Domestic Institutional Investor** (QDII) programme allows accredited institutional investors to pool domestic funds and invest them overseas. While these funds will not invest directly in the domestic market, analysts expect that a meaningful portion will be managed in Hong Kong, and that they will ultimately be invested in China-related equity or fixed-income assets. The emergence of another type of institutional investor should, on its own, also strengthen the domestic market.

The Goal for Policy: Moving From Quantities to Prices

International experience suggests that higher per-capita income and an ageing population should fuel the organic growth of China's debt market in the coming decades. We draw a tentative trajectory for China's bond market capitalisation below. It is important to recognise, however, that size is not the only indicator of the success of a debt capital market. In China's case, capitalisation alone may prove to be a particularly deceiving metric. Given the extent of the government's control over the economy, it would be relatively easy for the authorities to boost the corporate slice of the market by persuading state-owned and state-influenced companies to issue debt rather than take out bank loans. This would move China up in the bond league tables but, under the current regulatory framework, it would not deepen the market. Credit risk would still be transferred from the corporate sector to the banking sector, and at a regulated price. Secondary trading would also likely remain limited.

The key to a successful DCM, in our eyes, lies more in the efficiency of price disclosure and the transfer of risk across time and throughout the economy. Meeting these objectives will require extensive and deep changes to both the policy and the current regulatory framework. In this respect, the government's typically incremental approach to reform has clear benefits—but it also risks creating further distortions if macro policies (e.g., more active use of interest rates in the conduct of monetary policy) are not matched with actions at the more micro level (involving the regulatory regime and the legal framework). Certainly, capital market reforms should be measured, giving institutions and market participants time to adapt. But liberalising only one segment of the market—particularly against a backdrop of large capital inflows—may exacerbate existing imbalances. The booming commercial paper market is one example of this type of risk.

Chinese policy-makers appear to be aware of these issues. The steps they have taken in the past few years have been in the right direction, introducing changes both on the external side (the new FX framework does allow for greater exchange rate flexibility, for example) and on the internal front (the removal of the ceiling on lending rates, for instance, allows banks to better discriminate between borrowers). But this is not enough to put DCM development on a self-sustaining footing.

Giving Pensions a Pivotal Role in China's DCM

One facet of 'moving from quantity to prices' involves addressing China's pensions problem head-on. During the 1990s, pensions were a key obstacle to SOE restructuring, as older workers resisted layoffs from the companies that were the only source of their PAYGO-funded retirement income. Over the past decade, China has slowly adopted a 'three-pillar' pension system, structured around a combination of a basic state pension, occupational pensions (called enterprise annuities) and private savings, in line with established practice in some industrialised countries.

The 'first pillar' programme is a defined-benefit programme of sorts, providing a standard pension payment that is not linked to individuals' wages. The programme contains both a PAYGO component and individual accounts, which are nominally funded. This programme is back-stopped by a reserve fund, the National Social Security Fund (SSF), which is also meant to help ease the transition to the new system for older workers whose pensions suffered from the SOE restructuring. Estimates of the cost of this transition range widely; the SSF Chairman has quoted a figure of RMB2trn ($250bn).

Despite rapid growth since its establishment in 2000, **the SSF remains significantly under-funded**. Its assets of RMB255bn ($32bn) as of 3Q2006 hardly make a dent in the estimates of the transitional costs alone. This under-funding translates into small payouts and limited coverage, even in urban areas. As China's demographic position worsens in coming decades, the funding needs will intensify.

Given the Fund's focus on preservation of capital, investment returns alone are unlikely to suffice. By law, **at least half of the Fund's assets must be invested in bank deposits and Treasury bonds**, while corporate and financial bonds are capped at 10% of the portfolio. As of end-September, nearly one-quarter of the fund was in equities, which has helped to boost returns on the fund to 6% in the year-to-date, compared with a meagre 3% in 2005. The Fund is also allowed to take stakes in domestic companies and has recently been given the go-ahead to invest overseas. But significant growth will likely depend on further central government allocations, or on the SSF's entitlement to 10% of privatisation proceeds.

One way for the government to accelerate the pace of SOE restructuring, separate social responsibilities from banks' commercial objectives more clearly, and put the 'three-pillar' system on a stronger footing would be to **explicitly assume the outstanding pension liabilities of the state-owned sector**. The cost and details of this type of fiscal transfer would depend on a number of policy choices, but a plausible route would be to fill the 'transitional' shortfall in the SSF's funding. As stated above, a rough figure for this transfer would be in the region of RMB2trn ($250bn), or nearly 10% of GDP.

A transfer of such magnitude is well within China's means. To put this in context, it would be less than the $300bn that China has already spent to recapitalise the banking sector. It would also be just one-quarter of China's vast pool of foreign exchange reserves (which have risen at an astounding average pace of $19bn per month since the start of the year and now stand in the region of $1trn). China has already tapped its FX reserves to inject $60bn into three of the 'Big Four' banks, so reserves are clearly not 'off limits.' Given our estimate that the 'optimal' level of Chinese FX reserves is about $200bn, an inter-generational transfer of this kind would seem a sensible option.

Giving Pensions a Pivotal Role in China's DCM *(continued)*

Formally funding the SSF—rather than simply shifting its unfunded liabilities to the government's balance sheet—would have the benefit of segregating these pension funds, thereby helping to ensure that investment income is not diverted to other government priorities, and potentially boosting individuals' confidence in the system. Greater confidence could in turn **help to reduce the level of precautionary savings and shift more funds into the domestic capital markets.** Capitalising the SSF, and adopting less conservative investment guidelines using the example of countries such as the Netherlands and Japan, also offers China an opportunity to build a key pillar of demand for domestic securities, and ultimately to channel savings into more productive uses. The experiences of Mexico and Chile show that pension innovation can be an important catalyst for the maturation of domestic capital markets.

At the level of macro policy, we see at least **three inter-related priorities**, which should—ideally—be addressed simultaneously:

Allowing greater exchange rate flexibility and progressively removing interest rate controls

This is an over-arching issue and will have important consequences for the economy as a whole, not just for the capital markets. China's current exchange rate regime constrains the use of market-oriented instruments—interest rates chief among them—in the conduct of monetary policy. This has the unfortunate side-effect of curtailing the pace of local debt market development.

Faced with limited investment alternatives outside deposits, strong speculative capital inflows are compounding large domestic saving accumulation, channeling liquidity into the banking sector and, in turn, fuelling credit expansion. Against this backdrop, raising policy rates would appear appropriate to prevent the economy from overheating and sparking inflationary pressures. But this solution could lead to its own set of difficulties by spurring even higher capital inflows from abroad.

The PBoC has instead issued vast amounts of sterilisation bills and repeatedly increased reserve requirements. Thus far, such wholesale liquidity mop-up operations have not been costly, since the rates paid on Central Bank Bills have been on average below those on the medium- and long-term foreign securities in which FX reserves are for the most part held. This favourable situation could change, however, if domestic price inflation were to accelerate, and/or if monetary policy abroad, particularly in the US, were to be eased.

With these operational constraints in mind, it is easier to understand why the monetary authorities still need to resort to various direct price and quantity credit controls, in spite of their declared ambition to progressively abandon administrative measures. This creates a vicious circle, inhibiting market forces from pricing and determining the quantity of credit, and ultimately impairing the transmission mechanism of monetary policy. The benefits of being able to steer monetary policy autonomously through market instruments are already becoming increasingly apparent as China integrates further with the global economy and becomes more exposed to potential external 'shocks'. For this reason, the greater scope for

exchange rate flexibility in place since the currency arrangement reform in 2005, the removal of ceilings on lending rates and the opening of the commercial paper market are all very welcome developments, which can work best if they are allowed to reinforce one another.

Drawing a clearer separation between fiscal policy and the banking industry

A second area of policy change involves the public sector pulling back further from the financial industry, allowing banks to allocate their assets on the basis of economic targets and bear the full risks associated with those decisions. This is likely to be a difficult 'divorce'.

Despite China's remarkable transformation over the past quarter-century, the legacies of state control, extensive social welfare programmes and the desire for social stability remain strong. The role of the banking sector as an arm of the state is at times explicit, as policy-driven lending is allocated or withheld to support government priorities. More worrisome from our perspective is the fact that lending is often used as an indirect means of social support for uncompetitive industries. In many cases, large firms are not allowed to go out of business for fear of the associated unemployment and social dislocation. This strategy has been expensive, because the government has addressed the resulting non-performing loans problem by carving out nearly RMB2.4trn ($300bn) from the 'Big Four' banks. We do not see it as a sustainable solution to the problem of uncompetitive state-owned enterprises.

A better solution, in our view, would be to re-categorise public-welfare concerns explicitly as fiscal obligations of the central government. Pensions for retirees, unemployment relief for those cast out of work and social relief for unemployable workers are typically—and rightly—seen around the world as government responsibilities. In China the case for this is even stronger, since the 'firms' that originally assumed these obligations were unambiguously arms of the government. Although some of these obligations may be within the jurisdiction of the provincial governments, the country's fiscal dynamics suggest that only the central government would be able to assume them. Many observers regard these obligations as 'quasi-sovereign' in any case; making this official would eliminate one of the overhangs on both the banking sector and the major corporates. The size and nature of these sorts of transfers would depend on a number of policy choices. Whatever the specifics of the ultimate plan, shifting these obligations onto the central government's balance sheet would be well within China's financial means. It would be an extremely helpful step toward both a more robust banking sector and stronger capital markets.

Promoting a diversified base of non-bank institutional investors

One means of creating viable substitutes to bank deposits would be to take steps to establish a broad base of institutional investors. Building up such a base will require proper incentives and safeguards for savers, as well as a more flexible regulatory structure for investors. From the standpoint of savers, China could use fiscal levers to encourage a shift of funds out of bank deposits and into mutual funds, voluntary insurance and pension schemes. The experiences of Germany, France and Japan—where households held a vast percentage of their financial assets in bank deposits at the start of the 1980s—suggests that these incentives can go a long way in reallocating saving flows.

The fiscal lever can also be used to influence the composition of institutional demand, in line with government preferences. For example, fiscal incentives promoted life insurance companies

in Germany, corporate pension schemes in Japan and mutual funds (SICAV) in France. Importantly, the increase in the share of institutional investors in the debt capital markets does not need to come at the expense of the banking industry, which frequently controls the new enterprises.

The Rules of the Game: Strengthening the Regulatory Landscape

Drilling down to specifics, it is clear that China has made notable progress over the past 18 months in strengthening the regulatory framework governing the domestic capital market. More work is still needed, however, particularly in order to translate the macro policy objectives described above into an efficient marketplace. We group these specific issues into **three broad categories**: first, relaxing the administrative controls; second, fostering a credit culture; and third, strengthening the market infrastructure.

Relaxing administrative controls on corporate borrowing

A variety of regulatory constraints interact to discourage corporates from seeking funding in the debt market. For one, the regulatory regime is cumbersome and opaque, with four agencies sharing responsibilities for the issuance approval. Shifting primary oversight from the National Development Reform Commission (NDRC) to the China Securities Regulatory Commission (CSRC), a move China is reportedly considering, would be helpful. Thanks to its position as the lead regulator of the domestic equity markets, the CSRC has extensive experience with approval, disclosure and listing standards. It is seen as one of the more 'activist' market regulators in China, with a focus on professional staffing and standards.

Beyond the re-allocation of responsibilities, the conceptual framework behind regulation of the corporate debt market also needs to be reworked. For the reasons of monetary and social policy that we have discussed, regulators exercise tight control over the entire debt issuance process. Approval is 'merit-based' rather than 'disclosure-based' and is subject to quotas. These two requirements interact in a particularly troublesome way, often steering funds into uncompetitive SOEs. Even the PBoC Governor has openly described the quota system as 'a relief measure for financially distressed enterprises'.

Two further restrictions limit the market's ability to price risk. First, corporate bonds require credit guarantees (usually from the major banks), meaning that investors ultimately bear the credit risk of the bank rather than of the issuer. This leaves them with little incentive to do real due diligence or to price corporate risk appropriately. (The first issuance of a corporate bond without a guarantee earlier this year suggests, encouragingly, that China is beginning to phase out this requirement.) Finally, the PBoC determines the coupon rate on corporate bonds, further undermining the market mechanism in the allocation of credit.

Fostering the growth of a credit culture and lowering expectations of bailouts

A critical facet of any credit culture is the bankruptcy system. Until recently, the lack of an effective, timely and relatively inexpensive bankruptcy and foreclosure system in China had discouraged creditors from lending to all but the best-connected firms, and had prevented the credit markets from pricing risk effectively. By passing a new bankruptcy law in August 2006,

China's Bankruptcy Law: A Long and Winding Road

With the passage of a new bankruptcy law in August 2006, China has taken an important step in offering creditors a timely, affordable and effective means of pursuing claims. The new law is designed to streamline the bankruptcy process and to unify the procedures for SOEs and private firms, replacing a patchwork of overlapping and outdated structures and regulations. Under the previous system, successful bankruptcy proceedings had been relatively rare, time-consuming and expensive, with average cases lasting two and a half years, costing 22% of the estate value, or three times the OECD average, and yielding a recovery rate of just 31.5 cents on the $, less than half the OECD average, according to the World Bank. In addition to streamlining the procedure and unifying the processes for both state and private companies, the new law is notable for its willingness to subjugate workers' claims to those of creditors—though how this will play out in practice is not yet clear.

Implementation of the new law, beginning in mid-2007, will be a critical challenge. Arguably, the Chinese judicial system is not well-equipped to handle a large number of bankruptcy cases. There is only one specialised bankruptcy court in the country, and few judges will have expertise in bankruptcy law. Substantive knowledge and experience will need to be built over time, perhaps with assistance from overseas.

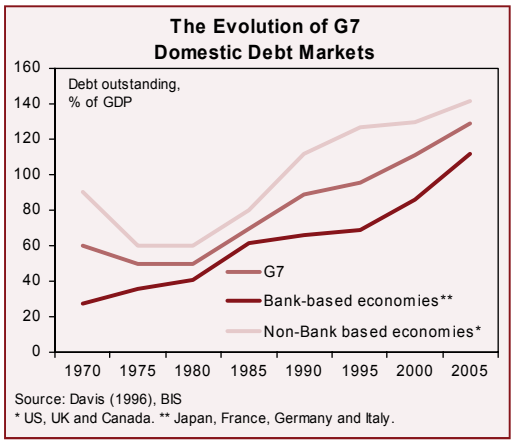
Creditors will need to embrace the new system if it is to be effective. Here, uncertainty and a lack of transparency and precedents may weigh against a rapid uptick in the number of cases filed. As yet, few listed companies have filed for bankruptcy, and none has ever formally completed the process. Though big banks' balance sheets are burdened with non-performing loans (NPLs), banks have an incentive to keep these loans on the books rather than write down their assets. The government's willingness to recapitalise some RMB2.4trn ($300bn) of the largest banks' NPLs in recent years has proven this to be a fairly profitable strategy.

China has taken an important step to streamline the process and to enhance creditors' standing. Although there may be questions as to how well the legal system can handle any flood of bankruptcy cases once the law becomes effective in mid-2007, we see it as a clear signal that China is serious about improving the investment climate.

China can also promote a vibrant credit culture in other ways: fostering improved corporate governance standards, insisting on more rigorous disclosure, and moving towards international accounting standards. If and when credit guarantees are fully eliminated, these issues will quickly take on a far greater importance. Support for domestic ratings agencies will help to improve the quality and quantity of information available to investors. Critically, the government will need to give regulators free rein to enforce strict standards without concern for any political fallout.

Strengthening the market infrastructure

Given the low liquidity in the secondary market, it will be important to make a clearer distinction between the wholesale market, where a short-list of primary dealers who have access to the primary market operate, and the market for end-users, such as institutional investors and corporates, who should not participate in the inter-bank market. This would establish the



appropriate economic incentives for dealers to offer liquidity and, in turn, increase the depth of secondary trading. An additional priority should be to further improve the functioning of the repo and securities lending markets, and to clarify the related tax and accounting issues, in order to facilitate the short-sale of bonds and to increase the relevance of market pricing.

China does appear to be moving forward on many of these initiatives. The new bankruptcy law, the creation of the commercial paper market, the inaugural issuance of debt without a bank guarantee, reports of plans to abolish the quota system and, most recently, the introduction of pilot plans to support short-selling of bonds, all point to a high-level commitment to improving the regulatory landscape. As with many reforms, change is likely to involve test cases and *ad hoc* waivers; we would see these as encouraging harbingers of future policy shifts.

The Outlook for China's DCM

Notwithstanding our emphasis on efficiency rather than size, China's ageing population, strong economic growth and the prospects of future financial liberalisation would all seem to point toward a much larger domestic debt market. The key questions for investors are of course 'how large?' and 'by when?' In attempting an answer, we need to acknowledge the absence of a consensual theoretical framework to determine the size of a local debt market, not to mention the limitations of empirical analysis in this area. To illustrate our point, it is often argued that economic development and corporate governance *are affected by* capital market development, rather than the other way around.

We turn to international experience for guidance. In the early 1970s, the G7 bond markets were roughly in a similar shape to those of China today, and the key drivers behind their growth between then and the mid-1990s could serve as a template for things to come:

- G7 markets embarked upon a wide-ranging process of **financial deregulation** starting in the early 1970s. Key steps included the abolition of interest rate and FX controls, and the liberalisation of fees and commissions. China is beginning to take similar steps now. Although this process has only begun, we believe it will eventually promote greater debt-security financing.

- **Demographics** have worsened considerably since 1970 in developed countries, with most (except the US) moving out of the 'demographic window' that is most conducive to economic growth. China's population is also ageing rapidly amid gains in life expectancy and the preservation of the one-child policy. As a result, China's demographic window is expected to close in about 20 years, at which time 14% of the population will be 65 or older, up from just 8% today. Ageing could promote the development of the pension and life insurance markets, increasing the demand for bonds. The supply of fixed income

The Future Size of China's Bond Market

Our statistical analysis relies on a panel of data for all G7 countries spanning 1970-1995. Due to the low frequency nature of evolution in bond markets, we look at the data in five-year snapshots. This gives a time series of six observations across the seven countries. In line with this, we estimate the following equation:

$$SIZE(i,t)=GDPC(i,t) + DRTIO(i,t) +FINLIB(i,t-5) + e(i,t)$$

where the index i stands for each of the G7 countries, t is time, and the variables are defined as follows:

- SIZE is the capitalisation of the bond market as a share of nominal GDP.
- GDPC is per-capita GDP (in $ terms).
- DRTIO is the 'dependency ratio', defined as the share of the 65+ age cohort to the working age cohort (15-64). Data comes from the UN population statistics.
- FINLIB takes the values (1, 2 or 3) that represent the degree of financial liberalisation. For details, see Kaminsky and Schmukler, *Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalisation*, World Bank, 2002.

The coefficient estimates of the pooled regression are reported in the table, alongside standard statistics. Other linear specifications were also used, with the results roughly consistent with those reported here.

Impact on Debt-to-GDP Ratio of Different Factors

Factor	% of GDP Change*
A 10% increase in per-capita GDP	2.5 (8.6)
A full financial liberalisation	12.2 (1.7)
A 1 point increase in the 'dependency ratio'	1.8 (4.7)
R-Square	0.41
Durbin-Watson	2.03

Source: GS calculations

* t-statistics are reported in brackets.

instruments should increase as the fiscal position worsens due to slower tax revenue growth as well as to rising health care and social security expenses.

- G7 bond markets have grown in tandem with the countries' **economic development**. From a supply-side perspective, economic development in these markets has usually been associated with a gradual reduction in state ownership of the corporate and banking sectors, and with improving corporate governance. These processes have enhanced the reliance on debt-security financing. On the demand side, growth in per capita GDP in G7 economies—a reflection of significant wealth creation—has been accompanied by a greater role for institutional investors. China's economic development is unfolding rapidly, and the same process seen in these markets is likely to occur in China as well.

Our cross-sectional regression analysis for G7 countries examines the interplay between debt market capitalisation, economic development (as proxied by GDP per capita), financial liberalisation and population ageing. Between 1970 and 1995, the bond markets of Europe and Japan increased, on average, by the equivalent of 70% of GDP. Just over two-thirds of this growth can be attributed to the expansion in income per capita.

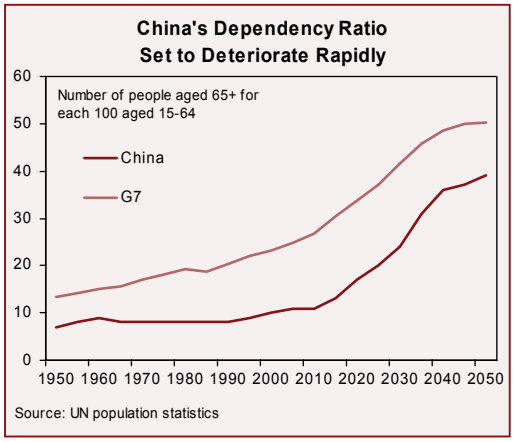
Assuming average annual GDP per capita growth of around 6%, consistent with our BRICs framework, a gradual move towards further domestic financial liberalisation and capital account convertibility, and a deteriorating demographic picture (using the UN's demographic projections), we calculate that the Chinese bond market capitalisation could reach just over 60% of GDP by 2016, from 27% currently. Around half of this growth (or 16% of GDP) is related to economic development. An additional one-third (12% of GDP) is linked to the expected financial sector reforms.

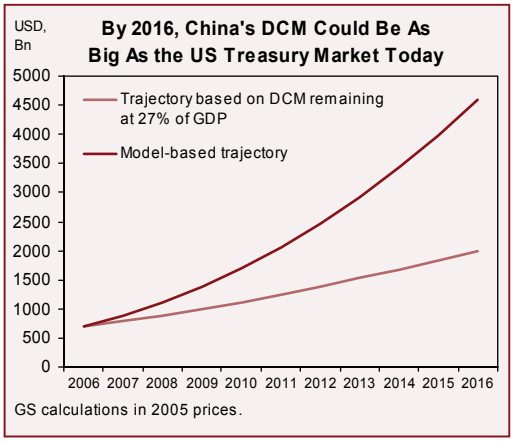
The remainder is associated with deteriorating demographics, as captured by China's rising 'dependency ratio' (the ratio of people over age 65 as a share of the working-age population). This latter factor has scope to become even more prominent in the following decades, considering that the ratio is predicted to increase from 11 to around 14 by 2016, and then to rise even more rapidly until 2040.

Based on our BRICs baseline projections, a Chinese debt market worth close to 60% of GDP in 10 years would be in the vicinity of $4.5trn in today's prices, roughly equal to the current size of the US Treasury market. In US Dollar terms, this central projection implies an annual real growth rate of 20%, compared with the 34% rate observed over the past decade. The slower growth pace is to be expected as the market matures, and as the focus of growth shifts away from government securities to corporate debt.

On the assumption that debt-to-GDP ratios in the G7 markets remain stable at their current level over the coming decade (though the debt composition may change, this does not look like a completely unrealistic scenario), China's DCM could represent 10% of G7 debt market capitalisation in 10 years' time—up from just under 2% currently. In today's prices, this corresponds to the relative size of the German and French bond markets combined today. Even under the much more conservative assumption that China's DCM stays constant as a share of GDP at the current ratio of 27%, our BRICs GDP growth projections suggest that it could reach a level comparable to 4% of the combined G7 fixed income markets by 2016.

Whether China can expand its local debt market will depend to a large extent on its ability and willingness to embrace regulatory flexibility and a 'market-oriented' mindset, to manage its exchange rate policy in a more flexible manner, and to find an equitable yet effective solution to the pensions problem. This is a tall order, and implementation is bound to be rocky at times.





But the payoff—in terms of a robust banking system, strong state-owned enterprises, a thriving private sector and perhaps even an improved sense of social stability—could be enormous. Developing the domestic debt market will be a key step to the 'BRICs dream' playing out in China.

Conclusions: China's DCM to Fulfill Its Potential

Since the economic reform programme accelerated in the early 1990s, and particularly with WTO entry five years ago, China has become deeply integrated in the global economic system, as evidenced by its growing export shares across the industrialised economies. Yet, viewed from the perspective of the maturity of its financial market, China's weight in the global scene is comparably much smaller and likely below its potential. A growing gap between the real economy and its financial underpinnings could create increasing challenges for the conduct of monetary policy (which has already had to revert to using direct controls in recent years to slow money and credit creation), potentially expose systemic risk in the banking sector and, eventually, undermine the sustainability of economic growth itself.

Well aware of these issues, the Chinese authorities have set out to gradually reform their banking and financial infrastructure, particularly since the start of the decade. A ample war-chest of hard currency reserves should allow for a smooth transition period, increasing the chances of success. Over time, Chinese households could benefit from the ability to shift resources across time (both on a forward-basis, through pension and insurance accumulation plans, and in reverse, thanks to mortgage and consumer credit markets). Domestic financial institutions are best placed to take advantages of these profitable businesses, which will allow them to reduce the resources devoted to traditional corporate lending functions, as has been the case in most industrialised economies. Finally, corporates will enjoy a wider range of financing alternatives.

The reform road is long and winding, but the destination—resource allocation based on price signals rather than quantity controls—is worth the journey. International observers attempting to monitor the pace of Chinese domestic capital market reforms should focus on a few key signposts, namely: the implementation of the new bankruptcy law; measures to bolster the role of institutional investors; and a gradual removal of deposit and lending rate controls, which would expose banking institutions to greater competitive pressures. On the external side, progress on currency flexibility and, eventually, capital account convertibility remain key to watch.

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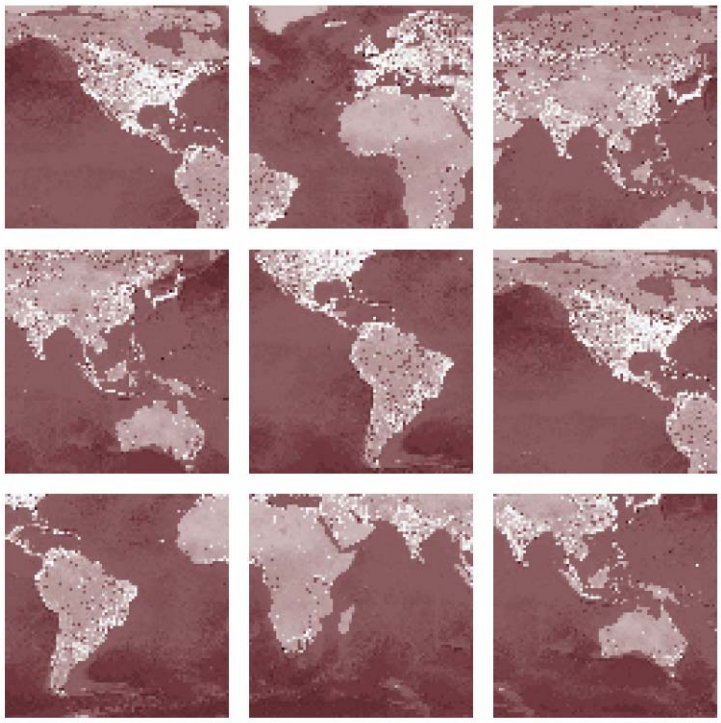
November 20, 2006

* Zhong Sheng and TengTeng Xu were summer interns in the Economics Department and are now at Cambridge and Oxford Universities, respectively.

CHAPTER SIXTEEN

BONDING THE BRICS: A BIG CHANCE FOR INDIA'S DEBT CAPITAL MARKET

November 2007



BONDING THE BRICS: A BIG CHANCE FOR INDIA'S DEBT CAPITAL MARKET

Introduction: A Well-Functioning Debt Capital Market Is in India's Interest

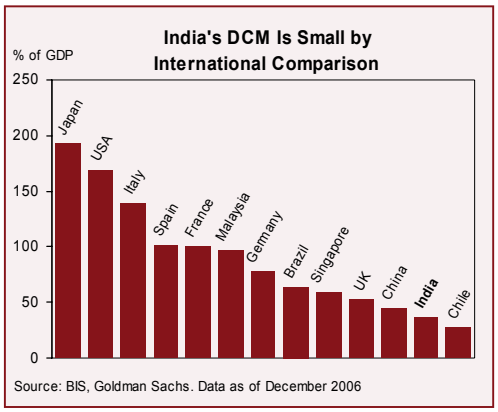
Capital markets development remains a critical aspect of our BRICs story. As these economies grow and develop, their domestic capital markets should expand and mature, fostering a more efficient allocation of funds and a wider distribution of risks, and facilitating the transfer of resources and the 'smoothing' of consumption over the life cycle and across generations.

In India, strong growth since the start of this decade has transformed the macroeconomic landscape. We now estimate that the economy can potentially sustain annual GDP growth of 8% or more over the next ten years. But we also believe that continued progress on structural reforms is necessary to strengthen the foundations of and the prospects for India's economic expansion.

Amongst the most important reforms is the development and deepening of the non-public debt capital market (DCM), where growth has been lackluster in contrast to a soaring equity market. Consider that the stock of listed non-public-sector debt in India is currently estimated at about $21 billion, or about 2% of GDP—just a fraction of the public-sector debt outstanding (around 35% of GDP), or the equity market capitalisation (now close to 100% of GDP).

Of course, the absolute or relative size of the bond market itself is not the critical issue. After all, even now, the US remains the only developed economy where private-sector corporate and financial interest-bearing liabilities are a meaningful share of GDP (see chart on page 209). Nonetheless, the past decade has seen domestic debt markets mature considerably in traditionally bank-centric economies in Europe, Asia and Latin America.

The economic advantages of having a viable private DCM can be grouped into three broad categories. First, it gives providers of capital access to a broader set of diversification opportunities. In India today, household wealth is parked in bank deposits, real estate and gold, with very limited stock ownership (see chart on page 208). More active insurance and pension markets, for example, would allow families to spread investment risks more broadly. In turn, these institutional investors would contribute to enhancing credit price disclosure as they allocate resources into interest-bearing securities.



Secondly, access to a functioning DCM, and the multiple financing options that come with it, endows borrowers with greater efficiency in managing the cost of capital. Historical and cross-sectional experience teaches that problems in the banking sector can interrupt the flow of funds from savers to investors for a dangerously long period of time. Indeed, one of the 'lessons' from the 1997 Asian financial crisis has been the importance of having non-bank funding channels open. In the wake of

this crisis, a number of countries in the region, including Korea, Malaysia, Singapore and Hong Kong, have made progress in building their own corporate debt markets.

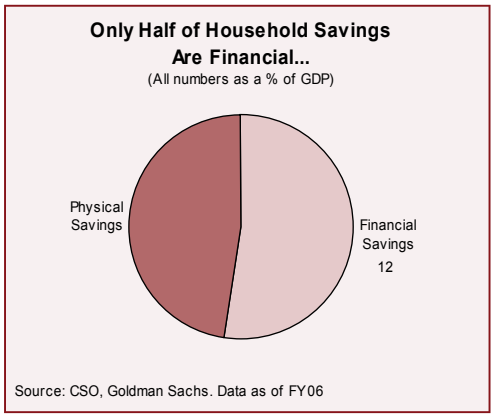
On-the-ground estimates indicate that the total stock of non-equity claims on India's corporate sector could total more than $100bn today, somewhere in the region of 10% of GDP. With listed securities worth just $21bn, this means that roughly 80% of the market is in the form of private placements. These liabilities are negotiated and priced on the principles of 'relationship lending', are issued with virtually no public disclosure, and are typically held to maturity by banks.

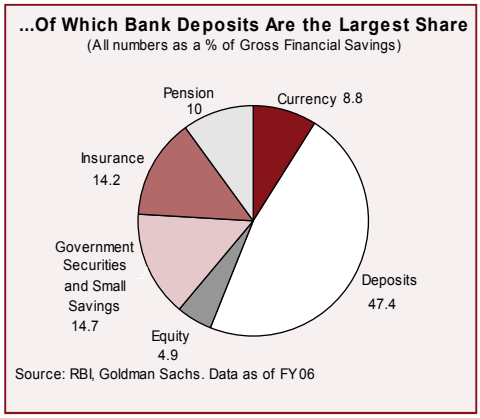
This brings us to a third set of reasons why developing a debt capital market is in India's interest. The current system of financing has already, and will increasingly, become less adequate for an economy as large and as ambitious as India's. Spreading credit risk from banks' balance sheets more broadly through the financial system would lower the risks to financial stability. And a deeper, more responsive interest rate market would allow the central bank greater degrees of freedom in the conduct of monetary policy. This will be particularly important as India gradually opens up its capital markets to the rest of the world.

Wide-Ranging Capital Market Reforms Could Yield a Large Payoff

Debt capital market development is a widely-discussed topic in Indian financial and political circles today, with many recent government-commissioned reports leading to widespread recognition of what needs to be done (though of course there are differences of opinion on the priority and sequencing). The DCM reforms under discussion have three main prongs: encouraging supply, facilitating greater demand and improving the functioning of the marketplace.

While all three areas are important, and should be approached simultaneously, we see the last as the most critical constraint. We define the 'market environment' broadly to encompass the quality of the legal, regulatory and supervisory structure; the rights and protections accorded to creditors and bondholders; the trading infrastructure (trading platforms, securities clearing and settlement systems); human capital; and links to other global financial markets. Reforms to supply and demand are vital, but without solid improvement in the market infrastructure, India could find itself with a larger stock of debt but little progress on liquidity, price discovery and risk-sharing. Further liberalisation in other sectors of the financial system, notably the banks, will also be essential.



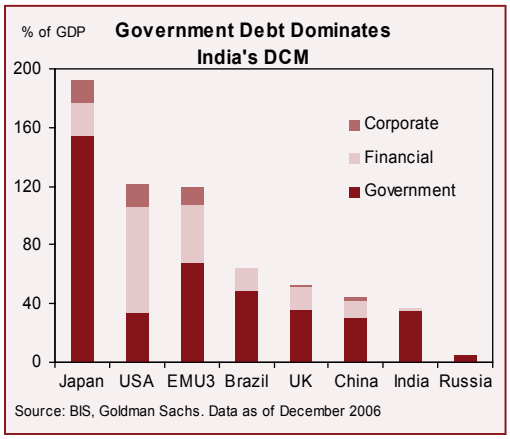


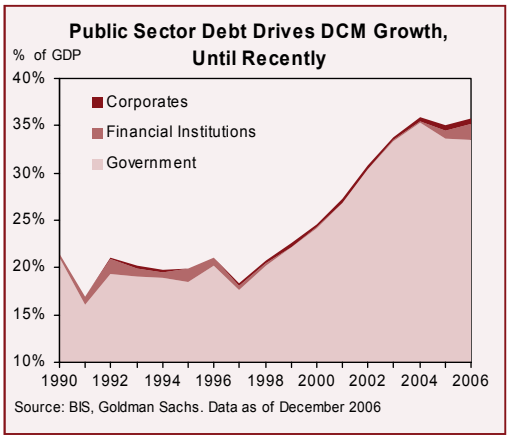
Against the backdrop of a favourable domestic and external economic environment, the time is now ripe for broad reforms. One important catalyst for the maturation of the corporate debt market could be India's enormous need for infrastructure, with the government estimating investment needs of at least $475bn over the next five years to reduce bottlenecks and sustain growth. Debt financing is critically important to meet this target. The demand side of the DCM would benefit as well: the nature of infrastructure bonds (long duration, implicit inflation link) makes them particularly appealing to institutional investors such as insurers and pension schemes.

India's DCM development efforts should, in our view, focus on two sets of reforms. The first set we term 'low-hanging fruit'—technical reforms that are not politically sensitive and do not adversely affect influential vested interests. These technical steps can be undertaken fairly quickly and easily. Indian authorities have already made some progress in this area, with several additional announcements expected in coming months.

The second set involves more challenging issues that will rub up against political constraints. Progress in these areas will be slow, with the full slate unlikely to be completed for nearly a decade. Political commitment will be essential—although admittedly difficult in the current climate—and it would help to have one regulatory agency step forward as the debt market's champion, working in consultation with industry participants.

As mentioned earlier, size is not the ultimate goal. Still, if India can deepen and strengthen its debt capital market as we describe, the results could be significant. Drawing on the cross-sectional experience of G7 countries since the 1970s, we estimate that the overall capitalisation of the Indian debt market (including public-sector debt) could grow nearly four-fold over the next decade. This would bring it from roughly $400bn, or around 45% of GDP, in 2006, to $1.5 trillion, or about 55% of GDP, by 2016. In constant Dollar terms, India's DCM in 2016 could be roughly two-thirds the size of Germany's debt market today, or 25% larger than the UK's. The strongest growth would occur in the non-government segment (financial institutions and corporates), which we estimate could increase almost six-fold, from $100bn to $575bn, or from roughly 10% of GDP today to 22% in 2016.





India's Economy Is Ideally Placed to Tackle Financial Sector Reforms

After nearly a decade of structural reforms, India has done the hard running and is ideally placed to tackle financial sector reforms from a position of strength. In the context of a favourable external environment, it should now strengthen its debt market to underpin its future economic growth.

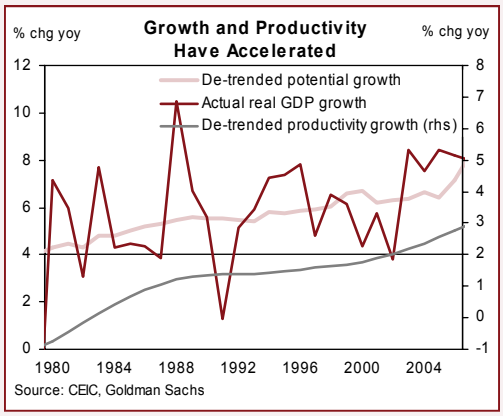
India's economy has accelerated to a higher growth path since 2003, with annual GDP growth averaging nearly 9%. We estimate that India can potentially sustain real GDP growth rates above 8% over the next decade, thanks to favourable demographics, increased savings and investment, higher productivity growth due to catch-up, and rapid urbanization. Even on our more conservative long-term BRICs projections, India is on track to become roughly the size of the US economy by 2050 (though in per-capita terms it will lag substantially, being closer to where Korea is today).

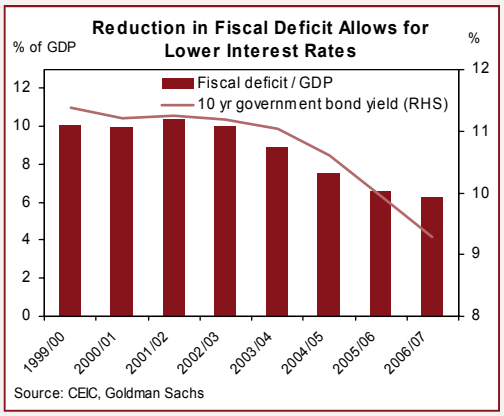
India's macroeconomic environment has strengthened considerably over the last decade or more. Inflation has remained under control, despite the buoyancy in commodity prices, and has fallen from an average of about 11% in the early 1990s to about 5% over the last four years.

Improvements in public finances—both at the central government level and among the States—have played a key role. The gross fiscal deficit, which was once a grave danger to the health of the economy, has declined from a high of 10% of GDP in 2000-01 to less than 6.5% currently. This has improved the macro environment by reducing crowding out and lowering interest rates. Indeed, nominal short-term rates have declined from an average of 12% to 7%. Public debt has correspondingly not increased as a share of GDP, and this has boosted confidence further.

The external sector has strengthened due to the gradual liberalisation of tariffs and capital flows. Exports have grown by, on average, over 20% annually since 2003 as India has rapidly integrated with the global economy. Net capital inflows have jumped from under 2% of GDP in 1999 to more than 4% in 2006-07, driven by portfolio flows, FDI, external commercial borrowings and rising NRI deposits. As a result, foreign currency reserves have increased to upwards of $260bn—over 150% of external debt.

The gains in the macro environment have reduced India's vulnerability to shocks. Indeed, the more difficult part of macro stability has now been achieved. The declining fiscal deficit, high level of reserves and low external debt mean that India is now ideally placed to tackle financial sector reforms from a position of strength.





The Current State of Play in India's Debt Capital Market

How big is India's debt market capitalisation today? The difficulty in answering even this simple question underscores the opacity of the financial system and the need for regulatory reforms. While data for public-sector securities are relatively easy to collate, the same cannot be said for non-public interest-bearing claims. The BIS puts the total outstanding stock at $21bn, or some 2% of GDP, while on-the-ground estimates are about five times higher. The gap between the two figures reflects the corporate sector's reliance on private placements, rather than listed issues, which is due to the unsupportive regulatory climate that we discuss below.

Whatever the market's actual size today, participants describe it as caught in something of a 'chicken-and-egg' dilemma that limits its growth potential. Some attribute the market's immaturity to limited demand, while others blame limited supply. We see obstacles and opportunities in both, but view improvements in the market structure as the most critical step.

- Latent **demand** for debt securities is growing as India's insurance, mutual funds and pensions sectors experience rapid asset growth. But the authorities still impose heavy restrictions on institutional asset allocation—restrictions that are being lifted only gradually.

- The **supply** of debt, particularly of listed debt, has not kept pace with growing demand. Sitting on high savings from individuals and corporates, and flush with liquidity from overseas, banks have little incentive to explore public debt market funding avenues, and are in turn generous providers of loans.

- Beyond the questions of supply and demand, a fundamental hurdle (perhaps *the* fundamental hurdle) is the **structure of the market** itself. As we discuss below, there is no real public 'marketplace' for corporate debt.

Below we provide a brief overview of the state of play in India's debt market, starting with the supply side and then considering the key investors and the market infrastructure.

Supply is limited ...

India's debt market is small by international comparison and is dominated by public-sector liabilities. Considering India's long string of yawning fiscal deficits, as well as legislation forcing banks and institutional investors to take down a large chunk of public issuance, it should come as no surprise that public-sector bonds are the lion's share of India's debt market.

- **Central government securities** are worth about $300bn, or roughly 30% of GDP. Almost all public-sector debt outstanding is made up of Rupee-denominated fixed-rate bullet bonds, with maturities out to 30-years, with the bulk (35%) between 5- and 10-yrs. The Reserve Bank of India (RBI) acts both as debt manager and as primary regulator of this segment of the market. The RBI releases an auction schedule semi-annually, specifying auction dates, amounts and tenors. Auctions are conducted on a multiple-price basis, although the RBI reserves the right to conduct a uniform price auction.

- Securities issued by **public-sector undertakings** (PSUs) represent the second-largest segment. Since PSU bonds can be used to meet banks' Statutory Liquidity Requirements

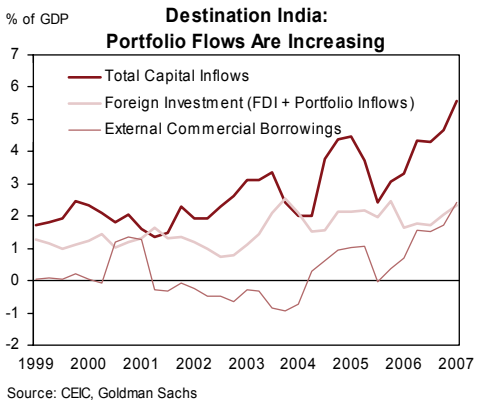
Escaping the 'Impossible Trinity'

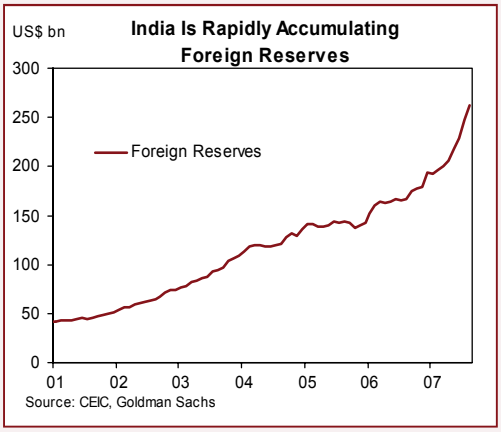
A deeper bond market can help to increase India's monetary policy effectiveness. The Reserve Bank of India (RBI) currently conducts monetary policy through the Liquidity Adjustment Facility, where it sets policy rates—the repo and reverse repo rates—thereby providing a corridor for overnight money market rates. Direct instruments such as the Cash Reserve Ratio are also extensively used to manage liquidity in the banking system. For FX sterilisation operations, the RBI conducts open market operations, issuing government securities under the Market Stabilisation Scheme. The RBI has tended to manage the exchange rate in real effective terms, with the latter fluctuating in a narrow band since 1993 until April 2007. Since April, the RBI has allowed significant appreciation, in part to deal with inflationary pressures.

With capital inflows being gradually liberalised and increasing in magnitude, the RBI cannot manage the exchange rate and retain an independent monetary policy stance simultaneously—a problem known in economics literature as the 'impossible trinity'. At the extreme, if capital is allowed to flow in and out freely, and the exchange rate is fixed, a positive (negative) interest rate differential between India and its main trading partners will lead to large capital inflows (outflows), impairing the policy conduct. This explains the frequent recourse to direct measures to manage liquidity (such as reserve requirements and sterilisation), which ultimately lead to an increase in the central bank's balance sheet. Over time, this can prove unsustainable, as many countries have learned through painful financial crises.

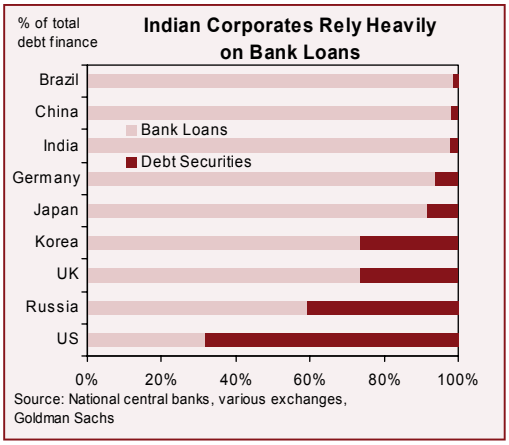
India's goal remains fuller capital account liberalisation, especially as its growing economy needs to supplement domestic savings with capital inflows. However, liberalisation is complicated by the fact that Indian domestic interest rates are notably higher than international rates, which may result in faster currency appreciation that would undercut competitiveness.

The RBI has professed discomfort with the recent pace of Rupee appreciation, as it hurts much-needed jobs in the employment-intensive export sector. Financial liberalisation, including growth of the corporate bond market, will increase efficiency and reduce interest rates. It can also ultimately result in a convergence of domestic and international rates, which would ease the path toward eventual capital account liberalisation.





(SLR)—the quota of assets that are mandated to be allocated to high credit quality securities—their secondary market liquidity is on par with that of government issues. PSU issuance increasingly takes place through private placements, rather than public market offers, and issues are typically held to maturity.



- **Financial institutions** issuance is small, with the outstanding stock amounting to just $15.5bn, or 5% of the total debt market. Deposits represent the main avenue of funding for Indian banks. What financial debt is issued is typically in the form of private placements, which are sold mostly to other banks. For this reason, statistics on outstanding amounts are not very informative.

- Finally, listed **corporate bond** issuance is tiny. The BIS actually considers the data for corporate bonds too unreliable to report, and puts corporate commercial paper outstanding at just $5bn, or less than 2% of the total DCM. Indian regulators do not have a firm estimate of corporate debt either, but data complied by the RBI and the Securities and Exchange Board of India (SEBI) indicate that private placements have accounted for 95% of all debt issues by the Indian corporate sector since 1995.

… and demand is constrained ...

By mandating investment restrictions, Indian authorities have severely constrained the institutional investors that should be the natural sources of **demand** for private-sector debt. By law, public-sector securities must account for at least 25% of banks' total deposits; 50% of life insurers' assets; 30% of non-life insurers' assets; and 40% of assets held by the major private provident fund. Other mandated investments earmark a further proportion of assets (as much as 40%) for quasi-government securities or as credit to priority sectors (primarily agriculture and small-scale businesses).

In practice, the skew is even more dramatic. Public-sector securities account for a staggering three-quarters of investment by private banks and more than 85% by public banks. Banks hold roughly half of all outstanding government bonds, and the Life Insurance Corporation of India another 20%. Purchases of public-sector bonds by the non-financial private sector have picked up only recently.

India's principal institutional investors include:

- **Commercial banks.** Commercial banks together hold roughly half of all outstanding government securities. These dominate their balance sheets: 86% of public banks' investments (73% at private banks) are held in public-sector debt, primarily government securities. Several regulations steer banks into public-sector debt. Chief among these is the Statutory Liquidity Requirement (SLR), which requires banks to hold one-quarter of their assets in public sector bonds. Others include non-interest bearing reserve requirements (the CRR, which currently stands at 7.5%); mandated investments to 'priority sectors'; a cap on

Restrictions on Indian Investors

Required investments (% of total assets)	Government securities	Infrastructure and social sectors	Other approved	Cash reserve ratio (CRR)	Priority sector (% of total credit)
Banks	25*	--	--	7.5	40
Life insurance	25	15	25	--	--
Non-life insurance	20	15**	10	--	--
Employees' Provident Scheme	40	--	--	--	--

* SLR requirement, which includes other public-sector securities ** Includes 5% for housing and 10% for infrastructure and social sector

Source: RBI, IRDA, PFRDA, Goldman Sachs

holdings of unlisted securities (most corporate debt is unlisted); the requirement that banks can only invest in rated securities; and the limited supply of investment alternatives.

More generally, the high weighting of public-sector securities reflects the banks' conservative approach to investing. This approach has worked well in a relatively uncompetitive market, one in which public banks still hold around three-quarters (!) of all deposits. As the banking sector prepares for the full-scale entry of foreign players in 2009, however, it may become a hindrance. Accordingly, liberalisation of the banking sector, as well as potential privatisations, could generate pressure to relax the regulatory restrictions, and could also encourage banks to shift toward corporate debt.

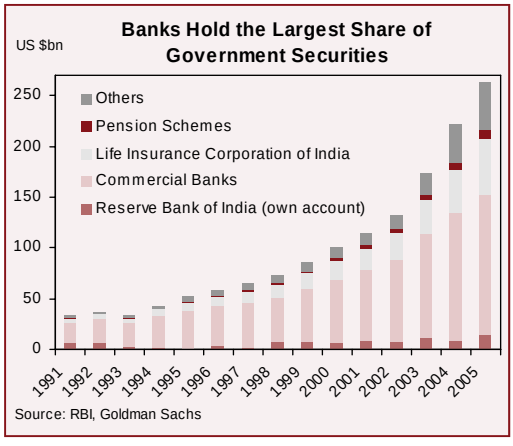
- **The insurance sector.** Since the sector was liberalised in 1999, insurance assets have grown rapidly, with inflows into private life insurers up 130% in 2006, and private funds have gained market-share from state-owned firms. Current assets are estimated to be $120bn, with significant growth potential given that insurance penetration is quite low. Under regulations dating back to 1938, insurance funds are subject to strict mandatory asset allocation rules: life insurers must invest at least half of their assets in public-sector securities and a further 15% in infrastructure and social sectors. Non-life companies have somewhat greater flexibility, with requirements of 30% and 15% respectively. The state-owned Life Insurance Company (LIC) and General Insurance Company (the sole domestic re-insurer), which continue to dominate the market, face further restrictions: no more than 15% of LIC assets (25% for GIC) can be held in private-sector debt.

Insurance Penetration* Is Low

	Total	Life	Non-Life
India	**3.1**	**2.5**	**0.6**
Brazil	3.0	1.3	1.7
China	2.7	1.8	0.9
Russia	2.3	0.1	2.2
US	9.2	4.1	5.0
UK	12.5	8.9	3.6
Japan	10.5	8.3	2.2
World	7.5	4.3	3.2

*Defined as gross premium collected relative to GDP

Source: IRDA, Goldman Sachs. 2005 data



- **Pension schemes and provident funds.** Indian pension reform is a highly politicised issue, and one that has been written on and argued about extensively. The politics of pension reform are beyond the scope of this paper, but we identify two important issues from the perspective of debt market development. The first is that less than 15% of the formal workforce (mostly public-sector employees) is enrolled in formal pension schemes. The second is that the vast majority of pension assets are invested in public-sector securities (with, for instance, the dominant Employees' Provident Fund holding 90% of its estimated $22bn in assets in government debt), and strict requirements on incremental investments leave only a small share that can be allocated toward corporate debt. Liberalisation in this area could create a significant source of demand for credit paper. Estimates suggest that pension reforms currently pending in Parliament could increase the market size to over $100bn by 2025.

- **Mutual funds** are enjoying strong inflows, thanks especially to the equity market's exceptional performance (up 190% since the start of 2005) and their tax-advantaged status. Assets under management have grown at more than 40% annually in recent years, reaching $95bn as of June 2007. Mutual funds enjoy more investment flexibility than do other institutional investors; for instance they can invest up to 10% of assets in foreign securities.

- **Foreign institutional investors**, which are subject to an aggregate corporate debt ownership limit of $1.5bn (and a further $2.6bn for public-sector securities). Although these limits are gradually rising, there seems to be little appetite for allowing foreign investors to become major players. Yet foreign investors do have the potential to play an outsized role in the market's long-term evolution by insisting upon international standards of transparency, disclosure and corporate governance.

… while weak market infrastructure limits liquidity and price discovery

Complicating the picture of limited supply and demand outlined above is the infrastructure of the debt market itself. Ideally, supply and demand should meet in a well-functioning, liquid market that allows price discovery and the spreading of risk. This is not the case in India, where there are transactions but no real corporate debt 'marketplace'. We see progress in developing this marketplace as critical to stimulating the growth and deepening of India's debt capital market. This is not to say that efforts to boost supply and demand are not vital—they are. But in order to reap the full benefits of financial liberalisation, India needs a well-functioning market for credit risk—not just a larger stock of privately-placed corporate debt that sits on banks' balance sheets.

In the **primary market**, issuing listed corporate debt can be a cumbersome process. India does not permit corporates to file 'shelf registrations', a feature found in several jurisdictions that allow firms to act flexibly and rapidly to capitalise on favourable market conditions. Instead, India requires companies to provide full disclosure—at the level of detail generally required for an initial public offering of shares—for every capital markets transaction. This is a lengthy and expensive process that acts as a strong deterrent to listing. Primary issuance is also subject to stamp duty at a rate that is very high by international comparison. Moreover, stamp duty varies across the individual States, which complicates administration.

Therefore it is not surprising that so much of India's corporate debt is issued through private placements, in which disclosure standards are determined by private negotiations between issuer and buyer. This route clearly has its advantages for issuers, who can avoid thorough and time-consuming disclosure rules and enjoy a more straight-forward tax treatment. For

institutional buyers who have ongoing relationships with issuers—and who are thus able to do due diligence themselves—the opacity of private placements is presumably not a major obstacle. But as long as corporates continue to rely overwhelmingly on private placements, effective price discovery will be impossible.

Secondary trading is limited—SEBI estimates that turnover was just $6bn in 2006—because so much debt is held to maturity. What trading does occur takes place on three platforms: the inter-bank market, on stock exchanges (in an anonymous order book system) and OTC (either bilaterally or through a broker). Government-debt trading takes place both on electronic platform and OTC, with the majority of liquid securities being exchanged on the platform. Both the NSE and the BSE have a Wholesale Debt Segment, but little activity goes through these. Primary dealers designated by the RBI, banks, mutual funds and insurance companies all have direct access to the wholesale market. Short sales are restricted to banks and primary dealers, and are allowed only on an intra-day basis, up to a maximum of five days. There is also active trading in Indian non-deliverable offshore swaps, which are indexed to the NSE Interbank overnight rate.

In the corporate debt segment, the reliance on non-standardised and small-scale private placements takes its toll on liquidity and pricing—as does investors' tendency to hold bonds to maturity. The secondary market in corporate debt is almost entirely dominated by highly-rated securities (AA plus and above). Although clearing and settlement systems are much improved since the early 1990s, the OTC market still lacks an automated order matching system and centralised settlement, as well as standardised market practices in trading lots, coupon conventions and interest day count conventions.

The tax treatment is a further obstacle to smooth secondary trading. Under the 'tax-deducted-at-source' (TDS) system, tax on interest payments is collected on an accrual basis, meaning that each transaction must involve a physical cash exchange. The TDS system is not ideal for an OTC market and encourages participants to avoid it via non-public transactions. Further complicating the market, tax rates also differ among securities; public-sector securities are exempt and TDS on interest income is not uniformly applicable to all investors. While insurance companies and mutual funds are exempt from the provisions of TDS on interest paid on corporate bonds, other market players are not.

At a structural level, India's ponderous legal system dulls the appeal of credit securities. India ranks 177 of 180 countries in the World Bank's assessment of the ease of contract enforcement, with the latter typically running for nearly four years and costing 40% of the claim. Bankruptcy proceedings regularly last ten years or more, yielding an average recovery rate of just 12 cents on the Dollar. Improving the transparency, timeliness and effectiveness of bankruptcy proceedings will be especially important if India is to move ahead with securitisation, which demands greater certainty and clarity about ownership rights.

The Reform Agenda: First, Pick the 'Low-Hanging Fruit'

Improving the market infrastructure is in our view the most critical part of the reform agenda, one that will allow India to reap the full benefits of other reforms. That said, reforms to the supply and demand sides are also needed, and success is more likely if India can pursue these initiatives in parallel. Recent government-commissioned and private-sector reports have flagged numerous needs, many of which are now under review.

We distinguish between two broad sets of reforms. The first are the relatively straightforward and technical reforms that can be termed 'low-hanging fruit'. These are the responsibility of regulators, including the RBI and SEBI, and can generally be accomplished through administrative measures rather than through legislation. India is poised to make progress on several of these issues in coming months; success here would provide welcome evidence of the authorities' commitment to the growth of this market.

The second set of reforms, which generally require parliamentary action, have become politicised and as a result are likely to be achieved only through negotiation and compromise. The fragility of the current coalition government and the lack of a clear reform champion among the regulators mean that progress in these areas is likely to be slow and difficult.

In our eyes, the most important steps towards picking the **low-hanging fruit** are:

- **Improving information dissemination.** SEBI has recently required all debt trades, including private placements, to be reported on one of three new reporting platforms. A centralised database of all corporate bonds issued and outstanding would boost the information flow.

- **Streamlining disclosure requirements,** particularly for primary issues. SEBI is expected to release new disclosure guidelines soon.

- **Reducing the fragmentation** of the market by raising the number of buyers allowed for each private placement, which currently stands at 49. SEBI is also expected to issue new regulations on this soon. Although this on its own will do little to steer debt issuance into listed transactions, it should improve secondary liquidity.

- **Developing trading platforms and settlement and clearing systems**. There is ongoing debate at the policy level as to the merits of OTC compared with exchange trading. For now, SEBI is moving ahead with OTC guidelines and will consider exchange-traded settlement systems in the future. Whether OTC or exchange-traded (or both), the market requires better real-time settlement for inter-bank transactions and a consolidation of the various payment systems that currently operate.

- **Encouraging the emergence of market-makers**. A critical step to facilitate secondary trading is to allow repo transactions for non-government securities. The RBI is currently considering this, and has indicated that it would like to see the establishment of better clearance and settlement systems, as well as higher transaction volumes, before granting approval.

- **Relaxing Statutory Lending Requirements** for banks, which distort the price of credit. Since the start of the year, the RBI has had full authority to reduce the SLR level through an administrative process, without securing legislative approval; nothing has been done as yet.

- **Loosening or lifting investment restrictions** for banks, pension schemes and insurance firms, and raising (or better yet eliminating) the cap on foreign institutional investors' ownership of corporate bonds. At the moment, the RBI allows banks to invest only in rated securities, and further limits investments in unlisted securities to just 10% of total non-SLR investments.

- **Developing the framework for an asset-backed securities market**. SEBI is expected to issue an authorising 'notification' within a year. But the weakness of the bankruptcy system will be an ongoing hindrance, and we do not expect substantial reforms in this field in the medium term.

The Reform Agenda: Implementing the Politicised Reforms Requires a Long-Term Commitment

Beyond the 'low-hanging fruit', the other necessary reforms are more complicated and controversial, requiring action from Parliament, where ideological opposition makes it hard to envision significant progress before general elections that are due by mid-2009. Thus we would hope to see near-term progress on the 'low-hanging fruit', which could help to generate momentum for the harder reforms.

Below is our 'wish list' of **politicised reforms**, ranked roughly from least difficult and most likely in the near term, to most complex and likely only in the longer term:

- **Tax reforms**. We see two important areas where the central government should either take action directly or urge the States to undertake reforms.

  First, stamp duty should at a minimum be coordinated and harmonised across the States, to reduce complexity in collection. Although stamp duty is formally a State government responsibility, the central government supports harmonisation and has reportedly secured agreements from several local authorities, with announcements expected in the near future. Ideally, stamp duty should be eliminated altogether, which would bring India in line with international standards. States gain only limited revenues from this tax, so the fiscal impact should be small. There is widespread agreement among market participants that the elimination of stamp duty would not only harmonise the tax structure, but would also be an important incentive needed to jumpstart the debt market. It would also eliminate the tax discrimination against corporate debt vis-à-vis public-sector bonds, on which no stamp duty is levied.

  Second, reform of the Tax Deducted at Source (TDS) system (which is a responsibility of the central government) would be an important step towards facilitating secondary trading, as it would reduce incentives to rely on non-public transactions. Progress on this issue could come as early as next year, but might be postponed until about 2010.

- **Listing and disclosure regulations.** One key step would be to allow corporations to issue shelf registrations, which enable firms to act swiftly and capitalise on favourable market conditions, as discussed above. While shelf registrations may not be appropriate for transactions involving retail investors, they *are* appropriate in the debt market, where issuers are repeat players and where institutional investors have the experience and sophistication to evaluate them. On the surface, allowing shelf registration appears to be a straightforward step that should be on the 'low-hanging fruit' list. But it requires an amendment to India's Companies Act, and national political dynamics mean that this is not likely to be on the parliamentary agenda before the next elections.

- **Insurance sector liberalisation.** As we noted above, there are strict limits on investments for both life and non-life insurers. Although this is not currently on the legislative agenda, we would like to see Parliament relax these limits. The government is currently seeking to raise the current 26% foreign ownership limit in the insurance sector to 49%, but this too has triggered ideological sensitivities. Passage before 2010 seems difficult.

- **Foreign participation.** International institutions such as the Asian Development Bank and the World Bank have been authorised to issue Rupee-denominated debt to fund local infrastructure products (and the ADB has already done so). Extending access to the domestic market for both foreign issuers and foreign institutional investors could have helpful consequences for the market has a whole. It would help to reinforce international standards of disclosure and transparency, and could stimulate demand for a range of debt securities. Although borrowing costs are higher than in the developed world, foreign firms operating in India might wish to finance through the local debt market in order to hedge their currency risk.

  The RBI could also allow non-residents to invest in local debt markets, but we see this as unlikely in the near term because it would increase the upward pressure on the Rupee—something the RBI has been keen to contain. Simultaneous liberalisation of capital outflows would offset this problem, but this is unlikely in the near term—and we stress that it is not a precondition for debt market development. By contrast, a developed DCM would allow foreign firms with on-shore revenues to tap the Rupee market, mopping up liquidity in the process.

- **Bankruptcy law reform.** A timely, efficient and effective bankruptcy regime is a key underpinning to the private debt market, and is especially necessary if India is to develop a securitised market. Helpful steps could include updating the bankruptcy regulations, establishing a dedicated bankruptcy court, streamlining the procedures and providing specialised training for judges. Although reforms have been under discussion for several years, political opposition may block progress before 2010-2012.

- **Pension system liberalisation.** As we noted above, this is a complex and politically charged topic. Liberalisation of the current restrictions on investments could provide a potentially sizable source of demand. Unfortunately, pension reform appears to be off the political agenda until after the next election; we see 2012 as a more realistic timeframe. Progress is also hampered by the fact that the pensions regulatory body (PFRDA), which was established in 2003, still operates without a formal legislative foundation and thus lacks the clout to take significant steps.

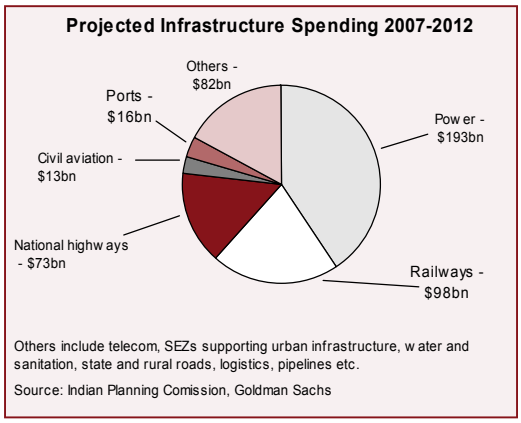
- **Banking sector reforms.** This is a long-term and complex effort that will involve divesting government ownership of public-sector banks, allowing investor voting rights in proportion to ownership, encouraging consolidation and fully opening up to foreign banks. So far, at least, the outlook here is not particularly promising. Parliament is likely to block any sale that would bring the government's ownership and voting rights below 51%, but any sell-down short of that would leave the banks under (generally risk-averse) state management. And while entry for foreign banks is expected to proceed as planned in 2009, there is considerable uncertainty as to the effectiveness of this opening and its impact on domestic banks. Full and effective reform may take a decade.

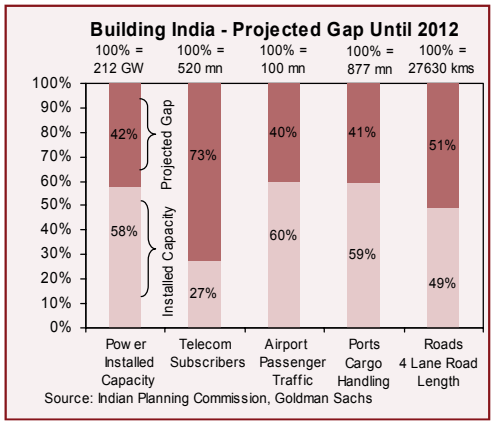
A Robust Corporate Debt Market Could Help 'Build' India

Infrastructure—recognised by business, government and investors alike as a critical constraint on India's economic growth—could be an important catalyst for the development of the debt market. The benefits of modernising and expanding India's inadequate infrastructure could be sizeable; the World Bank estimates that a 1% permanent increase in the infrastructure stock is generally associated with a 1% increase in the level of GDP. Striking a cautionary note, the World Bank also estimates that infrastructure investment needs to rise by three to four percentage points of GDP over the medium term if India is to sustain current growth rates.

The Indian government itself estimates that the country needs to invest $475bn in infrastructure over the next five years. The Ministry of Finance anticipates that 70% of this will come from the government and public sector units (PSUs), including public financial institutions, while multilateral agencies are expected to fund a further 10%. The government expects the private sector to raise about 20% of the total, or $95bn, primarily through a public-private partnership (PPP) model.

This is where the corporate debt market comes into play, for infrastructure could be both the catalyst for growth of the DCM and one of its largest beneficiaries. The debt market makes a natural home for infrastructure financing, by matching long-term projects with long-term investors, drawing on institutional investors' pricing expertise and improving transparency around projects and pricing. Moreover, infrastructure debt should find natural buyers in the pensions and insurance funds that are seeking long duration and implicit inflation links.





In an effort to spur infrastructure development, the authorities have already taken several steps that should boost the growth of the overall market. These include drawing up guidelines for securitisation (still in progress), providing residual financing through 'viability gap funding' and creating a government-guaranteed Indian Infrastructure Finance Company. Moreover, the authorities intend to 'welcome' foreign participation and are encouraging infrastructure-specific funds backed by foreign investors.

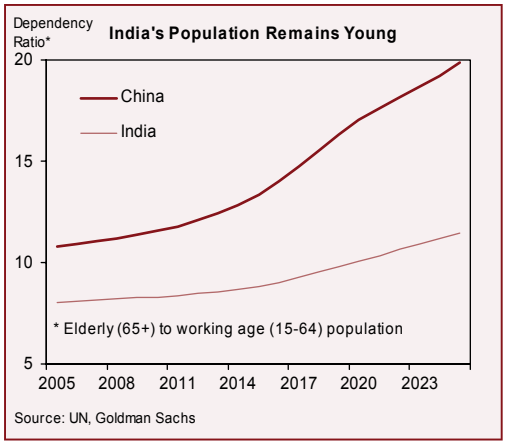
Deepening and expanding the debt market should expand the availability of credit—not just to infrastructure projects but to the private sector generally. Currently, private firms receive less than half of all available credit, despite the fact that they are more efficient than the state-owned sector and considerably more productive than agriculture and the informal sector, both of which receive significant shares of available credit. Furthermore, large companies receive most of the credit that goes to the private sector, squeezing smaller borrowers out of the bank-lending market. If the domestic debt capital market were to become a more attractive source of financing for major private firms, it could free up bank lending to support smaller companies.

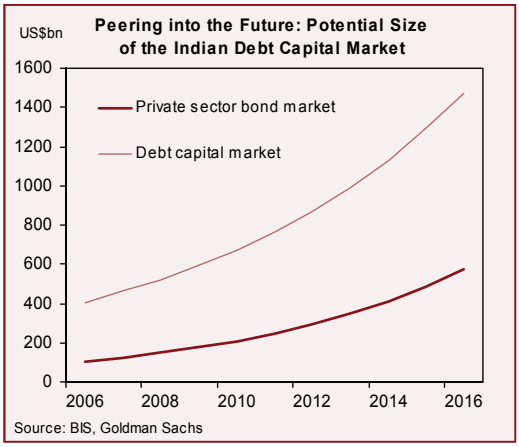
A better allocation of credit would help to underpin sustained growth and would also help to bring India's currently high interest rates closer to rates seen in developed economies—which should ease some of the concerns about capital account convertibility.

Peering Into the Future

To estimate the potential growth of the debt market in India over the next decade, we use a statistical model that draws on the cross-sectional experience of the G7 countries to examine the interplay among debt market capitalisation, economic development, financial liberalisation and population aging. This analysis is similar to one we employed in an earlier paper to estimate the future potential size of China's debt capital market. Details of our methodology are in the box on page 222.

In India, the pace of financial liberalisation is the critical control variable, driving 70% of the growth in the debt market. A further 20% is due to economic development, while demographics contribute less than 10%. Among countries with older populations, aging typically drives demand for bonds as investors seek pensions and life insurance, which in turn supports demand for bonds, and the supply of fixed income increases as the fiscal position





Estimating the Future Size of India's Bond Market

To estimate the size of India's bond market a decade from now, we use a statistical analysis backed by a panel of data for the G7 countries spanning 1970-1995. Due to the low-frequency nature of evolution in bond markets, we look at the data in five-year snapshots. This gives a time series of six observations across the seven countries. In line with this, we estimate the following equation:

$$SIZE(i,t)=GDPC(i,t) + DRTIO(i,t) +FINLIB(i,t-5) + e(i,t)$$

where the index i stands for each of the G7 countries, t is time, and the variables are defined as follows:

- **SIZE** is the capitalisation of the bond market as a share of nominal GDP.
- **GDPC** is per-capita GDP (in US Dollar terms). We assume an annual GDP growth rate of about 8%, consistent with our previous work on India's economic outlook.
- **DRTIO** is the 'dependency ratio', defined as the share of the 65+ age cohort to the working age cohort (15-64). Data comes from the UN population projections.
- **FINLIB** takes values that represent the degree of financial liberalisation, ranging from 1 (no liberalisation) to 3 (full liberalisation). For details, see Kaminsky and Schmukler, *Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalisation*, World Bank, 2002.

To determine the starting point for the FINLIB variable for India, we considered the capital account and the stock market, both of which are partially liberalised today, as well as the domestic financial sector, which stands between partial and no liberalisation. We thus assigned them starting values of 2, 2 and 1.5 respectively, which yields a starting point in aggregate of 1.8. In our central projections, continued gradual structural reforms push the FINLIB variable from 1.8 to 3 by 2016.

The coefficient estimates of the pooled regression are reported in the table, alongside standard statistics. Other linear specifications were also used, with the results roughly consistent with those reported here. The results show the increase in debt market to GDP ratio, with figures given as a share of GDP rather than as a share of the aggregate change.

Impact on Debt-to-GDP Ratio of Different Factors

Factor	% of GDP Change*
A $1,000 Increase in per capita GDP	**1.96** (8.6)
A full financial liberalisation	**12.2** (1.7)
A 1 point increase in the 'dependency ratio'	**1.8** (4.7)
R-Square	**0.41**
Durbin-Watson	**2.03**

Source: GS calculations

* t-statistics are reported in brackets.

worsens. But India's population is relatively young, with the median age forecast to rise from 24 today to just 27 in 2016, and the dependency ratio projected to edge up from eight to just nine in a decade.

Our central projections anticipate that continued gradual reform will yield substantial progress on the issues we have identified above by 2016. This points to just under a four-fold increase in the size of India's overall bond market, from about $400bn today, or around 45% of GDP, to about $1.5 trillion by 2016 in current Dollars, or roughly 55% of GDP at that time. This would make market capitalisation roughly two-thirds of the German debt market today, or 25% larger than the UK market today. Within this, we estimate that the private sector bond segment would show the most impressive growth, increasing nearly six-fold—from $100bn today to $575bn in 2016.

Of course, if India were to proceed more aggressively on financial liberalisation, the size of the bond market would grow even faster, with a larger contribution driven by financial reforms, and the converse is true as well.

The most controversial issue regarding financial liberalisation is the timing of capital account convertibility. Some authorities prefer gradual liberalisation, focusing on concerns that high interest-rate differentials with developed markets would encourage speculative inflows and create instability in the markets. Others are advocating an immediate and comprehensive opening. Immediate liberalisation is a politically ambitious stance, not least because it would require a new monetary policy framework, such as one that would target inflation rather than the external value of the currency.

We do *not* view full convertibility as a pre-requisite for creating a strong domestic debt capital market. In fact, we think DCM development can and should help to pave the way to fuller convertibility. A stronger domestic DCM should broaden access to finance and thus reduce inefficiencies throughout the economy. At the same time, capital account convertibility would improve the underlying environment for India's DCM, by reducing excess liquidity and allowing a greater range of foreign players to participate, bringing international 'best practices' to the developing market.

The Outlook for India's DCM

Since the start of this decade, India has benefited from tremendous improvements in its macroeconomic and international trading environment, as well as from corporate restructuring that has improved competitiveness. It needs to capitalise on these successes in order to strengthen the basis of growth going forward. Deepening the domestic corporate debt market will be a crucial step. Among other things, India will be hard-pressed to raise $475bn in infrastructure financing in coming years if it cannot tap a diverse pool of investors, and channel domestic and external savings into critical projects.

Despite some recent successes, the reform effort in India's DCM has not yet reached 'critical mass'. We see progress on the 'low-hanging fruit' as one means of generating this critical mass. If the authorities can streamline the issuance process and make the public markets attractive to issuers; if they can strengthen the trading platform and settlement and clearing systems; and if they can follow through on plans to allow securitisation, then the resulting momentum should help to push through the harder and politicised reforms.

Development of the debt market would also stand to benefit from the emergence of a strong reform champion among regulators. We see SEBI as the most likely organisation to drive the process, given its efforts to date, the expertise and experience it has gained by successfully developing the equity market, and the importance of market infrastructure, which is largely in SEBI's domain.

In all, we are confident that with competitive pressures facing India's financial players, and with the widely-acknowledged need to consolidate and build upon the impressive achievements of the past decade, the path towards a progressive maturation of India's debt capital market is inviting. The speed at which India will follow this path will depend on the authorities' willingness and capacity to be harbingers of change.

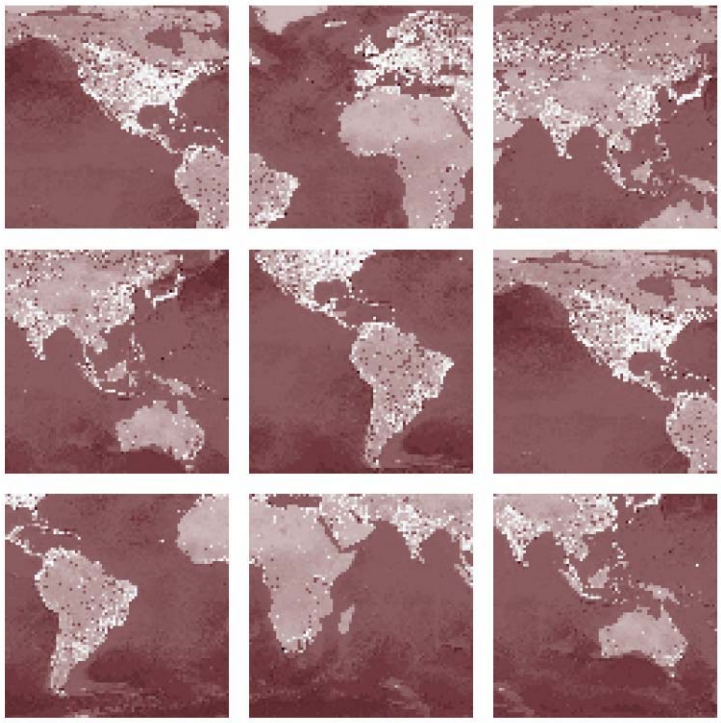
Francesco Garzarelli, Sandra Lawson, Tushar Poddar and Pragyan Deb*
November 7, 2007

* Pragyan Deb was a summer intern in the Economics Department and is now a doctoral student at the London School of Economics.

CHAPTER SEVENTEEN

IS WALL STREET DOOMED?

February 2007



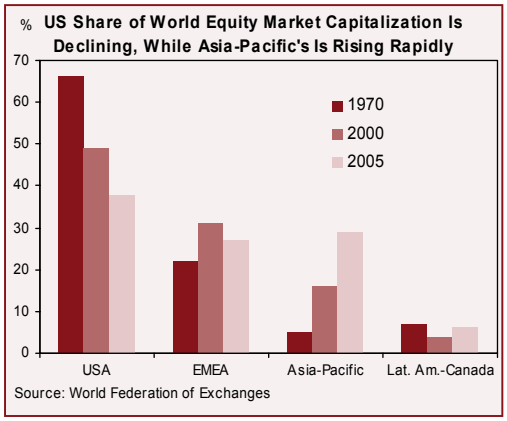
IS WALL STREET DOOMED?

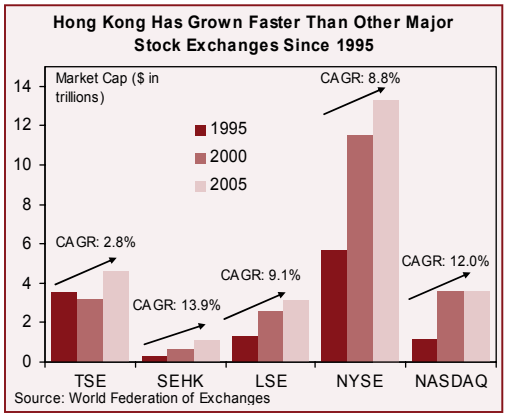
Two recent reports have focused considerable attention on the question of New York's relative performance and future as a financial centre. The Committee on Capital Markets Regulation, involving senior Wall Street figures, argued prominently in a November 2006 report that increased regulatory restrictions (such as the Sarbanes-Oxley legislation) were causing capital markets activity to move away from New York. In January, a McKinsey report commissioned by New York's Mayor Bloomberg and Senator Schumer predicted New York could lose 4%-7% of its market share in the global investment banking and sales and trading markets over the next five years, causing it to forego some 60,000 new jobs. The politicians introduced this report with a reference to 'the chilling fact that if we do nothing, within ten years, while we will remain a leading regional financial centre, we will no longer be the financial capital of the world.'

Both of these studies cited legal and regulatory practices as prominent drivers behind the shift in capital markets activity away from New York and toward other financial centres, most notably London. Sarbanes-Oxley, the insistence on US GAAP, the multiplicity of US regulatory bodies, the risk and unpredictability of litigation, and US immigration restrictions, were all cited as obstacles or deterrents to the growth of the US capital markets. Typically these factors are contrasted with London's 'light touch' regulation, absence of class action lawsuits and ease of migration.

Legal and regulatory factors probably do matter, and policy reform might strengthen New York's competitiveness. Nonetheless, we do not see them as the critical drivers behind the shift in financial market intermediation, even in the aggregate. Quite simply, economic and geographic factors matter more. New York's pre-eminence as a global financial centre reflects the remarkable rise of the US economy over the past century. If the world continues to evolve broadly in line with our BRICs projections, it seems highly likely that capital markets outside the US will develop more quickly. In this regard, both London and Hong Kong have natural advantages that New York lacks.

This would not spell the end of New York as a global financial centre. Capital markets growth is not a zero-sum game. Growth in global markets would probably stimulate activity in New York—in absolute if not relative terms. Two other factors are important to remember:





- Much of the growth of financial markets outside the US is due to the spread of US capital market 'culture'.
- We would expect US-based but globally-minded firms—both intermediaries and investment banking companies—to benefit from further growth in any global capital markets.

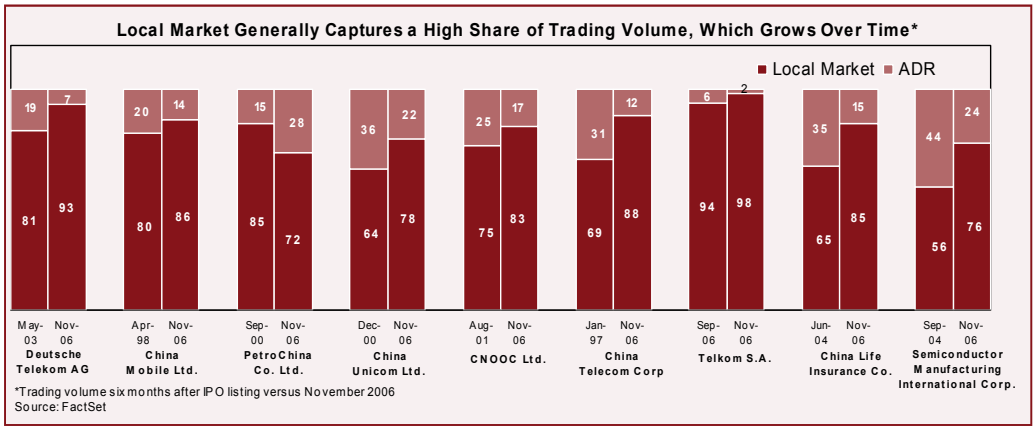
Capital Markets Have Been Shifting for Decades

The charts on page 227 show the evolution of global equity markets. As is clear, the relative decline of the US is not new; it has been underway for several decades, though it does seem to have accelerated in recent years. This reflects two factors: the growth of the capital markets culture outside the US since 1970 and the rapid growth of many emerging economies since 2000. This phenomenon is particularly well illustrated by the Asia-Pacific markets, which have soared from just 5% of world equity market capitalisation in 1970 to 29% in 2005.

In general, regional exchanges have grown faster than the NYSE over the past decade (the Nasdaq too has grown faster, although its market capitalisation is only now returning to 2000 levels). In all likelihood, this reflects the fact that the technology boom of the late 1990s was US-based. As that boom has turned to bust, other markets have grown more rapidly. It is also interesting that the capitalisation of the NYSE and LSE have grown at comparable rates over the last decade.

In terms of trading volumes, all markets have seen their turnover rise sharply. The increased turnover outside the US demonstrates that investors have become more confident in local markets. Consider the chart below, which contrasts daily trading volumes in local markets with ADRs. The vast majority of turnover takes place on the home market, and this share typically increases over time. This 'flowback' to the home market increasingly undermines the importance of an ADR listing, at least for secondary market trading and liquidity.

Growth outside the US has been most dramatically illustrated by the initial public offering (IPO) activity of the last two years. In each of 2005 and 2006, only one of the world's ten largest IPOs was listed on a US exchange. London participated in three of the ten largest IPOs of 2006, only one of which was for a British firm. Three of the ten originated in China in each



Largest 10 IPOs in 2006

	Issuer Name	Size (mn $)	Issuer Nation	Exchange
20/10/2006	Industrial & Commercial Bank of China - ICBC	19833	China	Hong Kong; Shanghai
24/05/2006	Bank of China Ltd	11186	China	Hong Kong
14/07/2006	Rosneft	10656	Russia	London; Moscow
03/05/2006	KKR Private Equity Investors LP	5049	United States	Amsterdam
07/07/2006	Standard Life Assurance Co	4444	United Kingdom	London
27/01/2006	Lotte Shopping Ltd	3738	South Korea	Korea; London
06/11/2006	Aozora Bank Ltd	3218	Japan	Tokyo
12/05/2006	Saras SpA	2643	Italy	Milan
24/05/2006	MasterCard Inc	2579	United States	NYSE - New York
11/12/2006	China Communications Construction Co Ltd	2379	China	Hong Kong

Largest 10 IPOs in 2005

	Issuer Name	Size (mn $)	Issuer Nation	Exchange
20/10/2005	China Construction Bank Corp - CCB	9227	China	Hong Kong
18/11/2005	Electricite de France SA - EDF	9032	France	Paris
07/07/2005	Gaz de France	5465	France	Paris
08/06/2005	China Shenhua Energy Co Ltd	3272	China	Hong Kong
21/11/2005	Link Real Estate Investment Trust	2801	Hong Kong	Hong Kong
20/06/2005	Bank of Communications	2161	China	Hong Kong
27/06/2005	PartyGaming plc	1897	Gibraltar	LSE
14/12/2005	Goodman Fielder Ltd	1594	Australia	ASX
10/02/2005	Huntsman Corp	1593	United States	NYSE
08/03/2005	Premiere AG	1561	Germany	Xetra (Germany)

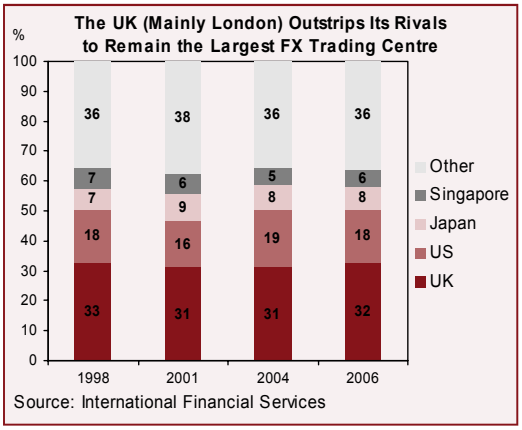
Source: Dealogic Analytics

year. None of these Chinese transactions listed in the US; they were able to achieve attractive size and valuations in Hong Kong and Shanghai—including the $20bn IPO of Industrial and Commercial Bank of China, the largest IPO on record. A Russian transaction, the third largest of 2006 (and larger than any in 2005), was listed in Moscow and London.

In many of these cases, legislative and regulatory burdens did appear to influence the companies' decisions not to list in the US. However, the key factors were liquidity and execution—the fact that the deals could be transacted effectively and attractively in domestic markets and/or in other markets outside the US.

Of course the IPO market is not the only market; many others have been considerably larger outside the US than inside for some time. London has historically been the centre of the global foreign exchange market and has recently expanded its dominance. Nearly one-third of the roughly $2.7trn daily turnover in the FX market trades in London—more than the next three largest markets (New York, Tokyo and Singapore) combined. According to International Financial Services, more Dollars trade in the UK than in the US, and more Euros in the UK than in all the Eurozone countries together. European markets also have a leading share in the OTC derivatives markets; many of these markets have sprung up in recent years and "could be located anywhere", in the words of the McKinsey study. Debt financing activity, traditionally a US-oriented market, is picking up in Europe as well.

Look at a Map

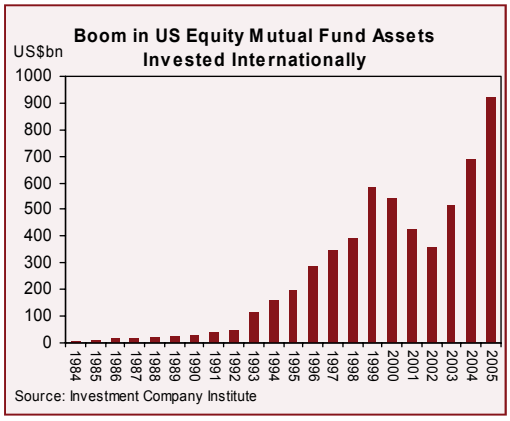


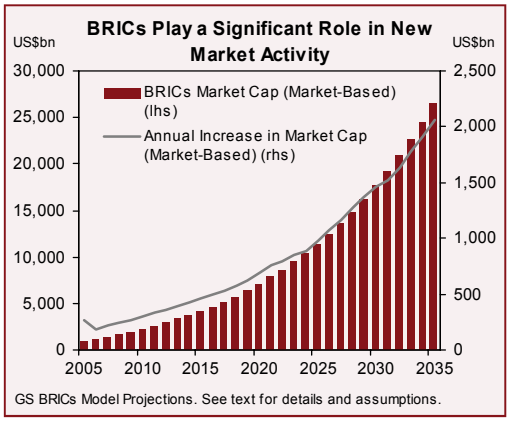
The question of 'is New York losing out?' is typically phrased as 'is New York losing out to London?'. While we don't see this as a head-to-head competition, it is true that London has some natural advantages over New York. London's time zone gives it a real advantage, as has been evident for decades in its leading role in the truly global FX market. As the equity market culture spreads and deepens around the world, the time zone is likely to give London a similar leg up: 1pm in London in July is equivalent to 8am in New York, 4pm in Moscow and Dubai, and 8pm in Hong Kong and Beijing. In contrast, 1pm in New York is after the close of the trading day in London and everywhere east of the UK. New York afternoons are only 'active' trading time zones for the rest of the Americas, Australia and New Zealand.

London enjoys additional advantages in geography and language. The creation of the Euro and the deepening of Europe's capital markets since the introduction of the single currency have given London a great 'adjacency' advantage. Despite fears that the UK's choice not to join the Eurozone would hurt London, the city has instead expanded its role in Euro-denominated businesses, particularly in the interest rate and foreign exchange markets. Many global financial securities firms, including some from Eurozone member countries, base their international bond trading businesses in London. As the Eurozone economies slowly adopt structural reforms and more developed capital market techniques, London often benefits from much of the resulting business. Moreover, the dominance of the English language gives London a comparative advantage over other European cities, and many of those in in the emerging world. London's generally 'light touch' regulatory framework may work to its favour, but the city's 'natural' advantages should not be underestimated either.

Other cities, including Hong Kong, Shanghai, Dubai and Moscow, are already echoing London's success by emerging as financial hubs for neighbouring big emerging economies and oil exporters. They receive similar geographic and language boosts from their proximity to important economies and large pools of money. A case in point is the growth of the Islamic finance market, which has increased in size from a small figure at the start of the decade to an estimated $400bn today. Dubai and London in particular have emerged as the centres of this market, largely thanks to their proximity to Gulf oil revenues and their openness to innovation in this sphere; the market in the US is extremely small.

The evolution of China's equity market culture offers one road-map for big emerging economies. In the early 1990s, the few Chinese firms seeking overseas equity capital turned to New York (issuing ADRs) and Hong Kong. Later in the decade, Chinese companies began to look closer to home, with the largest IPOs at the time listing in both New York (directly) and Hong Kong. The focus has increasingly shifted toward Hong Kong and Shanghai, which have proven able to absorb very large transactions. Since 2005 alone, the IPOs of four Chinese





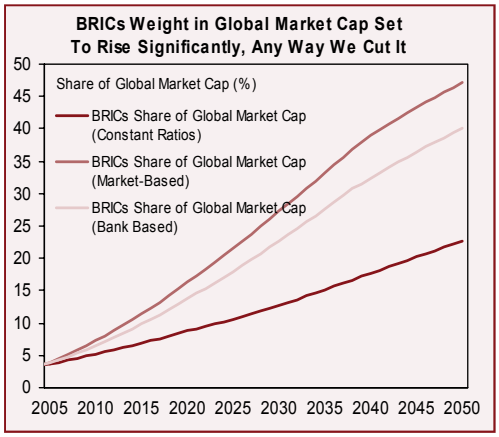
banks have raised more than $42bn in total in Hong Kong and Shanghai. Trends that have supported the growth of capital markets in China—such as the privatisation of state-owned firms, rising household wealth, an aging population, and improved corporate transparency and governance—are likely to support the growth of capital markets in other countries too.

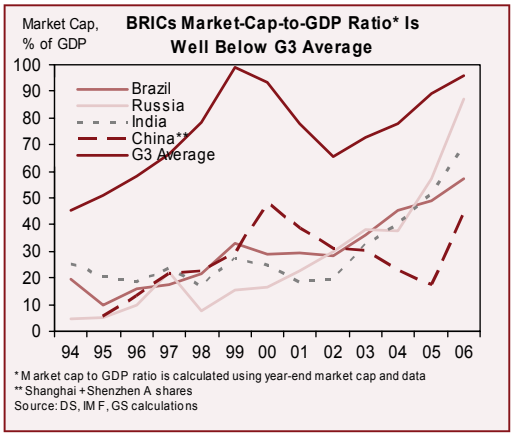
Trends in Investment Management

The surge in both traditional and non-traditional forms of investment management has been an additional advantage for some non-US markets. Three different forms of investment management are growing strongly outside the US:

- Hedge funds appear to be growing faster outside the US, although their absolute size is still much bigger in the US.
- Mutual funds and other forms of pension-related entities are starting to grow as European countries begin to develop a pension savings culture. Since 2000, mutual fund assets have grown nearly 13% annually in Europe and 11% in Asia. Annual growth in the US was only 5% over the same period.
- Thirdly, and possibly of greatest importance, government-backed investment entities are starting to emerge in many big developing countries, largely as a by-product of excess FX reserves. This is a key factor to watch going forward. Norway and Singapore have set the standard for many other wealthy nations to follow and, as discussed in the media recently, China may well move in this direction. Russia and other holders of significant FX reserves may follow.

Moreover, US investors are increasingly turning overseas. US mutual funds have close to $1trn invested in international equities, roughly five times the figure of the mid-1990s.





The BRICs, the World Economy and the Future

Wall Street's long-standing pre-eminence probably reflects a number of factors: the absolute importance of the US economy; its role in financial innovation; its history of solid regulation; and indeed the 'brand' itself.

Looking into the future, the way the world economy unfolds is likely to be a critical factor in determining the overall pattern of global capital markets development. Recent Chinese and Russian leadership in the IPO market may just be a taste of things to come. Just as we project that the world economy will look significantly different in just two decades' time, thanks to the BRICs, so too may global capital markets.

The BRICs' capital markets are currently small as a share of GDP, at least by the standards of most developed countries, especially the US. We expect these markets to grow in two ways in coming decades: in Dollar terms (keeping pace with the growth of their economies) and as a share of GDP (as their capital markets deepen).

In *Global Economics Paper No.118*, 'Crude, Cars and Capital', we applied our BRICs GDP projections to a stylised view of how the BRICs capital markets might develop. The chart above illustrates three alternative paths for the BRICs capital markets by 2050. Each path reflects the varying degrees to which the BRICs might 'embrace' what is typically deemed the Anglo-Saxon model of capital markets. If the BRICs were fully to adopt the Anglo-Saxon model, their capital markets could become vastly bigger than the US. Even in a scenario where BRIC countries follow the 'bank-based' model of development, their likely level of GDP growth will probably result in much bigger capital markets.

Similarly, we recently projected the growth of the Chinese domestic debt market in *Global Economics Paper No.149*, 'Bonding the BRICs: The Ascent of China's Debt Capital Market'. We estimated that China's DCM could double in GDP terms over the next decade, rising from just under 30% to some 60% of GDP in 2016—making it roughly the size of the US Treasury market today. Even if the market-cap-to-GDP ratio remained at today's levels, the market would still grow roughly threefold (in Dollar terms) as it matched growth in the overall economy.

Regulation Does Matter

All of this is not to say that regulatory issues are irrelevant. A large number of participants in the McKinsey survey cited stringent NYSE listing requirements as a deterrent to listing there. Similarly, the top 10 IPO issuers in both 2005 and 2006 frequently mentioned regulatory hurdles as an impediment to a US listing. The 'light touch' of the UK's Financial Services Authority is seen as allowing smoother and more nuanced regulation, which is appropriate for today's complex, fast-changing and globalised markets. At the individual level, corporate executives may feel that the challenge of gaining entry to the US in light of tighter immigration rules further disposes them not to list in New York. While we doubt that any of these factors are the primary motivator for non-US listings, they are probably unhelpful, particularly in the aggregate.

Is Wall Street Doomed?

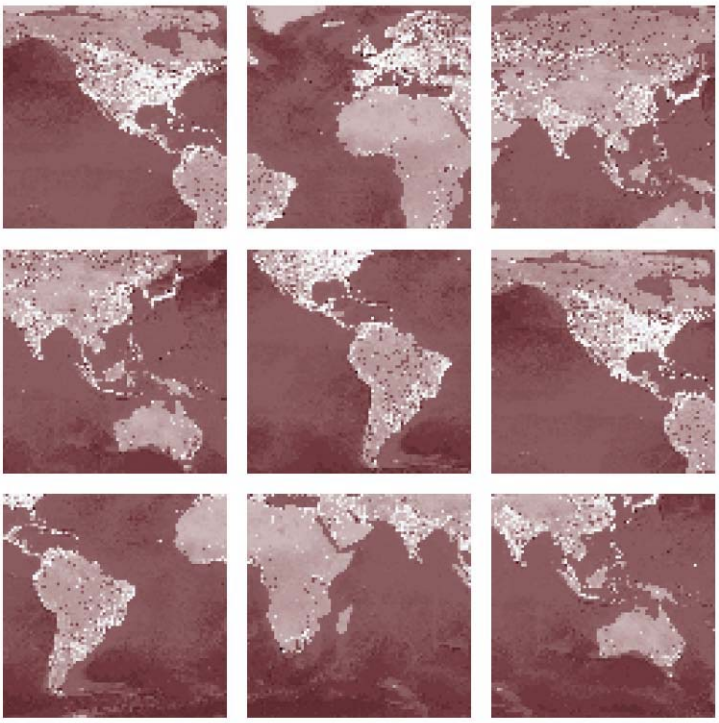
So, is Wall Street doomed? Certainly not. The depth of the US domestic market, the fact that it is the home market for many of the world's leading companies, the tradition of innovation and the deep equity culture all point to a continued future as one of the world's key financial centres. But the long-standing dominance of the US markets is likely to continue to fade as the global equity culture spreads. We see this as a not-surprising aspect of the rise of the BRICs economies, and one that should be welcomed. At the very least, many US-based firms are likely to profit from this trend—including financial intermediaries, lawyers and accountants.

Jim O'Neill and Sandra Lawson
February 14, 2007

CHAPTER EIGHTEEN

SOVEREIGN WEALTH FUNDS HIGHLIGHT THE CHANGING WORLD—AND THE NEED FOR MORE

November 2007



SOVEREIGN WEALTH FUNDS HIGHLIGHT THE CHANGING WORLD—AND THE NEED FOR MORE

Recent months have seen a growing focus on so-called Sovereign Wealth Funds. The degree of focus on these entities is yet another sign of the changing nature of the world economy, and a development that is related to the emergence of the BRIC economies and their rapidly rising financial wealth. Government-controlled investment funds are hardly new, so to some extent the current commentary seems a bit misplaced. Nonetheless, the emergence of more of these funds, their scale and the diversity of their activity are attracting the attention of many financial market participants and Western policymakers. As Sovereign Wealth Funds (SWFs for the purpose of this article) become more sophisticated in their investment strategies, the attention mounts.

Here, we make the following key points:

- The sheer scale of some of these SWFs reflects the massive growth in foreign exchange reserves of many large developing economies, including some of the BRICs.

- We can broadly distinguish between two categories of SWF: those whose vast growth reflects their nation's rich commodity endowments, and those that reflect large foreign exchange intervention activities. Some fall into both categories. For those with plentiful natural resources, the ongoing rise in commodity prices has been a major financial boon. In general, their strategy can be characterised by attempts to increase the long-term returns for their nation, as well as help avoid the consequences of 'Dutch disease'. Russia and many Middle Eastern oil producers fit into this category. The second group can be characterised differently, as nations that have simply accumulated large foreign exchange reserves linked to aggressive FX intervention policies.

- There is perhaps not too much difference between developed-country Finance Ministries and central banks on the one hand, and some SWFs on the other. For both groups, given the size of national reserves, developing more sophisticated investment policies makes sense. Indeed, for many years, we have been surprised that more developed countries have not done so—in particular, Japan and the member countries of EMU.

- It makes considerable sense for these entities to invest more in equities instead of the most liquid fixed income products, as well as diversify out of the Dollar (as much anecdotal evidence suggests is occurring). Whether they are a significant influence on financial prices is more debatable, especially in a market as large as foreign exchange.

- Western policymakers may not like the emergence of SWFs, especially when they are not 'transparent'. However, as in other areas, their complaints are often not on a consistently strong footing.

- Moreover, and lastly, if Western policymakers were to think on a broader scale, the emergence of large SWFs would represent yet another reason why the current organisational structure of the G7, G8, IMF and World Bank needs an urgent overhaul. Just as with misaligned exchange rates, global current account imbalances, high commodity prices, concerns about the environment and global warming, we are highly unlikely to see significant and optimal policies until and unless the institutional structure of world policymaking is changed.

What Is a Sovereign Wealth Fund?

As the name implies, these funds invest on behalf of their nations. Some of them have existed for close to 50 years. The Kuwait Investment Authority (KIA) and the Abu Dhabi Investment Authority (ADIA) are two of the best-known, longest-existing of these funds. Interestingly, their style typifies some of the issues currently discussed about the group as a whole, even though these specific funds have existed for a long time. The 1980s saw occasional political concerns surrounding some of their stakes in Western companies. Recently we have seen considerable focus on newer (also large) SWFs ranging from the Norges Bank, which manages Norway's oil wealth, to those of China and Russia. As the table on the next page shows, the list of countries with some form of SWFs is large and diverse.

Not surprisingly, many of the largest SWFs represent countries with the largest foreign exchange reserves. But not all countries with large FX reserves have developed funds. Most strikingly, Japan's Finance Ministry still invests the vast majority of the country's huge foreign exchange reserves. Also, the central banks of most developed European countries manage their respective reserves. It is important to remember this when discussing two of the most topical issues surrounding SWFs: their size and their accountability.

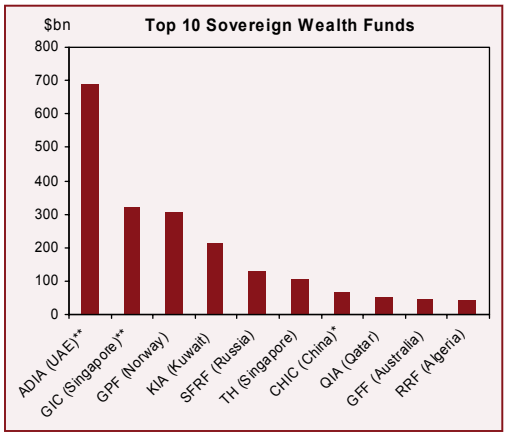
The optimal size of an SWF is closely linked to the optimal level of a nation's foreign exchange reserves. We have long since believed that, in a world of floating foreign exchange rates, far too many developed and developing countries have FX reserves that are far too big. Japan and the 13 European countries that share the single currency, the Euro, do not appear to need anything like their current level of FX reserves. In some ways, therefore, some of the issues often raised about SWFs and others from the emerging world are no different to the challenges facing developed countries. It often seems to us that developing countries have been more sophisticated in shifting to a 'truer' investment philosophy for investing large parts of their foreign reserves than have the developed nations. If they are not going to sell the reserves or run them down, then why not invest them to achieve as high a return as possible?

As the Swiss have shown, you don't need to be an SWF to invest in equities and other forms of riskier and alternative assets. The Swiss National Bank has been doing this for a number of years with some success.

World Top 10 FX Reserves

Country	Total FX Reserves* (US$bn)	Current Account** (% of GDP)
China	1,434	9.4
Japan	911	3.9
Russia	407	9.7
Taiwan	263	6.8
Korea	257	0.7
India	222	-1.1
Eurosystem	201	0.0
Brazil	161	1.6
Singapore	147	27.5
Hong Kong	141	10.8

*As of September 2007
**As of December 2006
Source: IMF, National Sources



Sovereign Wealth Funds

Country	Name	Date established	Current size[a] (US$bn)
United Arab Emirates			500 – 900[e]
	Abu Dhabi Investment Authority and Corporation	1976	500-875[e]
	Mubadala Development Company	2002	10[e]
	Istithmar	2003	4[e]
Norway	Government Pension Fund – Global	1990	308
Singapore			208 – 438[er]
	Government of Singapore Investment Corporation	1981	100 – 330[er]
	Temasek Holdings[b]	1974	108
Kuwait	Kuwait Investment Authority	1960	213
Russia	Stabilisation Fund of the Russian Federation	2004	133[r]
China	Central Huijin Investment Company[b]	2003	68[e]
Qatar	Qatar Investment Authority	2005	50[e]
Australia	Future Fund[b]	2006	49
Algeria	Revenue Regulation Fund	2000	43
United States	Alaska Permanent Fund[b]	1976	38
Brunei	Brunei Investment Agency	1983	30[e]
Korea	Korea Investment Corporation	2005	20[r]
Malaysia	Khazanah Nasional[b]	1993	18
Kazakhstan	National Oil Fund	2000	18
Canada	Alberta Heritage Savings Trust Fund[b]	1976	16
Venezuela			16
	National Development Fund[c]	2005	15
	Macroeconomic Stabilisation Fund	1998	1
Chile	Economic and Social Stabilisation Fund	2006	10
New Zealand	Superannuation Fund[b]	2001	10
Iran	Oil Stabilisation Fund	2000	9[e]
Botswana	Pula Fund	1997	6
Oman	State General Reserve Fund	1980	5[e]
Mexico	Oil Income Stabilisation Fund	200	3
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	200	2
Trinidad and Tobago	Heritage and Stabilisation Fund	2007	1
Timor-Leste	Petroleum Fund	2005	1
Kiribati	Revenue Equalisation Reserve Fund	1956	<1[e]
São Tomé and Príncipe	National Oil Account	2004	<1
Sudan	Oil Revenue Stabilisation Account	2002	<1
Total[d]			2,091

e = estimate, r = some or all assets are included in reserves

a. Data are from the end of 2006 or the most recent date available.

b. A portion of the holdings is in domestic assets.

c. A portion of these holdings is intended for domestic investment.

d. Total uses the midpoint of the range of estimates.

Source: Edwin M. Truman, The Management of China's International Reserves: China and a SWF Scoreboard, Peterson Institute for International Economics, October 19, 2007.

Accountability and Transparency

A second issue that often arises relates to accountability, governance and, especially, transparency. Ted Truman of the Institute of International Economics has recently published a useful article on the topic, discussing SWFs generally while focusing on China. Of course, we would all probably prefer to live in a world of very open transparency. SWFs are not the only opaque institutions—the investment policies of many developed countries also lack transparency. Some of them have on occasion suggested that too much transparency could be harmful, not least as it might limit their ability to make timely and large allocation decisions. Why have these complaints not been aired in the past? Many developing countries have been investing in US (and other) bonds for years. This didn't seem to 'upset' Western policymakers.

As SWFs have grown in size, signs that they are searching for higher returns presents Western nations with new challenges. The often-stated concern is that Western governments do not want to see their own 'trophy' assets fall into foreign hands, especially those that are currently privately owned. But is this really a balanced judgement? Although it means that the likely 'national' cost of servicing the returns on such assets will be higher, it would appear somewhat far-fetched to assume that the ownership could result in usage that might even damage their interests.

As this relates to the energy challenges of high prices and increased production, there is a credible case to be argued that Western governments should encourage foreign state-backed entities to buy some of their energy companies (as shown in the brief discussion in the box by Jeff Currie). Having government support might lead to stronger investment and allow developing countries access to the better technology needed to address some of the growing challenges in this area.

The Rationale for State-Backed Investment Funds

Literature on the economic rationale for official investment vehicles appeared in the 1970s following the first oil price crisis and the sudden emergence of large oil revenues for many oil-producing countries. A number of countries, known as the 'low absorbers', faced a rush of revenues that could not feasibly be spent on domestic consumption, and therefore had excess savings. Not only did it make sense to invest such surpluses overseas, but that the potential rate of return on overseas investment needed to be compared with the discounted value of future energy returns to determine the optimal rate of oil production today. Such theories showed how to avoid 'Dutch disease' and ensure that countries would not see their non-energy economies damaged by their commodity wealth. These theories were behind the development of the KIA, ADIA and, to some extent, (while it is not a wealth fund as such) the Saudi Arabian Monetary Authority (SAMA) and other institutions in the Middle East.

Other sovereign-backed wealth investment funds started up in their wake. These included in Singapore's Temasek and GIC, established as a fund for future generations, in which the prosperity created by the fund's returns would be for the benefit of future citizens.

By investing in overseas higher returning assets, not only did these nations earn higher returns, but they might encourage better performance in the economies of the West. Indeed, contrary to

the mood of many today, SWFs were earlier often regarded as a positive for the global economy. Without them, the shortage of world savings would entail a prolonged global recession.

Do Sovereign Wealth Funds Influence Asset Prices?

As can be seen in the earlier table, the size of SWFs is now significant and, in recent years, financial market participants have suggested that their activities influence asset prices. Analysts have argued for many years that the Euro, for example, has been supported by ongoing diversification out of the Dollar. Many have suggested that the bond yield 'conundrum' is a direct result of SWFs buying US (and other G7 countries') bonds, and now there is growing talk that diversification from bonds to equities is inflating equity prices.

While the activities of SWFs in all financial markets does appear to be on the rise, it is far from clear that their activities influence prices. In the event of planned collusion and joint investment decision making, this would plainly be the case and, at the margin, it is feasible that in some markets any large financial decision can influence market prices. However, many of the underlying markets that SWFs engage in are rather large—usually they need to be in order to provide the liquidity and related properties that any large institutional investors desire.

According to Truman, the combined size of outstanding SWF assets is just over $2trn (coincidentally, about the same as the estimated total assets of hedge funds).

It is hard to believe that SWF activity influences the price of major currencies. The latest BIS survey suggests that the daily turnover of the global foreign exchange market is about $3trn. Thus the foreign exchange market turns over 50% more than the aggregate size of SWFs on a daily basis. Anecdotal evidence suggests that many SWFs have been active buyers of the Euro in recent years, but the same anecdotes suggest that some of them were also buyers when the Euro was introduced in 1999. It is worth pointing out, in this regard, that the Euro declined for the best part of its first two years in existence.

In fixed income markets, we ourselves have published research to suggest that the activities of central bank buying of US Treasuries may have depressed 10-yr US bond yields. In *Global Viewpoint 06/08*, we estimated the impact of Asian and Middle Eastern purchases of intermediate maturity government securities to be in the region of 40bp-50bp. This is the order of magnitude of the unexplained portion of 10-yr rates in the US and Germany in the average between 2004 and today, once cyclical developments are accounted for in a multi-country, multi-variate regression model such as our Sudoku framework. We are of the view that

Size of Key Financial Markets

Billion US$	Size of SWFs[1]	Size of Daily FX Turnover*[2]	Size of Government Bond Market**[2]	Size of Equity Market[3]
Global	2,091	3,210	24,809	29,285
US	—	—	6,411	13,690
Japan	—	—	6,851	2,899
Europe***	—	—	7,354	9,941

*Daily average of total traditional (spot, forw ard, FX sw aps) turnover in April 2007

**Domestic Debt Securities, Amount Outstanding in March 2007

***Europe includes UK

[1]Source: Truman (2007); [2]Source: BIS; [3]Source: MSCI

gradually the overvaluation of bonds will diminish as sovereign pools diversify away from fixed income instruments. However, as we pointed out earlier, this activity of central bank buying of US Treasuries does not often catch the attention of policymakers in some countries.

Equity markets are not as big as foreign exchange markets, so if all SWFs are making significant asset allocation shifts into equities, then they might positively support prices to some degree. However, even here, it might be wrong to rush to such a conclusion. One highly visible example to the contrary is evident in China. Since the Chinese authorities announced that they were buying 9.9% of the (now public) private equity specialist firm Blackstone, its share price has fallen, not risen. Other cautionary tales exist. Suggestions by market commentators in 1999-2000 that the rising continental European pension funds would support global equity prices for years have also turned out to be rather incorrect.

The presence of SWFs might influence prices for some assets. However, so do those of other large participants and, as we mentioned earlier, some SWFs have been investing in this way for many years.

An Additional Need for Reform

In recent weeks, more Western policymakers have talked about the need for much greater transparency on the role of SWFs. The new head of the IMF, Dominique Strauss-Kahn, has discussed the need for more information, as have other IMF staff. Fortunately, Strauss-Kahn's reference to the need for the IMF to press ahead with reform of its own purpose makes his comments more credible than those of others.

Sovereign Wealth Funds should now be added to the long, and rapidly growing, list of major economic policy issues supporting a view that the G7, G8, IMF and World Bank should no longer exist in their current format. It is now nearly six years since we published 'The World Needs Better Economic BRICs'. If Western policymakers want SWFs to operate in a more transparent environment; if they want to see a quicker reduction in global imbalances, a fairer value of many currencies, and some credible measures to halt the erosion of our environment; and if they want to reduce global warming—and so much more—then why not undertake some positive steps themselves in terms of the structure of the main multilateral institutions they still control. As long as China and the other BRICs cannot sit down with (some of) them at the same table, a place at that table will become increasingly less desirable.

Jim O'Neill
November 7, 2007

The Energy Problem Is Related to the Savings Problem

The sharp rise in energy prices that started at the beginning of this decade has generated what is likely the largest wealth transfer on record. We have long argued that this rise in prices is the result of inadequate investment in energy productive capacity over the last two decades, underinvestment that is now creating severe supply constraints. We estimate that since 2001, due to the surge in oil prices, energy importing countries have transferred an additional $3 trillion to energy producers than they otherwise would have had energy investment been adequate to keep prices at $20/bbl.

Much of this capital now resides in the foreign exchange reserves and sovereign wealth funds of the energy producers, and has been labeled 'surplus savings', which has been identified as one of the key reasons behind lower real interest rates. While this 'surplus savings' has generated a modest rise in the global net savings rate and hence a modest rise in investment, the key driver of low real interest rates has been a dearth of good investment opportunities, which has, in turn, forced capital to flow towards lower-yielding, inefficient investments.

But how can there be a dearth of good investment opportunities, particularly in energy, which has been and continues to be capacity constrained with extremely high yields? The answer lies in policy constraints, which have limited the access to higher-yielding investments and substantially increased the cost of those investments that are accessible, lowering their returns. These dynamics have forced the flow of capital from high-yielding natural resource-rich countries to freely accessible low-yielding investments in developed countries.

It is not a coincidence that the energy industry, which is the most capital-constrained and hence highest-yielding, is also the industry with the largest political constraints on the free flow of capital. Energy is not only the largest industry in the world, with an annual output in excess of $4 trillion (making it the second-largest economy in the world), it is also the most politically sensitive industry, with consuming countries driven by security of supply concerns and producing countries driven by resource-protection issues.

In the pursuit of these political goals, each country in the world has enacted policies to protect their own interests. The energy producers are reluctant to allow foreign capital to invest in their country's resources. The energy consumers are equally protectionist. Consuming-country governments have been quick to strike down any overture from one of the energy producers to buy or make a large-scale investment in one of their energy production, transportation or even distribution companies. This creates very large constraints on the free flow of capital, labour and technology.

These political constraints are far-reaching. In the consuming countries, efficient investment in alternative energy is constrained due to bans on nuclear energy, which could be used to produce oil where energy is extremely scarce. Immigration constraints prevent the free flow of engineers on a global basis, particularly from China and India. Protectionist farm policy motivates agricultural import tariffs, which prevent the free flow of biofuels and ultimately the optimal level of investment in the extremely efficient Brazilian ethanol industry. Biofuel subsidies in the consuming countries discourage lower-cost, equally environmentally-friendly investments elsewhere in the world. In the producing countries, sharp increases in taxes and a high level of uncertainty over property rights discourage direct investment, even when it is allowed.

The Energy Problem Is Related to the Savings Problem *(continued)*

Historically, this mismatch of political aims did not create investment problems. During previous commodity investment phases in the Cold War era, when the world was 'bilateral', investment flowed more freely as political aims were more coordinated. In the wake of the Cold War, the world has become much more multilateral, with many countries pursing their own interests, which creates a healthy level of competition in many industries. However, in energy, which is global in nature and requires coordination, such competing interests lead to an inefficient level of investment. Put another way, while commodity markets are increasingly globalised in terms of consumption, they are increasingly fragmented in terms of investment.

The world cannot solve this energy investment problem if the current policy constraints remain in place. Global coordination is the key to the long-run energy solution, and it is important to remember that no single country in the world is completely energy independent.

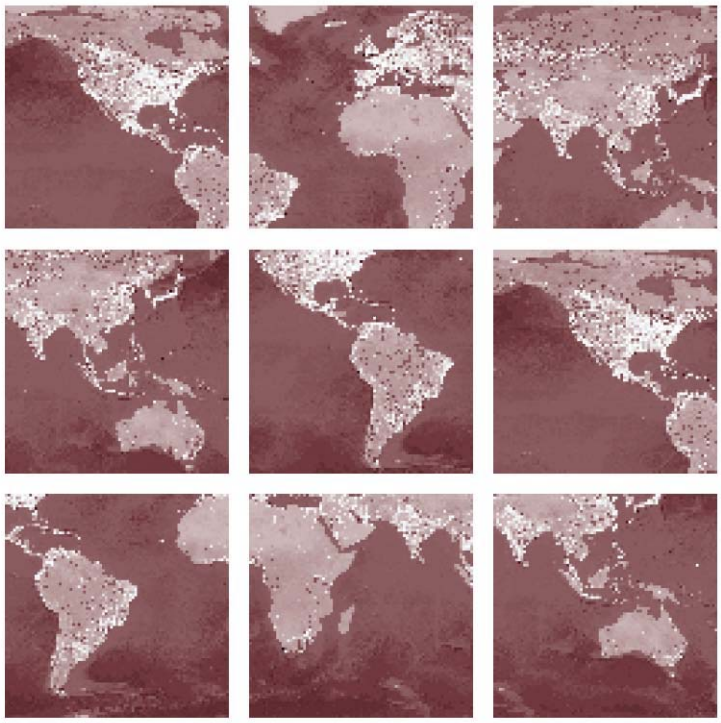
Jeff Currie

With special thanks to Charlie Himmelberg and Jonathan Waghorn for their input.

CHAPTER NINETEEN

GLOBALISATION AND DISINFLATION: CAN ANYONE ELSE 'DO A CHINA'?

October 2006



GLOBALISATION AND DISINFLATION: CAN ANYONE ELSE 'DO A CHINA'?

Inflation 'Discount' Thanks to China

After many years of positive surprises, inflation has crept higher in the US and globally over the past year, perhaps finally reflecting years of abundant global liquidity, a sharp increase in commodity prices and generally strong global growth. Until this year, inflation had remained lower than most traditional models had predicted, and consensus forecasts for inflation have been consistently higher than actual inflation over the past decade.

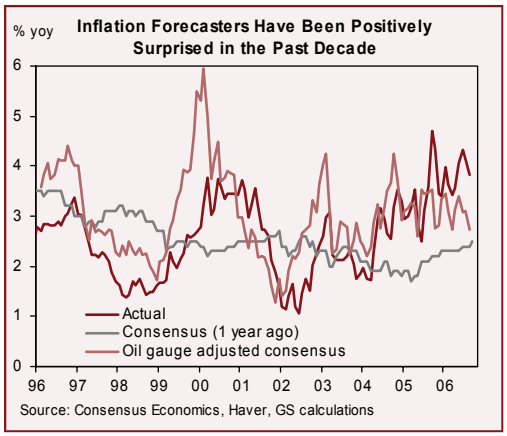
Is our luck running out? Indeed, why have we been so lucky? The happy coincidence of strong growth with low inflation that we have enjoyed until now was the result of a number of factors, including a move towards inflation targeting and the associated greater credibility of central banks across many countries.

But we believe other factors have contributed. We suspect that China has played a critical role in how globalisation has evolved economically, and that this could explain why inflation has, until recently, remained so tame. As a result of the strength of China's own economy, inflation is now rising there. If this cyclical tendency persists, it could reverse the global inflation 'discount' that China has helped create. The structural dynamics will probably allow China to continue to offer disinflationary benefits to the world, so long as the world can tolerate them.

We also think there is scope for the other BRICs and the 'Next 11' (N-11) to 'do a China' and generate another source of disinflationary pressure. Encouraged by China's success, some of these countries may take on a more active role in the global economy. India has the potential to do this, but the other BRICs and the N-11 could only duplicate the impact of China on a collective basis—not alone. Indeed, China itself may still have the best potential to give a repeat performance. In our view, the globalisation process is still in its early days, and it may help central banks in their efforts to keep inflation low and stable for a long time to come.

Inflation lower than expected—until now

For much of the past decade, inflation has repeatedly come in below market expectations. While not a universal phenomenon, this has occurred in many important regions. China and Japan have frequently experienced mild deflation, while US policymakers also feared the risk of deflation in 2001-2002. In Europe, flirtation with lower-than-expected inflation has been an issue for the likes of Norway, Sweden and Switzerland, although not yet for the Eurozone. Forecasters have also been surprised by recurring instances of lower-than-expected inflation.



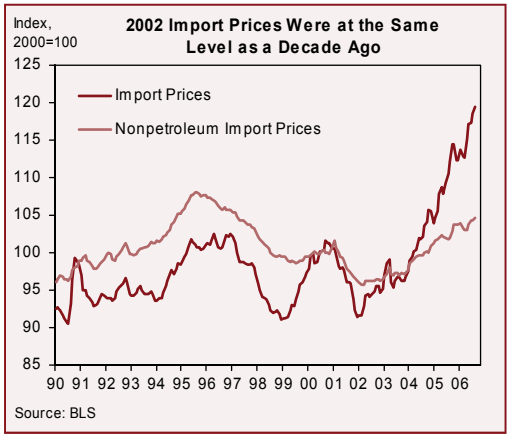
While it is difficult to obtain a history of consensus forecasts for core inflation, there is some evidence that forecasters have been positively surprised. We estimate that, adjusted for oil prices (which have in recent years repeatedly surprised on the upside), core CPI was around 0.5% (on average) below consensus forecasts in the past decade. We derived this conclusion by adjusting forecast CPI outcomes by the 'surprise' in oil price forecasts, i.e., the difference between oil price outcomes and the oil price 'forward' curve in the markets.

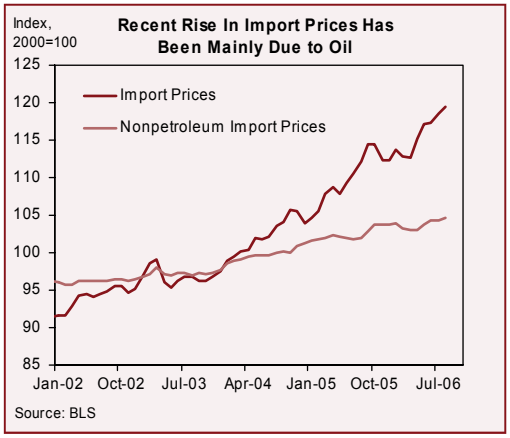
Why has inflation been so low? Most studies have concluded that, at its root, the key has been successful monetary policy under credible inflation-targeting regimes or broader, credible inflation-fighting central banks. Studies by the IMF and the OECD have failed to detect any major evidence that globalisation has been critical to the level of inflation, although the BIS says that the theoretical case for the influence of globalisation should 'not be underestimated'.

Much recent research understandably examines the trends in import prices in developed countries as the primary means of measuring the impact of globalisation, and it is here that many fail to find significant evidence of a dramatic impact. This seems a little surprising given trends in import prices. Consider the US, for example: in 2002, import prices overall were at the same level as a decade before. Since 2002, import prices have risen (possibly in line with Asian export prices, as we will discuss later), but the increase is very modest, and in the main due to oil prices. Non-oil import prices are today only 9% above where they were in 2002, despite a notable decline in the trade-weighted value of the Dollar and rising commodity prices. US import prices from China remain remarkably subdued. A generally similar pattern to that of the US experience can be seen in most other developed economies.

One of the reasons why inflation has been lower than expected may lie beyond the behaviour of import prices, and this could explain why many researchers have found no material sign of the impact of globalisation from this source. Federal Reserve Deputy Chairman Don Kohn has laid out three potential channels for the possible impact of globalisation on inflation: import prices, labour competition and productivity.

In both the US and Eurozone, simple econometric models (used to explain the rate of wage inflation) have recently under-predicted the level of wage inflation. Competition from overseas, and from China in particular, was quite likely responsible, as we shall discuss. BIS research cites evidence that relative wages have declined the most in industries that have shifted more of their production overseas from the advanced economies. This makes sense.





The story of Wal-Mart is a typical example and its role as a major importer of consumer goods to the US from China serves to emphasise the point.

As Kohn suggested, a third channel could perhaps be seen in improved productivity in developed economies. Interestingly, we have seen signs of enhanced productivity in recent years in each of the three largest economies. In the US, Japan and Germany, domestic factors persuaded us to become more optimistic, but the cause may have been global and, in some industries (and national cases), the 'threat of China' might have been a specific driver.

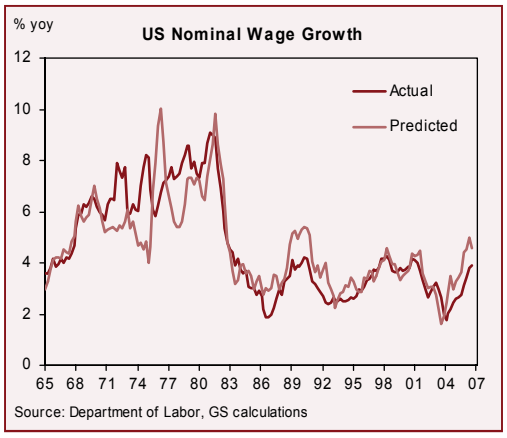
Globalisation and China Have Improved the Inflation and Growth Trade-Off

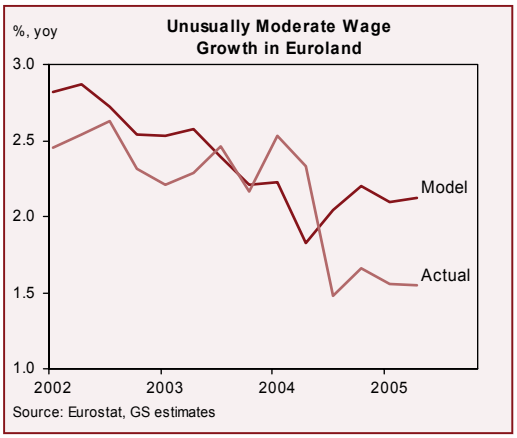
We think Don Kohn and the BIS are right. Sound theoretical reasons can explain why globalisation reduces global inflation (and at the same time raises the global trend real GDP growth rate). As Kohn argues, the transmission mechanism may involve import prices, wage competition and productivity.

The simple diagram on the next page can explain the globalisation impact on wages. We estimate that in 2000 the pan-Asian (ex-India) 'global' labour force was around 275mn (perhaps equivalent to curve S1). As discussed in the next section, by 2005 urbanisation in China had boosted the part of its labour force in the 'global' market by 100mn, or more than 25%. This increase in 'the global labour force' shifted the supply curve from S1 to S2. As a result, the price of wages fell and output rose, consistent with much evidence for both heavy industrialised wage behaviour and global output.

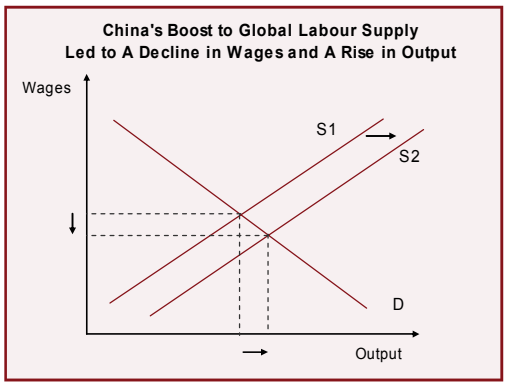
There are many examples of this. In the past eight years, the level of US GDP has expanded by more than a quarter, yet median wages have fallen by 4%. In Korea, there was evidence of a secular rise in wages from the 1980s onwards, but this appears to have stopped. Not surprisingly, Korea is one of the countries whose trade share with China has risen most rapidly. In Japan, despite the economic recovery, wage growth remains surprisingly tepid. Interestingly, and contrary to the gloomy instincts of those who oppose globalisation in developed countries, full-time employment in Japan is now rising sharply.

In line with weak wage growth, the profit share of GDP has risen in many developed countries. One of the consequences is that companies are more likely to invest. We can observe evidence of this today in some of the 'older' economies, such as Germany and Japan.





Improving capex intentions and optimism in business surveys are more pronounced than they have been in either nation for much of the last decade, and the improved efficiency of capital (i.e., higher profits) is at the heart of why we have become more optimistic about the long-term real growth trend in both nations.



If employees in industries can be encouraged to accept compensation schemes linked to productivity growth, it is not necessarily the case that their earnings will be persistently diminished by globalisation—only their wage rates, or fixed compensation.

An increase in productivity growth may also contribute significantly to containing inflation. This could occur in two ways:

- Higher productivity growth initially leads to lower inflation as real wages lag behind increases in productivity.
- Higher productivity may also exert disinflationary pressure by lowering the natural rate of unemployment, i.e., NAIRU.

If real wage gains are proportionate to the tightness of the labour market, then higher productivity should allow an economy to operate at a lower unemployment rate without generating inflation pressure. This second channel will persist as long as the central bank keeps the actual unemployment rate above the now-lowered NAIRU.

The China shock and globalisation

The way in which China has evolved in line with globalisation, and the duration of this process, will be important in determining whether the disinflationary impulse from globalisation is likely to persist, or whether it is nearing an end.

As we discussed earlier, we think there are compelling reasons to believe that the positive surprise of lower-than-expected inflation since the early 1990s is linked to the rapid integration of China into the global trading system. Owing to the sheer size of its population and economy, structural changes in China have taken on 'mega-trend' proportions. As such, their impact has rippled beyond China's borders, far beyond any comparable advances in urbanisation and industrialisation in the past.

In particular, the emergence of China has had a greater impact on the world economy than the industrialisation of Japan after World War II and the Asian Tigers after the 1960s. Japan's role in the world grew dramatically from the 1950s—its share of global exports more than doubled to around 8.5%. This is impressive. But in just the last 10 years, China has almost fully matched the entire increase in exports that we saw over 30 years in Japan! In addition, China's share of global GDP is set to grow significantly faster than Japan's did during its heyday.

The Asian Tigers come closer to matching China's startling export performance, but nonetheless were slower in expanding export share than China over the last decade, and remain far smaller in terms of GDP.

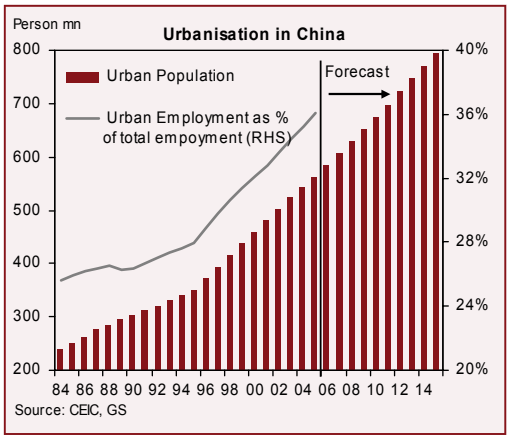
Three 'mega-trends' in China

- **Urbanisation.** Urbanisation in China has picked up pace since the mid-1990s as the enforcement of restrictions on internal migration has been relaxed. In the past five years alone, the urban population cumulatively has risen by some 100mn, putting the urbanisation rate just above 40%. It is important to realise that this is still relatively low compared with other Asian countries at comparable levels of development. The government's strategy to spur the development of 'second-tier' cities suggests that urbanisation will remain a powerful trend. We estimate that over the next 10 years, China's urban population will rise approximately another 230mn, bringing the urbanisation rate to 57%.

- **Industrialisation.** As with its forerunners elsewhere in the world, urbanisation has helped fuel China's industrialisation. China's development is helped by the transition from a centrally-planned to a market-based economy, which has reduced the importance of the state-owned sector in the economy. The combination of urbanisation, industrialisation and economic reform has pushed China's cumulative per capita GDP growth since the onset of economic reform in 1978 above that of Japan and other Asian Tigers during the heyday of their own industrialisation processes.

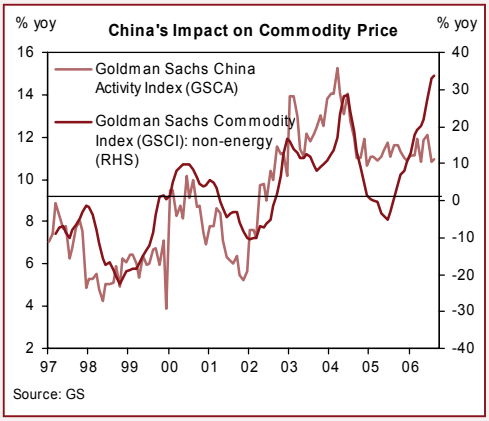
- **Greater openness to trade and capital flows.** The impact of urbanisation and industrialisation has been more keenly felt as China has opened its door wider to the world. The share of exports in China's GDP rose from less than 10% in the mid-1980s to 34% in 2005. The export share in GDP grew by some 15 percentage points over just the last five years, which coincided with China's accession to WTO and the huge rise in FDI inflows. Exports have risen threefold since 2000 to $762bn. By 2004, China had displaced Japan—an economy twice as large at current market exchange rates—as the third-largest trading nation in the world, after Germany and the US.

These forces have all brought China into the global trading system in a dramatic way. Import prices have been generally soft in the major developed countries as a result of China's desire to export, as discussed earlier. Wages have been subdued as a result of the reduction in bargaining power of workers in developed countries, and in order for companies to thrive in this competitive world, productivity has risen. All of this suggests that China has played a key role in helping to contain inflation.



China and Global Commodity Prices

Although China is not a monopsonist in the commodities market, the country has emerged as an increasingly dominant consumer (and hence a source of marginal price shocks) in a widening array of commodities, from soybean and base metals to crude oil. Until recently, there has been a strikingly tight correlation in the past decade years between the Goldman Sachs China Activity Index—our preferred measure of China's economic growth—and the Goldman Sachs commodity price index, GSNE^{TM}.



The surge in global commodities prices since early 2002 coincides closely with the acceleration in China's economic growth. The policy tightening undertaken in early 2004 to combat overheating triggered an immediate and amplified downward drop in commodities prices. A strong recovery in commodities prices ensued, however, as growth in China stabilised at a lower, more sustainable pace. As can be seen in the chart, despite some leveling off in our GSCA estimate of current growth over the last year, commodity prices have continued to surge. In this light, perhaps the very recent decline in commodity prices is justifiable.

Cyclical versus structural forces

Since 2004, China's manufactured export prices have turned positive, as have non-oil import prices in the US, Japan and many other developed countries. The rise in Chinese manufactured prices follows the run-up in commodity prices, as well as the fact that China's unit labour costs have turned positive. Manufactured goods prices in China have also started to rise, as have broader consumer prices. With the economy operating with a positive output gap since 2003—i.e., GDP growth running above potential—manufacturers appear to have grown more comfortable passing on upstream cost pressure to final prices.

We expect the inflationary impulse in China to peak in late 2006 to early 2007 in response to a gradual tightening in financial conditions. As Chinese policymakers steer the economy back to a more sustainable, though still robust, 9%+ growth path, we expect both CPI and unit labour cost inflation to stabilise in 2007.

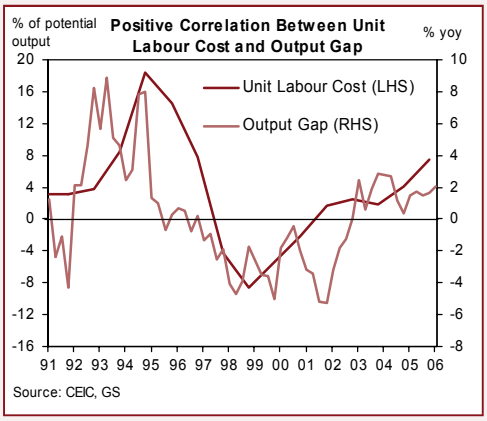
If this transpires, the underlying positive dynamics from China's 'mega-trends' may reassert themselves on global markets. If we are wrong and Chinese inflation continues to rise, the consequences for the rest of the world may be profound.

Can the Other BRICs and N-11 'Do a China'?

With signs of a pick-up in Chinese inflation, not surprisingly, markets seem anxious about whether the China effect is over. If China's disinflationary contribution comes to an end, who could assume its role? Could other large developing countries be capable of 'doing a China' in

Wage Pressures Have Risen

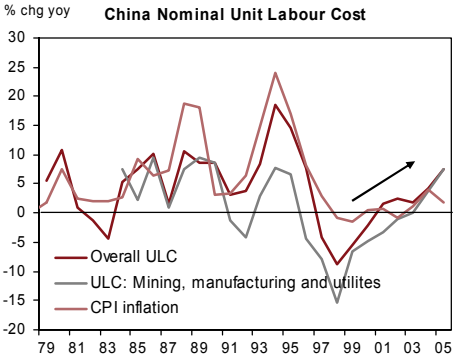
With a population of 1.3bn, almost 60% of whom still live in rural areas, it is tempting to think that China has a virtually unlimited supply of labour. If this were the case, it would follow that China could not possibly face rising wage pressure or, more precisely, face rising unit labour costs, i.e., wages rising faster than productivity growth.

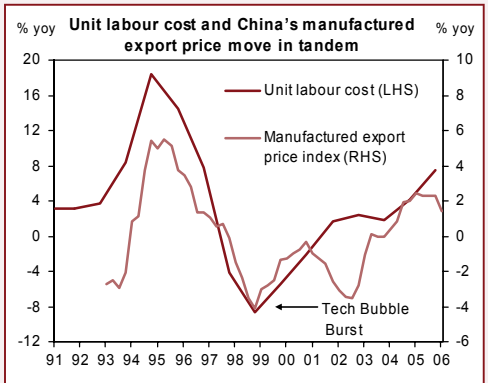


Just like any economy, China's has been subject to cyclical swings in inflation and unit labour costs—and large ones at that. As shown in the chart, unit labour costs have recently begun to rise. This is not the first time. In the late 1980s and the early 1990s, both CPI and labour costs rose. This was followed by a steep decline to outright deflation in the mid- to late-1990s. After a brief period of stability, unit labour costs have risen since 2003 and are now in positive territory compared with the early 1990s.

Our estimates of China's unit labour costs differ notably from others. It is plausible, given China's size, the variety of its labour force and the paucity of reliable data, that productivity is even stronger than we estimate, and that labour costs are not rising as quickly as we assume.

However, as can be seen, there is a close correlation between our estimates of China's output gap and unit labour costs. Our unit labour costs estimate also has a positive correlation with our estimate of China's manufactured export prices. In periods of declining unit labour costs, China's export price inflation has tended to fall (e.g., mid- to late-1990s). Recently, China's manufactured exports have begun to rise, after an extended period of deflation.





so far as they can open themselves up for FDI, boost trade, attract global industries as a result of any competitive advantage they may offer, and contribute to sustaining the last decade's 'golden era' of rising trend growth and low inflation? Do others have the human capital, resources and ambition to do what China has done?

Among the BRICs, only India can match China on population

If you look at size alone, India is the only country that can match China. In fact, its far better demographics mean that population is likely to be bigger than China's by 2030. Altogether, the populations of Brazil, Russia and India, as well as the N-11, amount to about 2.5bn, more than 1bn larger than China. In theory, if these countries all acted similarly at the same time, they could 'do a China'. In reality, it is highly unlikely. Without India, Brazil and Russia, the combined population of the N-11 is slightly less than China's, and they are a very diverse group geographically, culturally and socially.

In any case, as can be seen from their past growth performance and our GES scores, population is purely the foundation or minimum for high growth—not a guarantee.

Urbanisation and industrialisation: India's potential is comparable to China's

Probably of greater importance is the degree to which the population is urbanised and/or industrialised. In terms of future potential, arguably the bigger the population (and the lower the degree of urbanisation today), the better—because that means the potential is bigger.

Once again, India is the only country where the potential for urbanisation is anywhere near comparable to China. It is very difficult to find, in the future, an equivalent of the 200mn newly urbanised residents that China has seen over the past decade. Nor is it easy to find the 450mn that China might have produced looking back 20 years from 2016.

India alone could match China's experience. It is currently less urbanised than China, at slightly less than 30%. If India's urban population share were to reach 50% over the next 20 years, that would result in an additional 200mn people or more in cities. Given India's strong demographics, India could probably match China within 30 years or so, if it chose to.

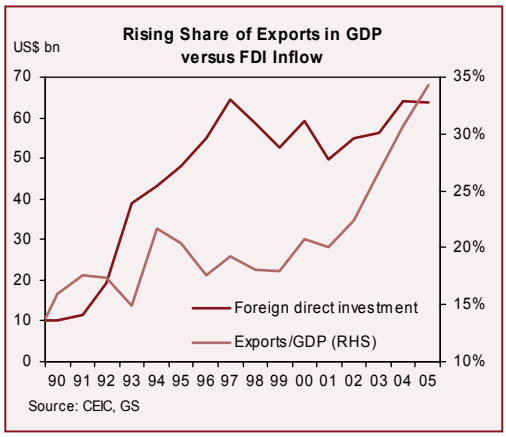
Urbanisation rates are already quite high in many of the N-11 countries. Only Bangladesh, Pakistan and Vietnam seem to have the scope for urban populations to rise significantly. These three, together with India, do have the potential to urbanise to a degree that would be 'relevant' in a Chinese economic context, and in theory therefore to replicate some of the remarkable developments that China has achieved. It is a tall order, though, especially given the complex and, in some cases diverse, nature of their societies.

BRICs and N-11 have scope to boost trade as a share of GDP

Conceptually, other countries could repeat China's success in becoming a leading player in the global trading system. However, it is important to remember why China has had so much success in trade. This relates both to the speed of its urbanisation and its ability to attract large amounts of FDI.

Many of the other BRICs' and N-11 countries' share of global trade is so small compared with China's that the scope for them to 'do a China' is insignificant. Of course, there is plenty for them to do in terms of boosting the share in global trade, but it is not clear that they have the

leadership and policy inclination—nor whether the world has an 'appetite' for another China, given the rising strains in the developing world as it adapts to globalisation.



Hard to replicate China's success with FDI

Turning to FDI, the data yet again show what a remarkable job China has done. Replicating China's achievements would be very difficult. Attracting FDI usually involves giving up some domestic ownership of key companies and key industries. It is important for other BRIC and N-11 countries to embrace this attitude if they are to have any chance of 'doing a China'.

Brazil, Mexico and Russia are reasonably significant players already, in terms of global FDI flows. But India and the other N-11 are relatively insignificant. Even Korea, which scores so well in terms of our GES indicator, has had considerable difficulties embracing FDI. As with trade, India and many of the N-11 do have the scope to be significant players in attracting FDI, but the question arises as to whether their governments are prepared to enact the necessary policies.

The Importance of Policy Intentions in the BRICs and N-11

Of the other BRIC countries and the N-11, India alone is, conceptually, large enough to 'do a China' in terms of influencing the world, and is therefore critical to the general issues in this paper. To succeed in emulating China, India (and any other of the countries) would need to undertake strong reform measures.

Having witnessed China's remarkable achievements, India and a number of the other N-11 countries now appear more eager to embrace globalisation than in the past. If India especially, or any of the others, undertakes the necessary reforms to become attractive and competitive in the global market place—and if the rest of the world continues to support this process—then the disinflationary benefits to us all would be considerable for a long time to come.

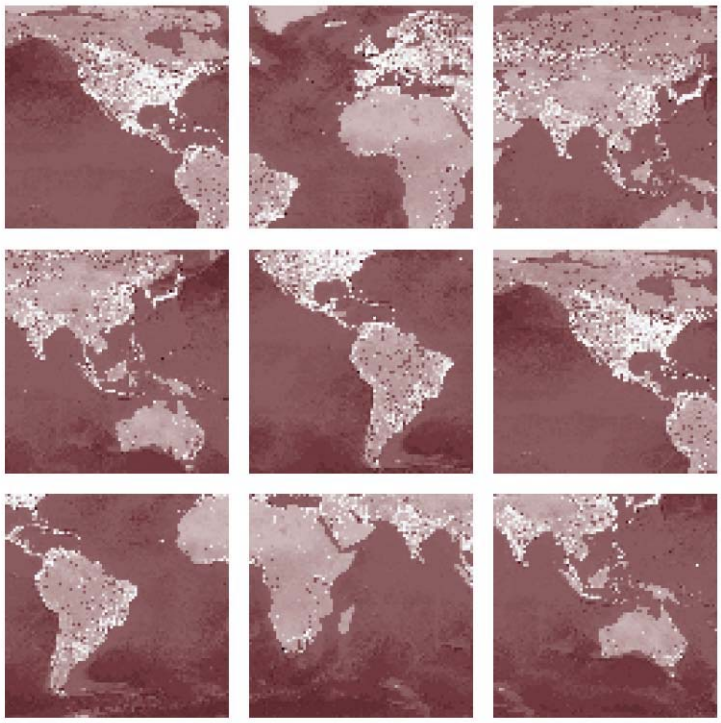
Given the complexities that accompany global change (especially China's development and influence), protectionist forces remain a significant danger. Protectionism could lay the foundations for the reversal of the inflation discount of the past decade or longer. It would also limit the incentives for other countries to open their economies. In this regard, policies that help to foster further trade liberalisation, especially the WTO negotiations, are surely to be welcomed. The international community needs to support and encourage China, the other BRICs and the N-11. If this occurs, then we are all likely to benefit for a long time into the future from a repeat of the strong growth/low inflation environment experienced over the past decade.

Jim O'Neill, Sun Bae Kim and Mike Buchanan
October 5, 2006

CHAPTER TWENTY

BRICs and Global Commodities Markets

May 2006



BRICs and Global Commodities Markets

Despite jittery markets, we think the BRICs will continue to fuel global demand for a wide range of commodities.

Another day, another record high in commodity prices. Prices for oil, platinum, aluminium, zinc and copper have set all-time highs since the start of the year and remain high despite recent market jitters. A key factor has been the rise of the BRICs, most notably China. Surging Chinese demand for oil and other commodities has strained commodity supplies and fuelled market speculation that the other BRICs—Brazil, Russia and India—will generate a further wave of demand.

We examine how much the BRICs are in fact contributing to global demand for a wide range of commodities. The data suggest that a mild slowdown would do little to derail the BRICs' demand.

China is driving much of the BRICs story, with its role in the BRICs' drive for commodities most obvious in **oil**. China's share of world oil consumption has risen by three-quarters over the past decade, and China is projected to account for half of the BRICs' total oil consumption this year. Interestingly, oil demand from the other BRICs has stagnated in both volume and share terms over the past decade (and Russia's share has declined), even as GDP growth in these countries has risen strongly. This is likely to reflect varying combinations of greater oil efficiency and increased use of alternative energy sources, as well as growth in the services sector.

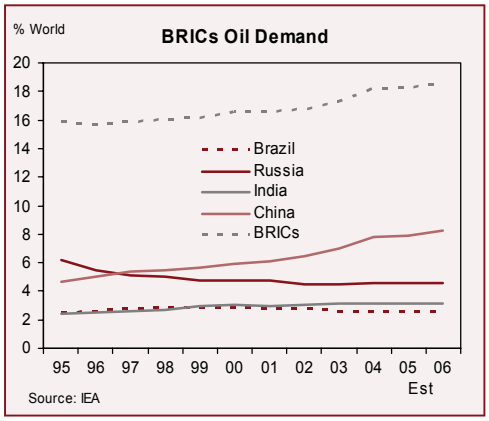
The China story is also clear in **base and industrial metals**. China is almost entirely responsible for the run-up in the BRICs' consumption in aluminum, copper and other industrial metals. Since 2000, China's share of world demand has nearly doubled for almost every industrial metal group.

The **precious metals** story will be a surprise to those who assume that rising incomes will lead to higher consumption of jewellery and gold. Although India is the largest gold consumer in the world—and by far the largest among the BRICs—its consumption has actually fallen, in both volume and percentage terms, since 2001. Indian silver consumption has also fallen off sharply.

Although rising per capita incomes would suggest that Indians should be buying more gold, recent financial liberalisation may be undercutting one of the chief rationales for gold ownership. If this pattern of regulatory opening continues, then we may not see the steep increases in Indian gold consumption that many expect.

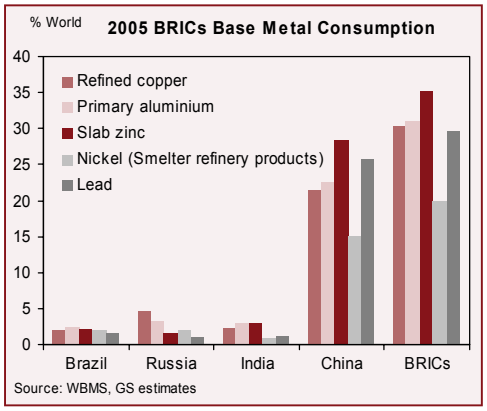
Finally, we look at **agricultural commodities**, where China's dominance of the global textile industry is evident in its nearly 40% share of the world cotton market. We also find that cultural patterns rather than income dominate data on meat consumption, with national preferences (for pork in China, poultry in Russia, beef in Brazil and a vegetarian diet in India) affecting global consumption patterns.

Sandra Lawson, David Heacock and Anna Stupnytska
May 16, 2006



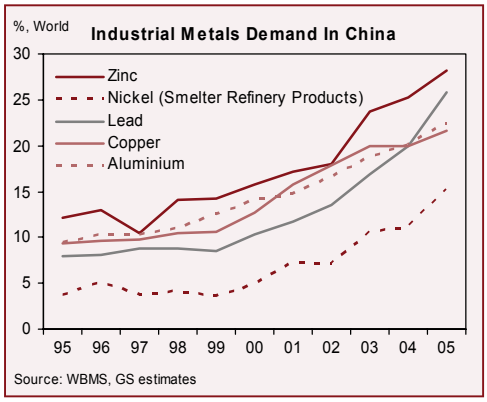
China Driving the Increase in BRICs Oil Demand...

- The BRICs' share of global oil demand has been on an upward trend since 1995, jumping from 15.9% then to an estimated 18.6% in 2006. This is almost entirely due to demand growth in China. The IEA estimates that China's share of global oil demand will reach 8.2% in 2006 from just 4.7% in 1995. Our own projections suggest that China's global share will peak at 16.5% in 25 years.
- Demand from the other BRICs has been relatively stagnant since 2000. In volume terms, Chinese oil demand has increased by 45% since 2000, compared with 14% in India, just 4% in Russia and 1% in Brazil.



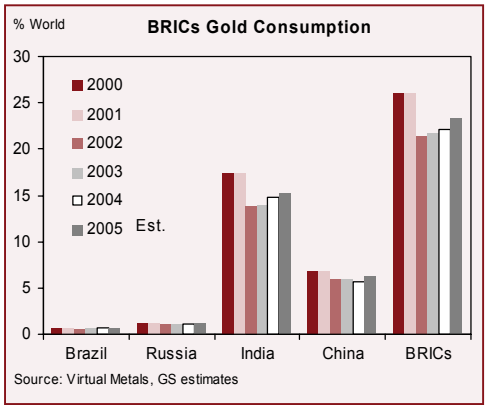
... in BRICs Base Metals Demand...

- BRICs' demand for base metals is strong and growing, with China again the dominant player. China is by far the largest BRIC consumer in all of the major base metal groups, accounting for nearly 30% of global demand for zinc and more than 25% of world demand for lead.
- The other BRICs account for a much smaller share of world demand, even in the commodities most important to their own economies. Russia accounts for nearly 5% of global copper demand, India for 3% of world zinc and Brazil for 2% of the world's aluminium consumption.



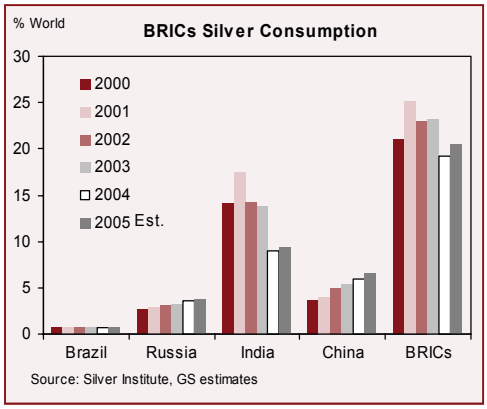
...and in Skyrocketing Industrial Metals Consumption

- Chinese demand for industrial metals has outpaced even the robust growth in its overall economy, which is 85% larger today than in 2000. Since 2000, China's share of world demand has close to doubled for almost every industrial metal group.
- Demand growth for nickel and lead has been the most dramatic. China's share of world nickel consumption has more than tripled since 2000, to 15% in 2005, and its share of lead demand has soared to 26% in 2005 from 10% in 2000.



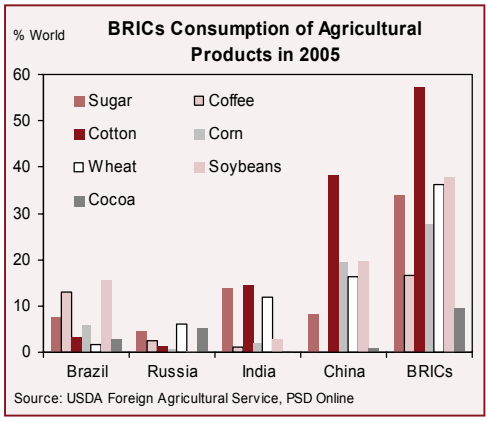
India and Gold: A Surprising Story

- Strong growth in the BRICs has led to a steady increase in gold demand since 2002, with the BRICs now accounting for nearly a quarter of total world demand.
- India is by far the largest buyer of gold among the BRICs, now accounting for 15% of total world demand. But India's consumption is actually below its peak in 2001—in both volume and percentage terms—despite expectations that the economic boom there would spark higher consumption. This may reflect financial liberalisation, which is undermining one of the traditional drivers of Indian gold consumption.



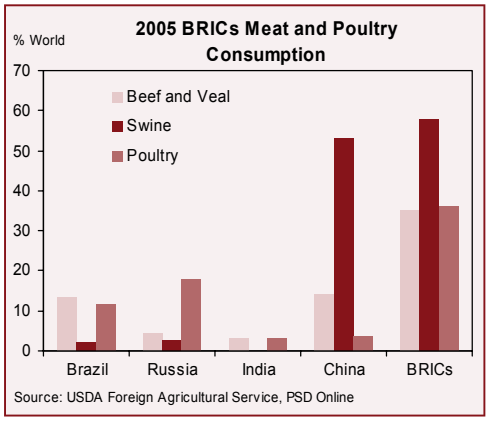
India's Silver Demand Dragging, China's Picking Up

- Unlike gold, silver demand from the BRICs has failed to make a strong comeback from its 2001 peak. The BRICs' share of world silver demand has fallen considerably, from 25% in 2001 to an estimated 20.4% in 2005. The main cause is a nearly 50% decline in Indian consumption. Nonetheless, India remains by far the largest silver consumer within the BRICs.
- In contrast, China's silver demand has jumped by 60% in volume terms, rising from 4.0% of the world total in 2001 to 6.5% in 2005.



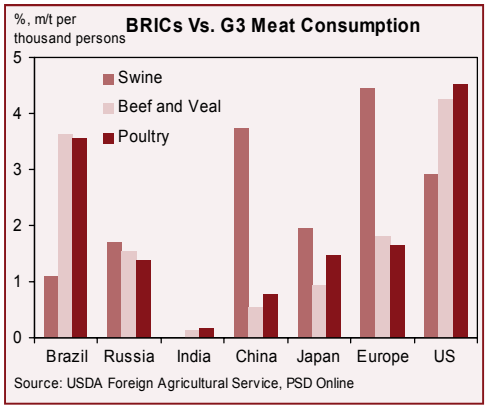
High Populations Driving Agricultural Consumption

- The four BRICs account for 43% of the total world population, so agricultural demand is substantial. Brazil and China are the two largest consumers of soybeans, at roughly 16% and 20% of world consumption, respectively, while the BRICs together account for 36% of worldwide wheat consumption.
- China is the world's largest consumer of cotton and accounts for nearly 40% of total world demand. This is due largely to the size of its textile export industry, the most competitive in the world.



Meat Consumption Split Along Cultural Lines

- Meat and poultry consumption across the BRICs exposes strong cultural differences within the group. China accounted for more than half of the worldwide swine consumption in 2005. India comprises only a tiny fraction of total world meat and poultry consumption, reflecting both a cultural preference for vegetarian diets and the lowest income per capita among the BRICs.
- Russians favour poultry; 2% of the world's population consumed 18% of the world's poultry last year. Brazil's 186mn people consumed only slightly less beef and veal than China's 1.3bn.



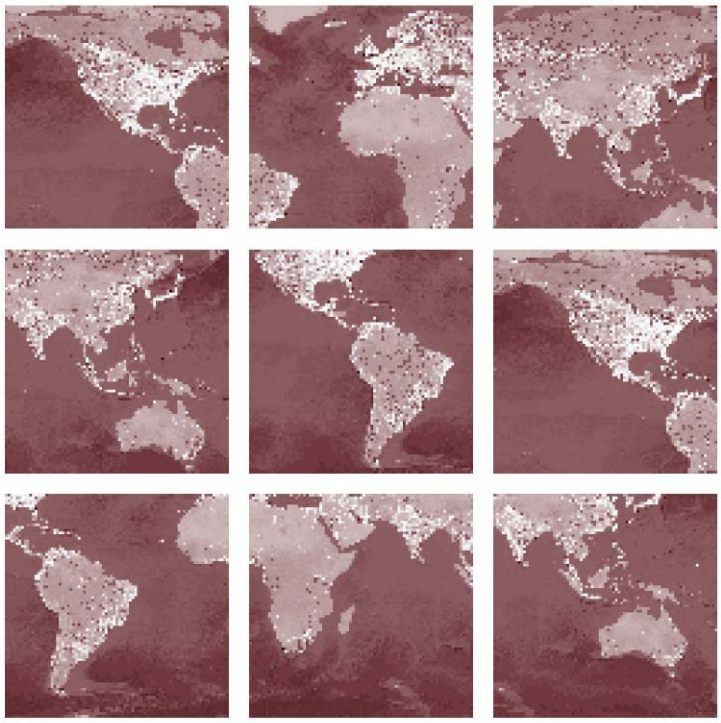
BRICs Meat Consumption Looking More Like G3

- As the income of the BRICs countries grows, the consumption of meats and other luxury food items is likely to look more like that of the G3, although it will continue to reflect cultural differences.
- Chinese swine consumption has risen significantly over the past decade, from .03m/t per capita in 1995 to nearly .04m/t per capita in 2005. Over the same period, Brazil's poultry consumption has risen from .02m/t per capita to .036m/t. Poultry consumption has seen the largest increases within the meat categories, both across the BRICs and the G3.

CHAPTER TWENTYONE

FOOD, GLORIOUS FOOD: AGRICULTURAL COMMODITIES

October 2007



FOOD, GLORIOUS FOOD: AGRICULTURAL COMMODITIES

Structural factors behind rising food prices in the BRICs—higher incomes and demand for alternative energy sources—mean that food-related inflationary concerns are unlikely to abate. Pressures for higher crop yields are likely to intensify environmental degradation. But the BRICs are key agricultural exporters as well as importers, and higher food prices might boost rural incomes.

Food price inflation has been in the news across both emerging markets and the developed world in recent months. Price spikes in dairy and sunflower oil contributed to a surprisingly high CPI figure in Russia last month, while meat and egg prices drove 18%yoy rise in Chinese food price inflation in August—the highest rate in a decade. In Brazil, agricultural prices have been rising for several months, although overall inflation is set to remain below target.

Beyond short-term supply shortages driven by weather or disease, our Commodities research team sees structural reasons why agricultural demand will continue to rise in the BRICs—and thus why the inflationary pressures from food prices will persist:

- As incomes rise across the BRICs, people are adopting a more protein-intensive diet. This is true even in India, with its strong cultural preferences for vegetarian diets. Demand for meat, eggs and dairy products has risen sharply over the past 15 years, and there is little to suggest that this growth has run its course.

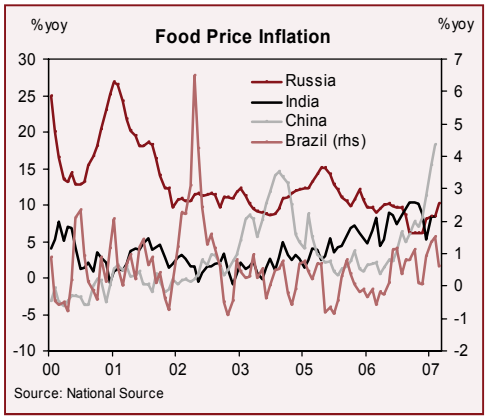
- The global push for alternative energy sources is another source of long-term pressure. Globally, demand growth related to biofuels has surged on a per capita basis. If fully implemented, official plans to promote the use of biofuels around the world could increase demand for biofuels by 20% annually between 2005 and 2010.

The BRICs are key importers *and* exporters of agricultural commodities. Russia is the world's third largest importer of agricultural commodities, getting much of its fresh food from abroad, while imported cotton fuels China's textile industry. At the same time, India is the world's second largest exporter of cotton, Russia is the fifth largest exporter of grains, and Brazil dominates world markets for sugar, poultry and oilseeds. The overlap between imports and exports highlights the growing importance of intra-BRICs trade, which we flagged last month.

Demand for agricultural commodities also feeds the BRICs' critical environmental challenges (see our *BRICs Monthlies* of Oct. 2006 and Feb. 2007). Because urbanisation and industrialisation will absorb agricultural land and labour, yields will need to rise. While this will be good for productivity growth, it may exacerbate environmental degradation and further strain water supplies.

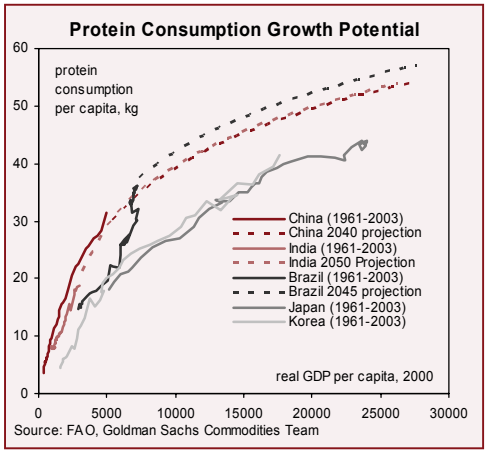
Thus far, higher food prices have not pushed core inflation significantly higher, though they are starting to feed through into other consumer goods and services. Central banks in China, Brazil and India have made clear their concerns about the lasting impact of high food prices. If inflation does remain contained, higher agricultural prices could support rural incomes, particularly in India and China, where roughly 60% and 40%, respectively, of the labour force are employed in agriculture.

Sandra Lawson, Raluca Dragusanu and Swarnali Ahmed
October 17, 2007



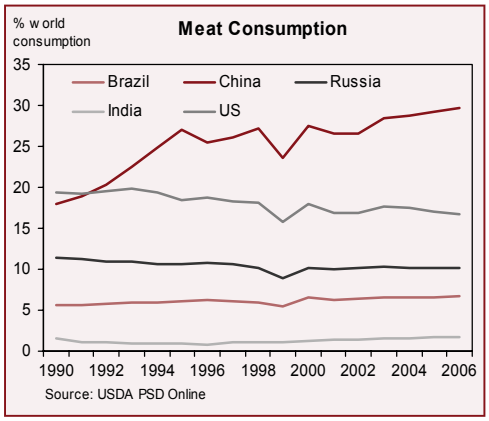
Food Price Inflation Rising Across BRICs

- Global agricultural prices have seen a structural change over the past two years, much as the energy and metals markets have since the early part of the decade. Heightened demand from the BRICs and growing demand for alternative energy sources have put strains on food supplies around the world.
- Food price inflation is now visible across many emerging markets, notably including the BRICs. In China, food price inflation ran at 18%yoy in August—the highest rate in a decade. The recent stabilisation in pork prices suggests that this pressure may abate, but we do not expect it to disappear.



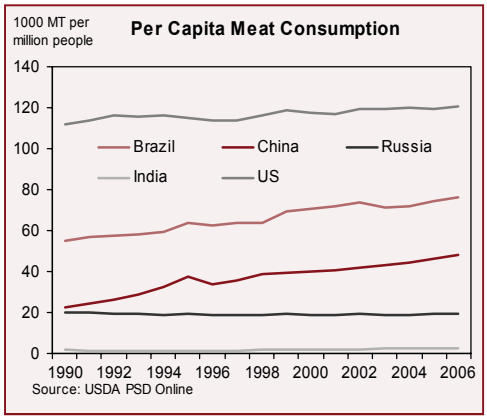
Higher-Protein Diets Likely in China, India and Brazil

- Rising wealth levels of BRICs and other emerging markets, especially among the growing middle class, have led to improvement in diets, incorporating more meat, dairy and eggs. This increase in protein demand will continue to increase livestock prices and demand for feed.
- Our expectations that per capita incomes will continue to rise across the BRICs over the next decade point to sustained growth in protein consumption. By 2017, we expect per capita incomes to triple in China, double in India and Russia, and increase by 50% in Brazil.



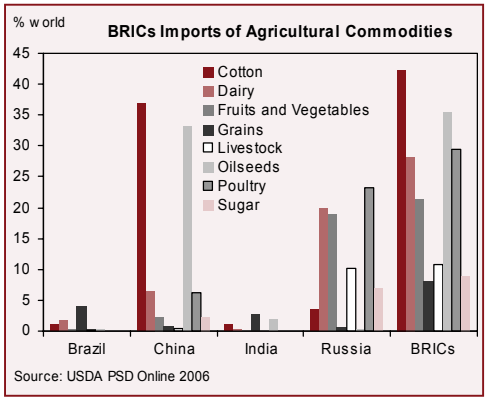
BRICs Consume More Than 'Their Share' of Meat ...

- With 43% of the world's population, the BRICs together account for nearly 50% of global consumption of pork, beef, veal and poultry. China alone accounts for 30% of world meat consumption. Its share rose significantly over the 1990s and the early part of this decade, but has remained steady in recent years, even as China's relative consumption of other commodities has increased dramatically.
- In contrast, the shares consumed by India, Russia and Brazil have remained steady for the past 15 years, while the US share has declined.



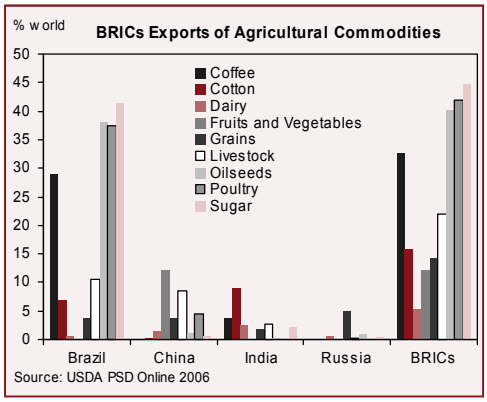
…As Seen in Rising Per Capita Consumption

- Lower incomes per capita and cultural preferences mean that all of the BRICs lag US meat consumption on a per capita basis. Even Brazil consumes just two-thirds of the US on a per capita basis. At the other end of the spectrum, in India, per capita meat consumption is just 2% of the US level. Despite cultural preferences for a vegetarian diet, Indian meat consumption has nonetheless risen by 40% since the early 1990s.
- Chinese per capita meat consumption has more than doubled over the past 15 years, while Brazil's has risen by more than one-third over the same period.



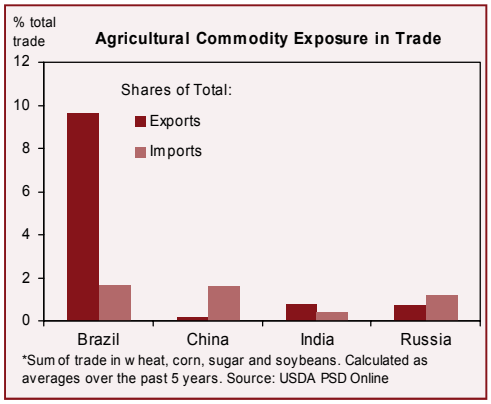
Russia, China Are Among Top Agricultural Importers

- Russia is the world's third largest importer of agricultural commodities, particularly poultry, dairy, and fruits and vegetables. With just 2% of the world's population, Russia consumes close to 20% of the world's poultry.
- China also ranks among the top ten importers of agricultural commodities. It remains the largest importer of cotton—the critical raw material for its textile exports—but these imports should fall over time as China's export industry continues to climb the value chain. The OECD and FAO estimate that China will become the largest importer of oilseed meals and consolidate its position in imports of oils and oilseed as biofuel production expands.



BRICs More Visible in Agricultural Exports

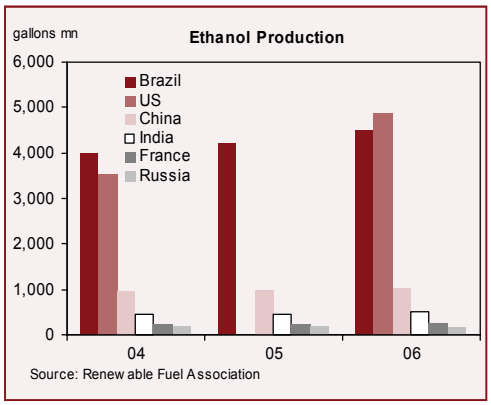
- The BRICs' presence in the world agricultural commodities markets is growing. Russia is now the world's fifth largest exporter of grains and India is the second largest exporter of cotton, while Brazil dominates the world markets for sugar, poultry and oilseeds.
- China's exports of fruits and vegetables have jumped this year, rising from 12% of world exports in this category in 2006 to above 50% in 2007 to date. Yet this strong export growth may not continue for long, since domestic consumption of fruits and vegetables should increase as incomes continue to rise and internal transportation links improve.



Brazil Is the BRICs' Largest Agricultural Exporter

- As the world's fourth largest exporter of agricultural commodities, Brazil stands to profit most from the expected rise in agricultural prices. Our Latin America Research team estimates that under the 2007 commodity price outlook, Brazil's terms of trade (ToT) should increase by at least 4%. This would be expected to lead to real exchange rate appreciation of around 1.8% against the $, using our GS-DEER valuation framework.

- The effect is smaller in the rest of BRICs, with a slightly positive impact in India, and small projected decline in China and Russia.



BRICs Are Among Top Global Producers of Ethanol

- With a significant comparative advantage conferred by advanced technology, Brazil has become a pioneer in the production of sugarcane-based ethanol. Brazil is expected to increase production by 145% from 2006 to 2016, which could allow it to become the world's top exporter of ethanol.

- According to the OECD and FAO, Chinese fuel ethanol production is expected to more than double, to 3.8bn litres, by 2016, from 1.55bn litres in 2006. As most of the production is expected to be based on corn, corn use is expected to more than double by 2016.

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