

The Super-Cycle Report





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Overview

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- We are in a new ‘super-cycle’ driven by the industrialisation and urbanisation of emerging markets, and global trade
- But we do not underestimate the challenges faced by the world economy now
- Macro policy will play a vital role in shaping this future; the winners will be global

Introduction

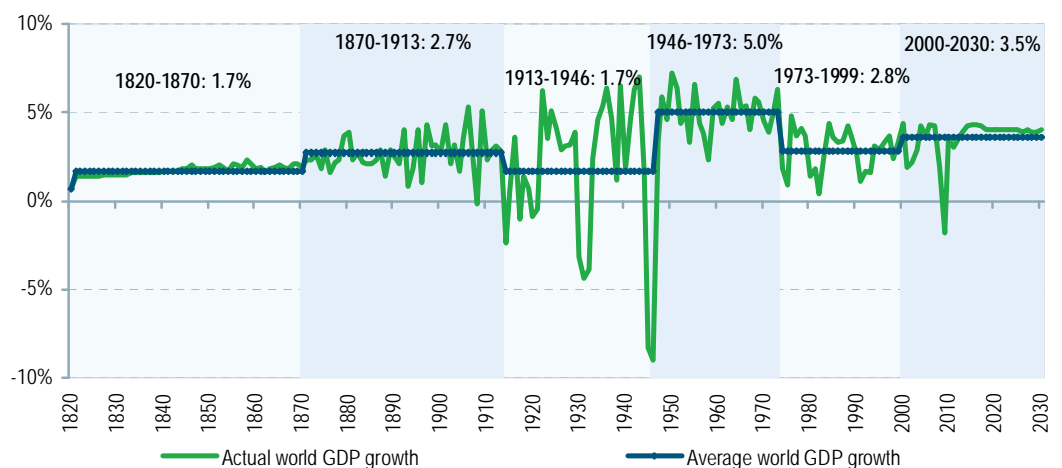
Super-cycle: ‘A period of historically high global growth, lasting a generation or more, driven by increasing trade, high rates of investment, urbanisation and technological innovation, characterised by the emergence of large, new economies, first seen in high catch-up growth rates across the emerging world’

The world economy has twice before enjoyed a super-cycle. It may now be experiencing its third super-cycle.

To put it in context, it is defined here as, “A period of historically high global growth, lasting a generation or more, driven by increasing trade, high rates of investment, urbanisation and technological innovation, characterised by the emergence of large, new economies, first seen in high catch-up growth rates across the emerging world.”

The first super-cycle took place during the second half of the 19th century, from 1870 until 1913, the eve of the First World War. At that time, the world economy witnessed a significant step-up in its rate of growth, rising 2.7% on average per annum in volume, or real, terms. That was a full 1% higher than the average growth rate seen during the previous half-century. America was the big gainer, moving from the fourth-largest to the largest economy. The second super-cycle was after the Second World War until the early 1970s. World growth averaged a huge 5% per annum, again in real or inflation-adjusted terms. Japan and the Asian tigers saw the biggest gains over this time. Japan, for instance, moved from 3% to 10% of the world economy.

Chart 1: Super-cycles – world GDP growth



Sources: Angus Maddison, IMF, Standard Chartered Research

The rapid growth seen during both of these periods reflected a number of factors. In particular, the first super-cycle saw greater use of new technologies that had emerged during the Industrial Revolution, and the emergence of a new major economy in terms of the USA. The second super-cycle reflected many factors, in particular the post-Second World War reconstruction, involving investment, rebuilding



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and catch-up, plus both the emergence of a sizeable middle class in the Western world and of exporting nations across Asia. That cycle was also characterised by cultural shifts and a baby boom. A super-cycle would also appear to need the backdrop of relative peace, or certainly no global war, and stable monetary policies.

The common characteristic of these previous periods was a significant step-up in the rate of growth enjoyed across the globe.

Volatility

Growth will be strong but not smooth – the business cycle exists

If we are right about this being another super-cycle it does not mean that growth is strong and continuous over the whole period – as the business cycle does still exist. Moreover, there may also be relative losers, as well as clear winners, in terms of either countries or regions. It also does not necessarily imply higher inflation – the first super-cycle, for instance, had bouts of high inflation and of deflation. Much will depend on monetary policies adopted across the globe, although it is likely that there will be bouts of high commodity prices.

There are many different influences on the shape and the scale of the super-cycle, highlighting the need to look at things from both a local and a global perspective.

This is particularly important in terms of talking about a super-cycle at a time when large parts of the developed world are currently facing the aftermath of a financial crisis and the consequences of deleveraging, rolling over debt repayments and restructuring balance sheets. These conditions add considerable uncertainty to the near-term path for the world economy at a time when the impact of previous policy easing from the last two years is wearing off in the West. There is also great uncertainty about either the unintended consequences, or perhaps better to say the unknown consequences, of present policy actions in the US. Faced with the downside fear of deflation, the Federal Reserve has engaged in quantitative easing, which is having global ramifications, adding to inflows of capital into emerging economies, asset price inflation and upward pressure on exchange rates. The policy dilemmas are acute: monetary tightening, intervention, even capital controls are all on the agenda.

The super-cycle is a long-term shift, but faces near-term challenges

The relevance of this is that whilst the super-cycle is a longer-term shift, there can be considerable near-term challenges. Furthermore, it highlights the interconnectedness of the world economy. During the crisis itself, this was evident as trade finance dried up abruptly and as demand from the West subsided. This hit exporters across the emerging world hard. Likewise, now, the interconnectedness is seen via monetary policy and capital flows.

In time, this interconnectedness will become evident as emerging economies drive more of their own growth through increased domestic demand, and have a greater influence on growth in the West: pushing commodity prices higher, as now; becoming bigger export markets, as seen with German exports to China now, and becoming increasingly more important trading partners for the West. As emerging economies grow in size they will have a larger influence on global growth.



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One of the present big issues is who will compensate for the US consumer, often the driver of global demand? Of course, the world should not rely on a heavily indebted American consumer, but it adds to the worries about global demand deficiency. Yet, not only has the world economy rebounded to its pre-recession levels, helped by policy in the West and spending in the East, but on our analysis, the rate of change in consumer spending in China is already high, albeit from a much lower base than US consumption. Assuming nominal consumer spending growth, for instance, of 11% in China and 4% in the US, the increase in China's consumer spending will overtake the US by 2017-18 in USD terms. The scale of that country is huge. But, as should be made clear from this report, the super-cycle is much more than a China story. Moreover, the lesson of this crisis is not just the need for a more balanced global economy, as we allude to below; it has also reinforced pressure on more emerging economies to move up the value curve, and this is likely to prove another feature of the years ahead.

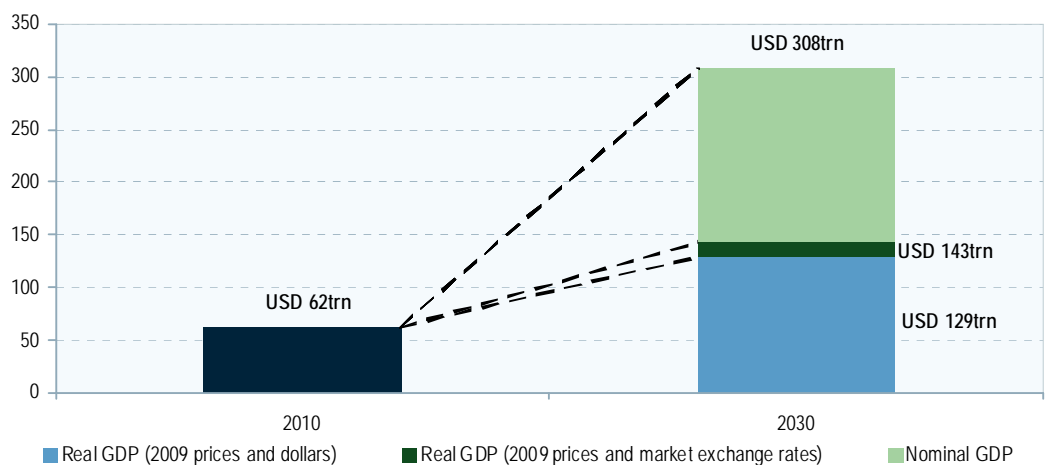
The expanding world

The world economy has already rebounded to pre-recession levels

The third super-cycle started – in our view – in 2000. The period between the second and third super-cycles, from the early 1970s to 2000, was characterised by ongoing economic challenges in the West, a slowdown in Japan, the collapse of the Soviet Union, debt and currency crises in Latin America, and the relatively small size of China and India, both of which were in the early stages of opening up. There was no dynamic driver for the world economy. In 2000 the world economy was USD 32trn in size. Now, following the global recession and financial crisis, the world economy is almost twice the size of a decade ago. There was a significant contraction as a result of the crisis and global recession, but now the world is back to its pre-recession peak. Next year, based on conservative growth assumptions, this could rise to USD 64.7trn. Global trade has also recovered to pre-recession levels.

Chart 2: Scale and perspective – size of the world economy today and in 2030

USD trn



Sources: IMF, Standard Chartered Research



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By 2030 – the time period for this analysis – we believe that the global economy will have grown significantly further, reaching:

Our conservative estimate is for the world economy to exceed USD 300trn by 2030

- A size of USD 308trn. This would be the actual size of the world economy – in nominal terms – based on our growth and inflation forecasts. To allow further comparison with today, one could adjust for inflation, and for currency shifts.
- Keeping prices and currencies the same as now, the increase in the size of the world economy would be to USD 129trn by 2030. This is still impressive.
- If we allow for the likelihood that the Chinese yuan (CNY) and Indian rupee (INR), amongst the major emerging currencies, are likely to appreciate versus the dollar, then a further adjustment to reflect more credible currency moves suggests that the world economy would grow to USD 143trn. Note that this still keeps exchange rates steady both within and across most emerging regions, and only really reflects appreciation of a handful of currencies of large emerging economies. By 2030 we assume the CNY will have appreciated from 6.64 this year to 4.39, and the INR from 45.5 this year to 35 in 2030.

The choice of 2030 is not because that need be the end of this super-cycle. It was more a reflection of the desire to have a picture – and with it forecasts – of what the world would look like in a generation. That is sufficiently far ahead to make the forecast long-term, but not too far ahead to be beyond forecast horizons.

So, by 2030, the world economy, on the projections laid out here, would rise to USD 308trn, which would equate to USD 129trn in today's prices and dollars, and would be USD 143trn, keeping prices constant but allowing for some emerging-market currency appreciation.

These are big numbers. Really big.

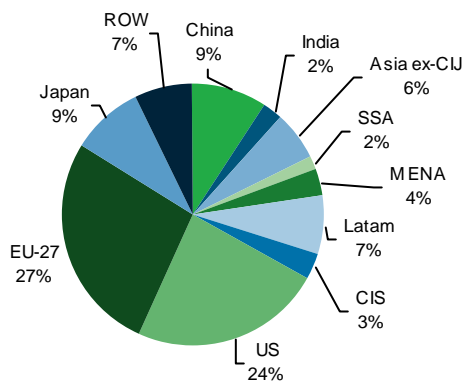
The East will grow strongly, but the West will grow too

If one was to take the size in actual, or nominal terms, then an increase to USD 308trn would represent, by 2030, an annual average nominal growth rate of 7.7% from 2000, and of 8.3% from 2010. And if one was to take the figure in real terms, with prices and currencies unchanged, then it would represent an annual average real growth rate of 3.5% from 2000 and 3.9% from 2010. This compares with an average of 2.8% between 1973 and 2000. Thus, the annual growth rates are not outrageous. If anything, these figures may turn out to be conservative.

To put this into perspective, we see the US economy growing 2.6% in 2010, only 1.9% in 2011 and 2.7% in 2012, then growing at a stronger pace, with trend growth of 2.5% over the horizon to 2030. Likewise, we see the EU-27 growing 1.8% in 2010, 1.7% in 2011 and 2.2% in 2012, reflecting a sluggish recovery from the crisis, with large output gaps and stubborn unemployment. Over the forecast horizon to 2030, the EU-27 is expected to grow at its trend growth rate of 2.5%. For Japan, the growth figures are 1.5% (2010), 1.0% (2011) and just under 2.0% (2012), and 1.0% over the forecast horizon to 2030.

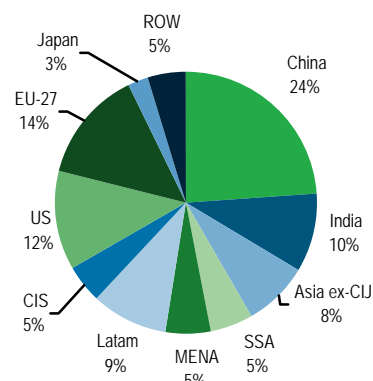
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Chart 3: Nominal global GDP 2010, USD 62trn
% of global



Sources: IMF, Standard Chartered Research

Chart 4: Nominal global GDP 2030, USD 308trn
% of global



Sources: IMF, Standard Chartered Research

China's growth rate is forecast at 10.0% (2010), 8.5% (2011) and 8.0% (2012), averaging 6.9% over the two decades to 2030. For India, the growth figures are higher, at 8.1% (2010), 8.5% (2011) and 8.8% (2012), averaging 9.3% over the forecast horizon. When one considers these figures, it is clear we have assumed a very fragile recovery from this crisis in the West, and trend growth rates that are not exaggerated for emerging economies, using China and India as examples. For instance, there are credible arguments that India may even achieve a trend growth rate nearer 12% or so, with certain conditions in place.

Chart 5: Real GDP per capita in 2010 and 2030
2009 prices and market exchange rates (USD)



Sources: IMF, Standard Chartered Research



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The global map shown here captures the extent to which different regions grow. However, looking at the possible expansion in regional GDP per person, the circles are of different sizes, reflecting population profiles. The West, for instance, remains a high-income region, and should see real incomes per head rise, reflecting the benefits the West will accrue from the growing global economy – provided it continues to embrace globalisation, and not favour protectionism, in response to stubborn unemployment in the present recovery.

By 2030, China will be a huge, middle-income economy

By 2030, income per head in China – using market exchange rates, which include our view of a stronger CNY – could have risen from USD 4,166 in 2010 to USD 21,420. China, currently a big but poor economy, would become a middle-income economy – but on a vastly larger scale. This would be similar to the transformation seen by, say South Korea, over the last 50 years, as it transformed from a country with incomes on a par with many African economies to its present status as the world's 15th-biggest economy. Income changes elsewhere are no less impressive. India, for instance, is projected to go from USD 1,164 in 2010 to USD 7,380 by 2030, Latin America from USD 7,114 to USD 14,608, and Sub-Saharan Africa from USD 1,075 to USD 2,780.

We will not be spot on with our forecasts, so rather than getting hung up on the quantitative aspect in terms of the exact numbers, it is vital to appreciate the change in qualitative terms – namely, what is driving this global growth process. Many of the features seen in the two previous super-cycles are likely to be seen as drivers in the third super-cycle. And this reflects the focus of this report.

In the context of this recession

There are near-term challenges, but the long-term trend is up

Just to reiterate, we do not underestimate the challenges faced by the world economy now. Indeed, we had a good crisis in terms of our views. We did expect problems in the West, and we see many challenges ahead.

Yet, it is important to put the present situation into a longer-term, structural perspective.

Thus, we recognise that to talk of a super-cycle may seem strange to some, given the financial crisis and global recession just witnessed. In the West, the immediate focus is still on downside risks, not the world economy's upside potential. The risk of a double-dip triggered by a policy mistake, an external shock such as high oil prices, or a loss of confidence remains a valid concern, even if not the central scenario. There is the challenge of demand deflation and, at the same time, the problem of rising cost price inflation, evident currently in commodity price inflation.

And it is not just in the West that there are near-term economic concerns and policy challenges. As a consequence of large capital flows towards emerging economies and current monetary policy in a number of those markets, there are signs of bubbles across asset markets. If these are left unchecked, a boom-bust cycle could even emerge. Emerging economies must avoid the lethal combination of cheap money, debt and leverage, and one-way expectations, particularly in asset prices, seen in the West ahead of the crisis.



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The key message is that there are likely to be many shorter-term cycles.

Another message is that policy is key – and in many different aspects, including monetary policy now and policies to address savings imbalances in the future. These include effective social safety nets and deeper and broader capital markets, particularly across Asia.

Yet the recent recession and financial crisis – and present policy concerns – should be seen in the context of a super-cycle. Indeed, the shift in the balance of power is already evident in terms of where global growth is coming from. Emerging economies, which account for about one-third of the global economy, are currently responsible for two-thirds of its growth.

New World Order

The concept of a super-cycle builds on a major theme that we have talked about for many years, namely a New World Order, a phrase that has become more widely used. Our view of a New World Order was that it reflected a shift in the balance of economic and financial power, from the West to the East. This shift was, and still is, in our view, likely to be ongoing and gradual over coming decades.

The winners will have cash, commodities or creativity

A super-cycle builds on this concept, and attempts to better describe what is happening, reflecting both the potential upside in terms of strong global growth and the fact that, whilst emerging economies will be the main drivers of growth, the West, too, has the ability to benefit from the changing global economy. To repeat a previous point that we have made: the winners will be the countries that have the cash, the commodities or the creativity. Or, to put it another way, the countries with the financial resources, the ability to leverage off natural resources including water, crops and industrial commodities, and those that can be competitive by adapting and changing.

We have wondered whether 'secular shift' might describe the process underway. Some people may prefer that terminology. Indeed, using the term 'cycle' implies that it will come to an end. Certainly there will be external shocks and events (both 'known unknowns' that we know are risks, and 'unknown unknowns'), but the stronger world economy should be more resilient. This super-cycle is also very distinct from the concept of a Kondratiev Wave, in which there would be an expansion, stagnation and then recession over a 50-year period. Here we see significant near-term business cycles in an upwards trend, driven by the emerging world.

Drivers

This report is aimed at giving the broad overview of a super-cycle, identifying the key drivers and likely winners. There are many issues, with countless investment and policy implications, which we intend to follow up on in a series of reports as sequels to this paper.

Many factors come into play, global, regional and national. And it is their interaction, both in terms of enabling the cycle and reinforcing it, that has the overall effect. Let me outline here some of the key drivers:



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The scale of the countries now being incorporated into the global economy is a factor underpinning the super-cycle

Scale

The first key driver is scale. Namely, the scale of the countries now being incorporated into the global economy is a factor underpinning the super-cycle. The clearest manifestation of this is seen in the rising size of the economies experiencing rapid growth and the extent to which, as mentioned above, they will account for a greater proportion of future growth.

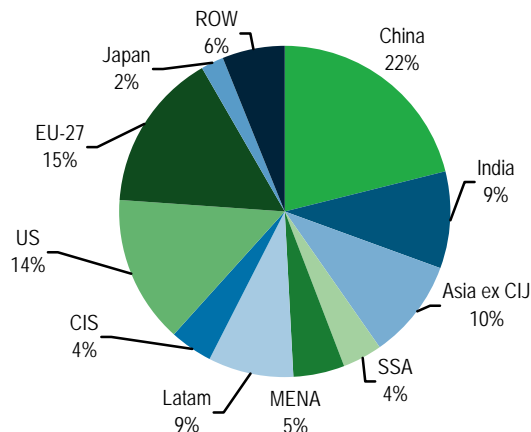
In our view, China is currently experiencing an industrial revolution. This is seen in terms of rapid change across the country. Moreover, we are now seeing the opening up of many other emerging economies, including India and Indonesia. Common characteristics include industrialisation and rapid urbanisation, the latter being associated with growing middle classes across much of the emerging world.

In terms of the world economy, the US currently accounts for about 24% of global GDP, the 27 countries of the European Union (this includes the UK) about 27%, and Japan 9% – a total of 60%. Yet these three areas account for only 15% of the world's population. There are some other countries, such as Canada or Australia, that one could include with the industrialised world. But even allowing for those, what we are talking about here is that the rest of the world's population – the 84% across the emerging and developing world – are in economies now seeing, on the whole, more rapid rates of growth.

As mentioned above, we see the world economy reaching USD 308trn by 2030. Within this, we see China reaching USD 73trn, India USD 30trn, and the rest of Asia ex-Japan just under USD 25trn. Thus, the importance of the ASEAN region in particular should not be overlooked. The MENA region will, in our view, double its share from 4% to 5% of the world economy, reaching USD 17trn. And even though we see Sub-Saharan Africa at USD 16trn, this would represent a rise in its share of the world economy from 2% to 5%.

In the first super-cycle, emerging economies accounted for 20% of global growth, rising to 28% in the second super-cycle. Now, in our view, they will explain 68% of the pick-up in the world economy by 2030.

Chart 6: Two-thirds of global growth to 2030 will come from EMs
% of total (based on real 2009 prices and dollars)



Sources: IMF, Standard Chartered Research



Overview

Trade

The second key driver is trade. The trade effect reinforces the scale effect considerably. Thus, it is not just the scale of the countries, but also the fact that more countries are now being incorporated into global trade.

The world is more open than ever, as seen in the rising share of world exports to GDP. As trade and tariff barriers fall, as world trade becomes more open, firms are able to invest globally, and consumers are able to buy global brands.

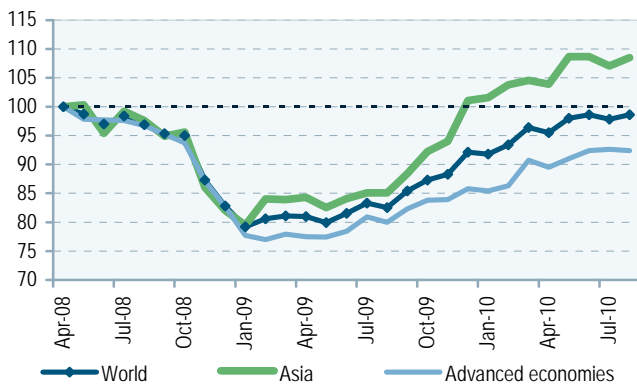
Although the Doha Round was not completed, there has been a rapid expansion of bilateral and regional trade deals.

New trade corridors between emerging markets will become very important

We have talked about this in terms of New Trade Corridors. These trade corridors reflect what could be described as ‘South-South’ trade – that is, increased trade between emerging economies (the ‘South’), as opposed to between or with advanced economies (the ‘North’). This reflects increased flows of goods, of commodities, of services, of people, of portfolio and longer-term investment, and of ideas. Increased trade is not only an enabler, but also a driver of future growth. For instance, if the Indian economy opens up more, it could have a profound impact particularly on the rest of South Asia, the Middle East and East Africa, in much the same way that China has transformed East Asia.

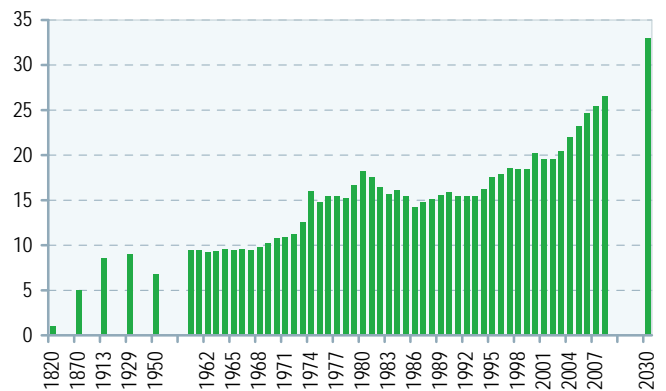
It is the way trade and scale interact that is vital for a super-cycle, with more countries and greater numbers of people incorporated into the global economy. This, in itself, suggests that protectionism would be one of the biggest threats to a super-cycle.

Chart 7: World trade has recovered, led by Asia
Export volumes, indexed to pre-recession peak



Sources: Angus Maddison, IMF WEO, Standard Chartered Research

Chart 8: The world is more open than ever
World exports-to-GDP ratio



Sources: Angus Maddison, IMF WEO, Standard Chartered Research



Overview

High rates of savings and investment will reinforce the super-cycle

Cash and financial resources

Some features both help drive the super-cycle and are consequences of it, in a mutually reinforcing way. Cash and financial resources are one example.

High rates of investment – by the private and by the state sector – will be important facets of this super-cycle. This investment is already taking place, and is set to not only continue but gather momentum. Although much attention tends to be on Asia because of the focus on India and China, this is likely to be a regional and global phenomenon. Africa, in particular, may surprise on the upside as the continent attracts more inward investment, first to take advantage of its resources and then to leverage off its young population and growing middle class. Consumption, for instance, is a big contributor to African GDP already.

Investing in infrastructure is vital, in terms of both the 'hard infrastructure' such as roads, rail and air transport, and the 'soft infrastructure' of education and skills. Both will form the bedrock of rising levels of tertiary education, increased skills, rising numbers of patents and the ability for more countries to move up the value curve. This links directly into who will be 'winners' in terms of creativity. Advanced economies, such as the US or UK, will need to invest to ensure that creativity is a positive feature for them, in order to be competitive and to be able to adapt and change.

Paying for infrastructure spending is a challenge, particularly over the next decade, with Asia needing around USD 8.3trn in infrastructure spending over that period. But increased infrastructure spending is a global phenomenon. The Gulf region is planning about USD 1.5trn of infrastructure investment in the coming years. It is also seen as a need across Africa, where developing ports and the transport network is key. The need to unlock high rates of domestic savings, as well as to attract longer-term inflows to finance infrastructure, should add to the pressure for emerging economies to develop their financial markets.

Given the young populations across India, MENA and Africa, it is possible that, if sufficient investment takes place, then manufacturing may prosper across these regions, leading to an Arc of Growth from China through India into Africa.

Perspiration and inspiration

The phrase 'perspiration and inspiration' reflects a combination of two important drivers. Perspiration relates to the fact that there are more people actively participating in the global economy, and thus greater numbers working and producing more. As China and India open up, this brings half the world's population into the global economy in a way in which they were not integrated before. As more people work, global production rises. In contrast, inspiration is the way in which people work, through increased innovation, creativity and productivity.

The world population is expected, by the UN, to increase from 6.9bn to 8.3bn by 2030. About 98% of this increase in population will be across the emerging world. One key aspect of the demographic story is rapid urbanisation. Whilst the urban poor are a genuine concern, the trend is for rising urbanisation to occur alongside rising living standards, increased consumption and a growing middle class. India, for

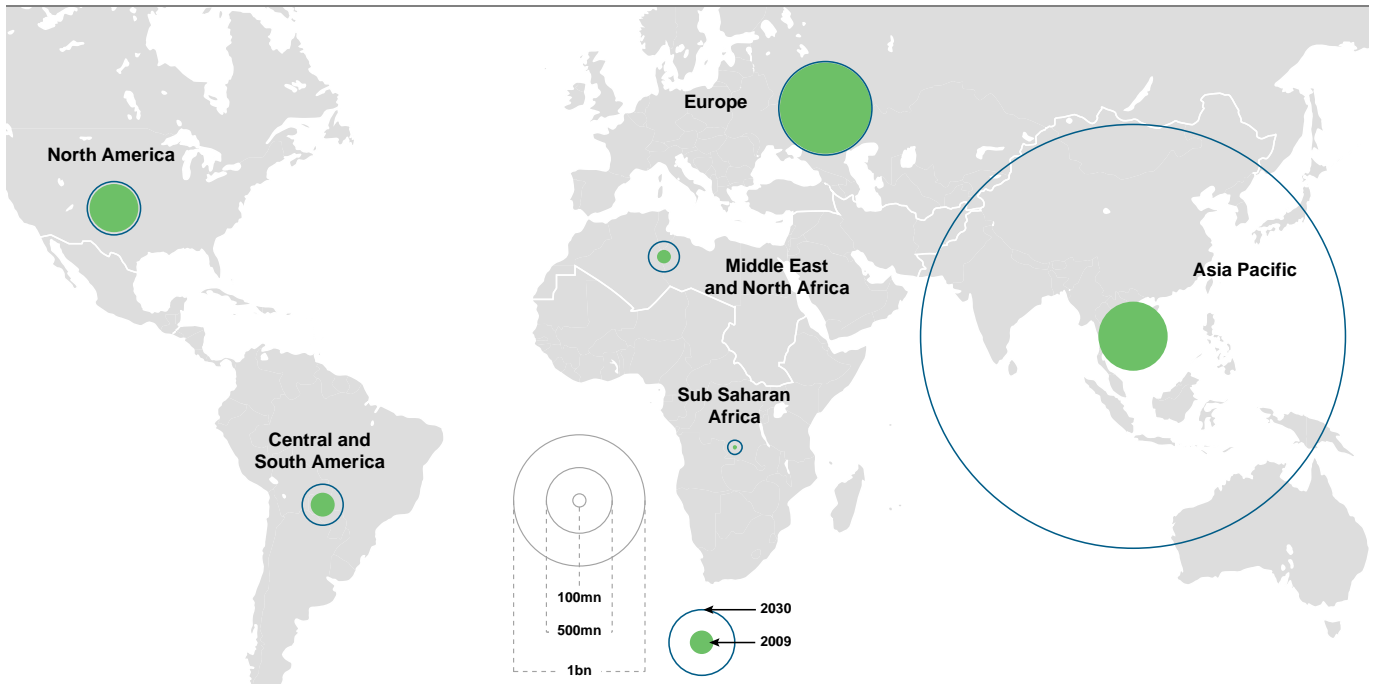
Demographics, creativity and increased productivity – perspiration and inspiration – will help drive the super-cycle



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instance, is projected to have Mumbai and Delhi as two of the largest five global cities, with huge economies, by 2030.

Chart 9: Global middle class in 2009 and prediction for 2030



Sources: OECD, Standard Chartered Research

There are some challenges. China's population, for instance, ages quickly. And there are already gender mismatches in China and India, as new births of boys exceed girls. Just as India's population is young, that of the West, as well as Japan and China, will be ageing, putting greater pressure on public pensions and incentivising the emerging world to come up with more market-driven solutions to this future issue.

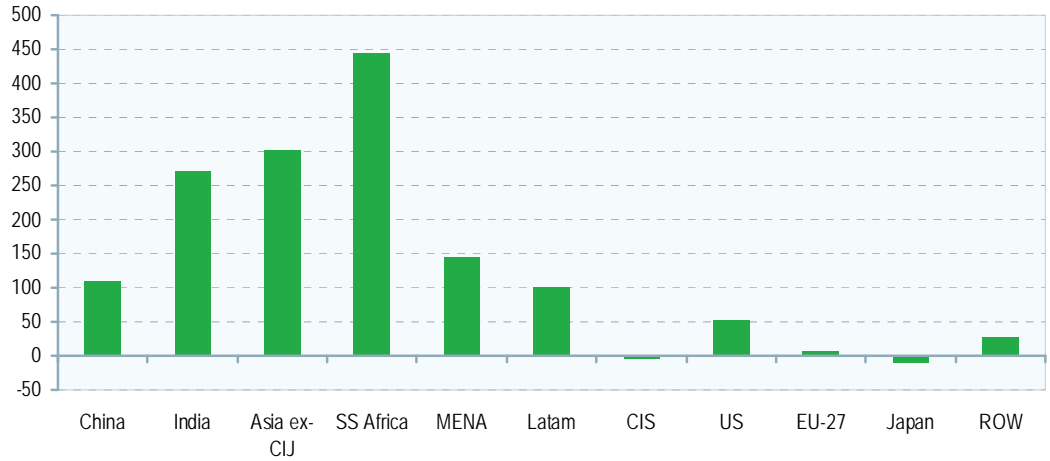
Population growth can be influenced by incentives, but this takes time. Based on present trends, by 2030, India's and China's populations will each be just under 1.5bn. Three countries in South Asia will have massive populations: in addition to India, Pakistan's population will be 244mn and Bangladesh's 220mn. Although only one African country, Nigeria, is seen as having a huge population, of 231mn, significant population growth is expected across much of the continent. For instance, the East African Community, which functions almost as an economic union, is expected to have a population of 228mn by 2030. Interestingly, the US will not only have a large population of 370mn, but it will also be relatively young.



Overview

Chart 10: Population change by region, 2010-2030

millions

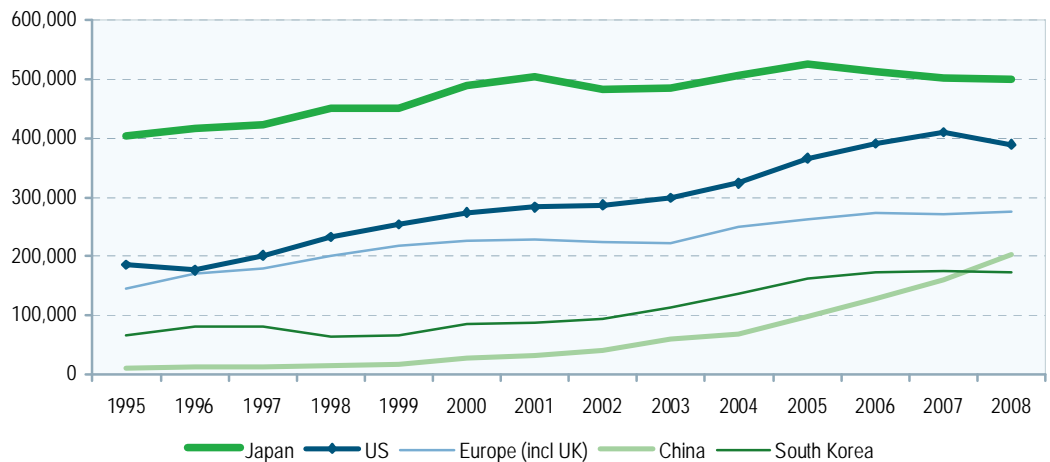


Sources: UN, Standard Chartered Research

The inspiration aspect is hard to quantify, but the ability to innovate is vital, helping to boost productivity, create new markets and raise living standards. Key product innovations and the ability to leverage off existing technology were a characteristic of the first super-cycle. Technological innovation is expected to be one aspect of creativity. Innovation clusters, creating the right economic incentives and scale in which innovation can occur, are important. Currently some parts of the West have the advantage in terms of diversity, growth and scale of patents. Spending on research and development is high in the West, and needs to remain so if it is to compete. One would expect rising R&D across more emerging economies. Indeed, increasingly emerging economies are narrowing the gap in education, research and innovation. Their economies will thus move up the value curve, becoming home to higher value-added output in services as well as in manufacturing.

Chart 11: Number of patents filed by country

millions



Sources: UN, Standard Chartered Research



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Environment

The environment has the ability to play many roles within the third global super-cycle. There is an environmental consequence of the super-cycle, in terms of increased demand for resources. This could yet act as a constraint on future growth. But at the same time it could play a positive role. One way is through increased investment in commodity-producing regions of the world, especially Africa. Another is that increased commodity demand and environmental concerns will not only prompt higher commodity prices, but will also lead to increased technological innovation.

We have looked at these issues before, in terms of water and of food. But climate change will lead to greater pressure on food, energy and water resources. In turn, this will lead to price, quantity and technology solutions. The prices of commodities may rise. Their output may be limited as more countries see resources from a strategic perspective, but there is also likely to be increased innovation, resulting in positive advances.

Policy implications and issues

The potentially rapid pace of change suggests that policy will be an important feature of how economies perform, in absolute as well as in relative terms.

Having the right policy tools and institutions is an important feature. During the recent financial crisis, policy tools and institutions across much of the emerging world worked far better than expected. It will be necessary to sustain and support this in the future with the appropriate accountability and moves towards improved corporate governance.

Measures to ensure balanced growth

Policies needed to allow the world to become more balanced are already being talked about, including the West saving more of its future income, countries with large surpluses spending more, and currencies adjusting. This is important, as the post-Second World War consensus placed the burden on debtors to adjust by spending less. But, in an interconnected world, savers as well as debtors have obligations. Already the idea of savers being obliged to take action has run into problems, but over time, we expect to see some significant shifts across the emerging world. Indeed, some emerging economies, to achieve their potential, will need to become capital importers, as India is now.

To achieve more balanced global growth, and to assist the emergence of their middle classes, expect greater pressure for countries to (1) develop their social safety nets, (2) provide an environment in which small and medium sized enterprises (SMEs) can prosper, as they are crucial for job creation, and (3) develop their capital markets. Deeper and broader capital markets will be vital to allow the middle class to grow and service their increasing financial needs, to allow firms to raise finance to invest and, finally, to allow firms to become more international, taking advantage of trade and investment overseas.

In an interconnected world, savers as well as borrowers have obligations



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Financial centres

Financial market development is inevitable during the super-cycle. The need for emerging economies to tap into their present high savings is one of many features that will necessitate this. But there are many more. Some new locations are also likely to emerge as global financial centres. We still expect London and New York to retain their leading roles, as too should Switzerland in areas of private banking, but additional important financial centres are likely to develop across the emerging world, reflecting the growing pool of savings and emerging middle classes. The role of contracts, law and property rights will be key. Perhaps democracy, too, will drive the process. Shanghai and Hong Kong seem linked together, not necessarily competitors, facing off the challenge from Beijing. Mumbai, too, is set to become more important. Other contenders include Dubai, and Singapore. With more savings in emerging regions and deeper domestic capital markets, one might expect more funds to be managed from within these regions as well as being attracted to them.

Macro-prudential measures will be important for avoiding problems

Greater policy intervention

The use of macro-prudential measures in economic and monetary policy was an important tool used by a number of emerging economies ahead of the recent crisis, and now, to mitigate risks of assets bubbles. So, too, even in the West, was effective regulation and appropriate, as opposed to light or heavy regulation. These are likely to be necessary future features. This has to be reinforced by greater transparency.

Regulatory overkill is one dangerous consequence of the financial crisis. But there are many other ways in which policy may evolve, at a local and global level. Globally, one would expect greater convergence on some minimum policy standards. It is hard to imagine all countries agreeing to common guidelines, so minimum standards are likely. This could apply to taxation. It probably also needs to apply to accounting, as that has widely been identified as one area where global standards are needed. It will be interesting to note the extent to which emerging economies take advantage of the new policy fora, such as the G20, to more actively contribute to this debate.

Currencies will take centre-stage in the super-cycle

Currency issues and macro policy

Currency issues are centre-stage, with the macroeconomic policy framework an important feature of future stability. The super-cycle has significant currency implications. The possible outcomes are widely different. During the two previous super-cycles, the policy environment favoured monetary stability. The first super-cycle was characterised by stable currencies. Bi-metallic currency regimes existed, linked to gold or silver. Indeed, towards the end of the 19th and early 20th century, Europe experimented with common currencies, with the Scandinavian Monetary Union, German Monetary Union and Latin Monetary Union all co-existing. The second super-cycle, meanwhile, was characterised by the Bretton Woods agreement and currency stability. Current worries over 'currency wars' highlight the challenges with the present system.

Over the years there have been repeated calls for variants on currency stability – a return to the gold standard, the adoption of trading bands for the major currencies, or currency pegs supplemented with capital controls. Given this, the possibility of some formal move towards currency stability at a global level cannot be ruled out. However, in the present context, it seems hard to predict. Instead, greater currency



Overview

intervention may be plausible, and over time, one should expect to see more countries managing their currencies against a basket of currencies of the countries with which they trade. Managed floats and currency baskets may become more of a norm for currency policy.

More emerging economies seem determined to insure themselves against a future crisis by holding larger amounts of currency reserves. Where these reserves are held is already a challenge. 'Passive diversification' may already be underway, in the sense that reserve managers appear unwilling to actively sell the dollar, lest it triggers the dollar crisis some fear. Instead, a smaller share of net new reserves is being placed in dollars – hence passive. In future, we expect to see not only rising reserves but a desire to place these reserves elsewhere. In some respects, this points to a slow-burning fuse underneath the dollar as the world's major reserve currency. Whilst we do not cover it in this report, the euro may encounter future problems – a small possibility of collapse and a higher chance of changed membership – as political union is needed for it to survive. Meanwhile, the increasing international use of the CNY will rise, but its future use will need to go alongside the development of deeper and broader capital markets. The dollar's attraction during this crisis was not only the attraction of US democracy but also the depth and liquidity of its capital markets.

In some respects, this cycle does have price stability, or at least low rates of inflation, as central banks implement anti-inflation policies that are in many cases enshrined in inflation targets. This could be supplemented with the adoption of macro-prudential measures, and even of exchange controls. Macro-prudential measures, whilst currently the fashion, may prove resilient over the course of a few cycles, and become a more accepted part of the policy toolkit, as might capital controls and the use of taxes on short-term capital inflows.

Given the danger of bubbles linked to property, it would not be a surprise if there were moves to raise taxation on property, perhaps also in the context of greater overall credit control. Countries will want to remain attractive to mobile, longer-term capital and skilled workers and may shift more towards taxing domestic and less mobile areas.

State capitalism

State capitalism may become associated with this cycle in the sense that the role of the state is powerful across many emerging economies. This is seen in a range of areas now, from sovereign wealth funds to sizeable foreign exchange reserves and, in some countries, the role that governments exert not only over state-owned enterprises but also in on industrial and business policy. In a short space of time, sovereign wealth funds have adopted the Santiago Principles, and thus, even with a strong role of the state, one might expect moves towards increased openness and transparency.



Overview

Policy fora are already changing in response to the super-cycle

Policy fora

Policy fora are already changing. Further change is likely, although not inevitable. One might imagine some evolution until a workable, credible set-up emerges. Voting reform is already happening at global institutions like the IMF and the World Bank. The UN continues to carry a global role, and perhaps membership in the Security Council is the most important policy forum of the future. It is hard to imagine any of the five present permanent members giving up their seats, but there may be pressure to increase the size of the grouping.

Meanwhile, in terms of global macro-policy, some evolution from the G20 process is possibly needed, although hard to imagine. Perhaps within the G20 framework, one might expect to see smaller groups focusing on key issues. Given the trends outlined in this report, we may perhaps be more likely to see greater importance attached to regional groupings, as they may be seen to best represent the common interests of neighbouring countries.

The pace and scale of change across the emerging world is astonishing

Conclusions

The pace and scale of change across the emerging world is astonishing. The upside potential is huge. The opening up of many emerging economies is already taking place. The size of middle classes is growing. More countries are trying to move up the value curve, into many areas the West currently takes for granted. China has grabbed the attention, and rightly so. It is experiencing an industrial revolution, spear-headed by its phenomenal infrastructure investment. But India, with democracy, entrepreneurship, contracts and property rights, has much going for it too, plus a young population. Yet it is not just about China and India. More than four-fifths of the world's population is in the emerging world and they are becoming increasingly connected to the global economy. New trade corridors are evident, with flows of goods, commodities, services, people and investment.

We considered using the title 'super-cycle' some years ago, but held off from doing so because we feared a financial crisis and for the immediate outlook for the US economy. Instead, we opted for the phrase 'New World Order', to reflect the shift in the balance of economic and financial power from the West to the East. Now, we feel it is appropriate to talk about the super-cycle. There are still significant near-term challenges, with the debt overhang in the West and risks of asset bubbles in the East. Despite these, it is appropriate to highlight the big structural shift that the world is already undergoing.

The trend is up. There will be setbacks along the way. Macro-policy will play a vital role in shaping this future, but it will be the private sector that drives it. And the winners will be global.



2. Scale and perspective

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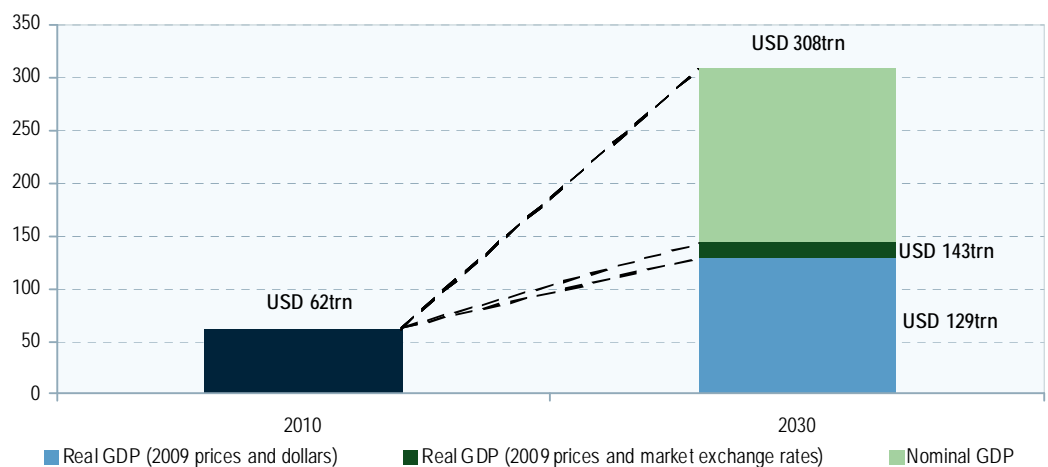
- The world is in a third period of sustained high growth
- The industrialisation and urbanisation of China and India, and global trade, are key drivers
- The vast populations involved in this strong growth will drive a profound global rebalancing

We are in a super-cycle, again

We believe that the world is in a 'super-cycle' of sustained high growth. The scale of change over the next 20 years will be enormous. The size of the world economy today is USD 62trn, and, in constant prices and dollars, it will grow to more than twice that, USD 129trn, by 2030. Accounting for exchange rate appreciation in China and India, real global GDP will grow to USD 143trn. Finally, in nominal terms, the global economy will grow to USD 308trn (Chart 1).

Chart 1: Scale and perspective – size of the world economy today and in 2030

USD trn



Sources: IMF, Standard Chartered Research

A super-cycle is a period of historically high global growth lasting a generation or more, driven by high rates of investment, urbanisation and technological innovation

Historical perspective

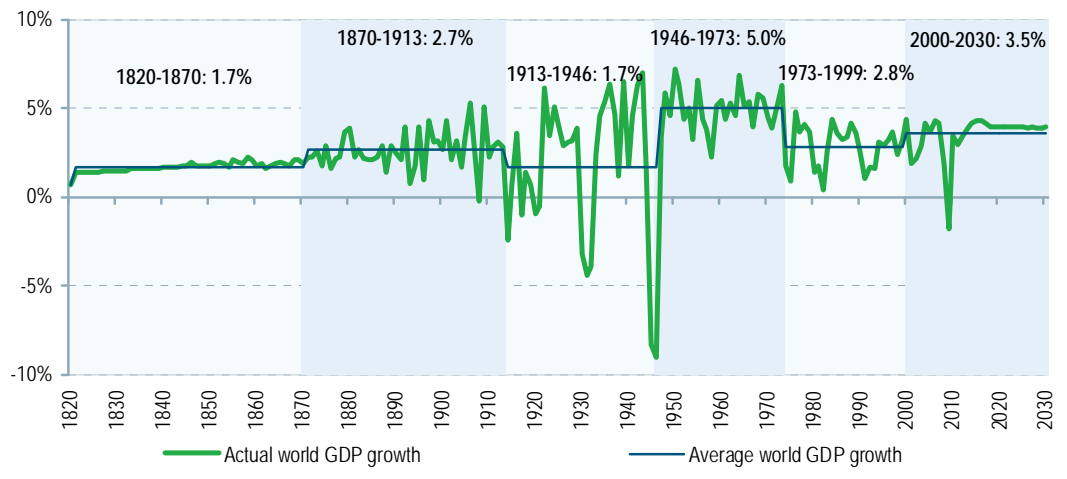
The industrial revolution at the end of the 18th century marked a major turning point in history. The development of the steam engine, gas lighting and textile machinery, among several other inventions, began to transform every aspect of economic, political and social life, triggering tremendous progress. Between 1820 and 1870, the average global economic growth rate doubled to 1.7% from less than 1% in the previous 18 centuries. It accelerated further to 2.7% from 1870 to 1913 as technological progress intensified and spread around the world through trade (Chart 2). The US was the fastest-growing economy, averaging an unprecedented 4% per year between 1870 and 1913, on the back of fast industrialisation and urbanisation. It contributed 28% of real global growth during that time. The fourth-largest economy in 1870 (9% of the world total), the US became number one by 1913 (19% of the world total).



2. Scale and perspective

The world was in its first super-cycle: a period of historically high global growth lasting a generation or more, driven by increasing trade, high rates of investment, urbanisation and technological innovation and characterised by the emergence of large new economies, first seen in high catch-up growth rates in the emerging world.

Chart 2: Super-cycles – world GDP growth



Sources: Angus Maddison, IMF, Standard Chartered Research

However, the first super-cycle started to lose momentum as the global influence of Britain, the driver of global integration, waned and trade protectionism increased. After 1913, the world experienced more than 30 years of instability and downswings – two world wars, the disintegration of the Austro-Hungarian and Ottoman Empires, hyperinflation in Germany, the Great Depression and the end of the gold standard. By 1945, international trade was more than 40% below its 1913 levels.

It was only after the Second World War that sustained long-term growth returned. Between 1945 and 1973, the world economy grew at an annual average rate of 5%, spurred by post-war reconstruction in Europe, the wide adoption of new technologies (cars, aviation, telecommunications, and plastics), the lowering of trade barriers between developed nations, and cultural changes such as women entering the work force.

The Japanese economy grew at an average annual rate of 9% between 1945 and 1973, and grew 11-fold in real terms

The most dynamic economy in this super-cycle was Japan. The Japanese economy grew at an average annual rate of 9% between 1945 and 1973, and grew 11-fold in real terms. Japan's share of world GDP rose from 3% in 1945 to 10% in 1973. It became the world's second-largest economy in 1968, overtaking Germany. The four Asian 'tigers' – Korea, Taiwan, Hong Kong and Singapore – experienced similar progress to Japan. Government industrial policy played an important role in facilitating rapid industrialisation of the Asian economies during that time. At the initial stage of development, the primary policy focus was to shelter infant and strategic industries with import protection – so-called import substitution industrialisation (ISI). Once manufacturers had become more competitive in the 1960-70s, protective measures were put aside and policy orientation shifted to trade liberalisation. Governments guided orderly competition and channelled mergers in several industries to establish economies of scale in production – so-called export-promotion industrialisation (EPI).



2. Scale and perspective

By the early 1970s, Japan and Europe still lagged behind the US in terms of per-capita income, but their catch-up opportunities had narrowed. Technological progress, driven by the US, also started to slow, so the super-cycle began to lose steam. Then, the 1973 oil shock stopped the super-cycle in its tracks. In 1974, the US, the UK and Japan experienced their worst year in nearly 30 years. The subsequent disintegration of the Bretton Woods system triggered further instability, and high and volatile inflation in many countries undermined investor confidence, which then required ultra-tight monetary policy and deep recessions to correct. Global growth slowed from an average of 5% during the super-cycle to 2.8% between 1973 and 2000.

During this time, some emerging markets experienced relatively strong growth. The first generation of Asian tigers continued to upgrade their manufacturing sectors and expand their export bases. In addition, the second generation of tigers emerged – Indonesia, Malaysia, Thailand and (almost) the Philippines – by replicating the successful industrial policies of the four tigers before them. In the 1980s, China and later India started to rise up too. But these economies were still too small to influence global growth. While Asia was doing relatively well, Latin America suffered debt crises and hyperinflation, the Soviet bloc first stagnated and then collapsed, and African growth struggled to gain traction.

The present super-cycle – the world since 2000

Towards the end of the turbulent 1990s, global growth started to regain momentum as all the developments in information technology and telecommunications over the previous 20 years started to transform the way of doing business. At the same time, more emerging countries started to pursue prudent macroeconomic policies and balanced growth, unlocking their growth potential and facilitating the 'catch-up' process (Box 1). Global growth accelerated to an average 3.5% during the 2000-07 period from 2.8% during the 1973-2000 period – despite facing headwinds from the burst 'dot-com' bubble, the 9/11 terrorist attacks and the SARS epidemic – before it was interrupted by the latest global financial crisis.

Global trade, high investment rates, fast adoption of new technologies and increasing urbanisation among some 85% of the world's population living in emerging markets are driving this growth. While 50% of the world's population lives in cities today, the proportion will rise to 60% by 2030, with the majority of people in every region of the world living in urban areas. This will have major implications not only for demand for resources, but also for consumer-goods demand, as urban dwellers tend to have higher incomes than their rural counterparts. The increased economies of scale that come with urbanisation will in turn facilitate further growth. Indeed, rich countries tend to be 70% urbanised, while middle-income countries are about 50% urbanised and low-income countries are approximately 40% urbanised.

The financial crisis has shown that the emerging economies, while not decoupled from the West, have become more resilient and better insulated from external shocks. Most suffered a sharp export-related setback but, outside emerging Europe, growth has bounced back strongly. Given that these economies' fundamentals are stronger than they have ever been, their continued growth seems assured. China's per-capita income of USD 4,000 is still only 9% that of the US; in real 2009 dollars, it is where the US was in 1878. Indonesia's income per head is only two-thirds that of

The rapid industrialisation and urbanisation of the c.85% of the world's population living in emerging markets are driving the present super-cycle

2. Scale and perspective

China's current income per head is only 9% that of the US, so the catch-up potential is enormous

China, while India's is only a quarter of China's. The catch-up potential of emerging markets is thus enormous, and with stronger foundations for growth than ever before, we believe it is inevitable.

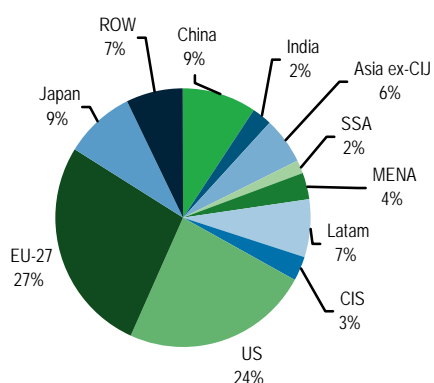
Box 1: Convergence theory

The catch-up hypothesis is based on the convergence theory which tells us that over time, differences in real GDP per capita narrow because poorer countries should experience higher growth rates. This is explained by diminishing returns on capital: adding capital at low levels in poor countries produces higher returns, and thus higher growth rates, than adding extra stock in already capital-intensive rich countries. However, not all poor countries catch up quickly. If a country has an unstable macroeconomic situation, excessive government ownership of enterprise, weak property rights, an absence of law and order, poor infrastructure or over-regulation, it will not grow rapidly. For example, growth in Sub-Saharan Africa has lagged behind the rest of the world because of conflict, weak rule of law, and unfavourable demographics. Brazil has been held back by past macroeconomic instability and bureaucratic and infrastructure bottlenecks, while Venezuela's and Bolivia's interventionist politics have deterred foreign direct investment (FDI) and hindered the development of the private sector. Conversely, Korea has transformed itself from one of the poorest countries in 1950 to the 15th-largest economy in the world now, because of its high educational achievement, strong rule of law, demographic dividend, high investment and low inflation. A large endowment of human capital, as in Korea, is especially crucial because it facilitates absorption of new capital and adoption of new technologies, thus accelerating the catch-up process.

The US was the most dynamic economy in the first super-cycle, Japan in the second; now China and India will lead

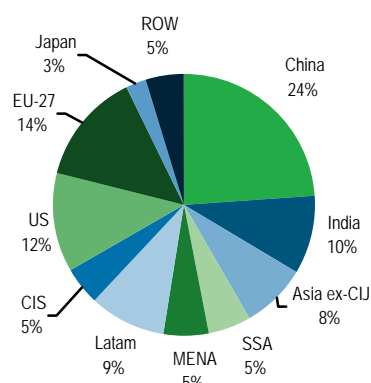
Britain was the productivity leader in the 19th century, and was overtaken by the US towards the end of the century. In the post-war era, Japan was the ultimate catch-up economy, followed by the East Asian 'tigers' in the 1980s. Now, China is the world's most dynamic economy, and India will be soon. As a result, living standards, as measured by real per-capita income, will increase nine-fold in China and India between 2000 and 2030, according to our projections.

Chart 3: Nominal global GDP 2010, USD 62trn
% of global



Sources: IMF, Standard Chartered Research

Chart 4: Nominal global GDP 2030, USD 308trn
% of global



Sources: IMF, Standard Chartered Research

We expect the world's real output to more than double in the next 20 years, growing at an average of 3.9% annually (3.5% since the start of the super-cycle in 2000). This rate of growth is faster than in the first super-cycle, though slower than in the second, when world growth averaged about 5%. However, because world population growth is slower in the present super-cycle than in the last one, the difference in per-capita



2. Scale and perspective

The balance of the world economy will reverse, with the combined share of the US, the EU and Japan shrinking from 72% in 2000 to 29% by 2030

income growth is not as significant. Two-thirds of this growth will come from the emerging world, compared to just one-third in the 30 years to 2000. By 2030, the balance of economic power will have shifted from the West to the East: while the US, the EU and Japan represented 72% of the global economy in 2000, their share should shrink to only 29% by 2030 – a complete reversal of their importance relative to the emerging world. In nominal terms, the world economy is forecast to be worth USD 308bn, 10 times its size in 2000 and five times its size today (Charts 3 and 4). Table 1 shows the world's 10 largest economies by decade, emphasising the shift in economic power over time (also see Box 2 at the end of this chapter).

Table 1: Ten largest economies by decade

	1990	USD trn	2000	USD trn	2010	USD trn	2020	USD trn	2030	USD trn
1	US	5.8	US	10.0	US	14.6	China	24.6	China	73.5
2	Japan	3.0	Japan	4.7	China	5.9	US	23.3	US	38.2
3	Germany	1.5	Germany	1.9	Japan	5.6	India	9.6	India	30.3
4	France	1.2	UK	1.5	Germany	3.3	Japan	6.0	Brazil	12.2
5	Italy	1.1	France	1.3	France	2.6	Brazil	5.1	Indonesia	9.3
6	UK	1.0	China	1.2	UK	2.3	Germany	5.0	Japan	8.4
7	Canada	0.6	Italy	1.1	Italy	2.0	France	3.9	Germany	8.2
8	Spain	0.5	Canada	0.7	Brazil	2.0	Russia	3.5	Mexico	6.6
9	Brazil	0.5	Brazil	0.6	Canada	1.6	UK	3.4	France	6.4
10	China	0.4	Mexico	0.6	Russia	1.5	Indonesia	3.2	UK	5.6

Sources: IMF, Standard Chartered Research

China is the fastest catch-up economy today; India will be tomorrow

Outlook by region

China and India

Since 1980, real GDP per capita has more than tripled in India and increased an astonishing 12-fold in China (in real local-currency terms). India's growth has picked up, especially since the early 1990s, during the post-reform era. While China's growth has been driven primarily by the expansion of its industrial sector, India's has been more service-driven. India has marginally outperformed China in services, but China's productivity gains in industry and agriculture have been three times those of India (Chart 5).

Unlike in the rest of East Asia, where growth has been driven by investment in physical capital and increasing labour participation, in China and India, almost half of growth is explained by the contribution of 'total factor productivity' (TFP) – the efficiency of the use of labour and capital inputs (Chart 6). TFP is often taken as an indicator of technological innovation, but it also includes factors such as political stability, government policy, institutional improvements, household behaviour (propensity to save and to work hard) and the efficiency of capital allocation.

Every additional year of education raises the growth rate by 0.7ppt because it facilitates absorption of new capital and technologies

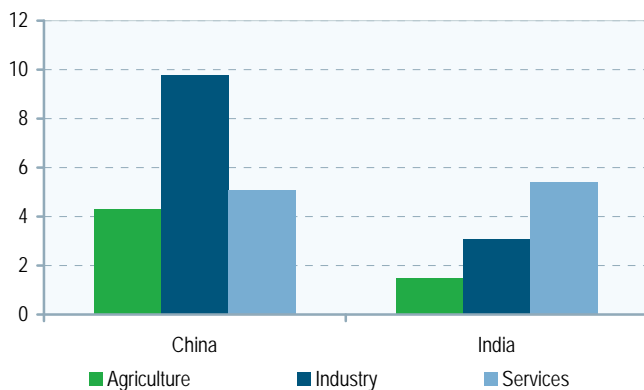
But why has China been growing faster than India? First, the contribution of physical capital to China's growth has been much higher than in India (Chart 6). Second, China has invested in education and eliminated illiteracy. The literacy rate in China is 99% (for both men and women), whereas in India, the rate is 75% for men and only 51% for women. This is worse than in Sub-Saharan Africa, even though the number of people attaining higher education has increased. This is important, as studies show that every additional year of education raises the growth rate by 0.7ppt because it facilitates absorption of new capital and technologies. As a result, China



2. Scale and perspective

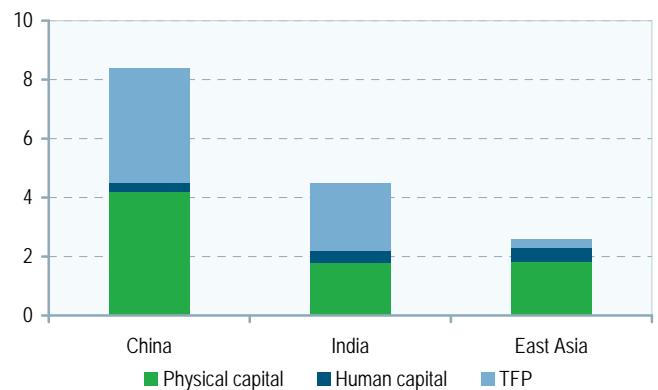
has moved workers from agriculture to industry more quickly. According to Bosworth and Collins (2008), in 1978, 70% of China's and India's workers were in agriculture. Today, the share is 47% in China but 57% in India. While in 1978 Chinese labour productivity was 30% below India's in all sectors, by 2004 it had increased to 110% above India's levels in services, 130% in agriculture, and 220% in industry.

Chart 5: China vs. India: sources of growth by sector
Annual growth in output per worker, %, 1993-2004



Sources: Bosworth and Collins (2008), Standard Chartered Research

Chart 6: Contribution to output per worker
Average annual growth, %, 1993-2004



Sources: Bosworth and Collins (2008), Standard Chartered Research

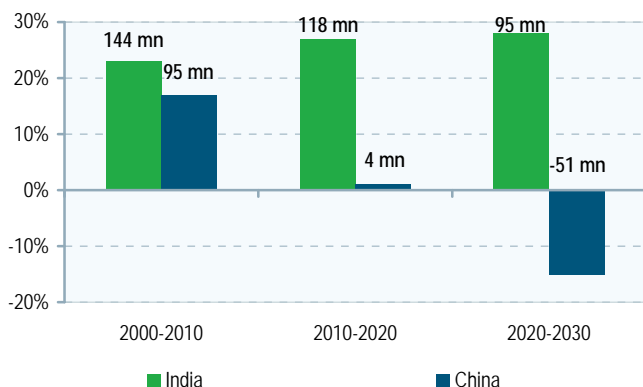
In the next 20 years, China alone will provide one-fifth of global growth, and will become the world's largest economy by 2020; by 2030, China will be nearly twice the size of the US

As there are diminishing returns to factors of production, China's extraordinary 30-year super-growth should gradually moderate, with the growth rate slowing from more than 10% today to 5% by 2030. Even so, in the next 20 years, China alone will provide one-fifth of global growth, the largest chunk, and will become the world's largest economy by 2020. We forecast that by 2030, China will be nearly twice the size of the US (Table 1), and its share of global output will grow from 9% in 2010 to 24% in 2030 (Charts 3 and 4). Despite this phenomenal performance, China's income per head will still only be half that of the US in 2030, leaving room for further catch-up.

Growth will be supported by a continuing shift of workers from agriculture into industry and services, although the desire to maintain the current amount of agricultural land will make further industrialisation increasingly difficult. China's labour costs are already well above the lowest in Asia, and as the size of the labour force is set to peak in the near future (Chart 7), China will be under increasing pressure to move up the manufacturing value chain. Rising costs in the coastal cities and declining transport costs are moving production centres inland, which will fuel growth in the coming years and help reduce China's coastal-inland imbalances, making growth more sustainable. Rapid urbanisation will also help rebalance the economy towards internal consumption, as urban consumers have higher incomes and provide markets for the rural areas to sell into.

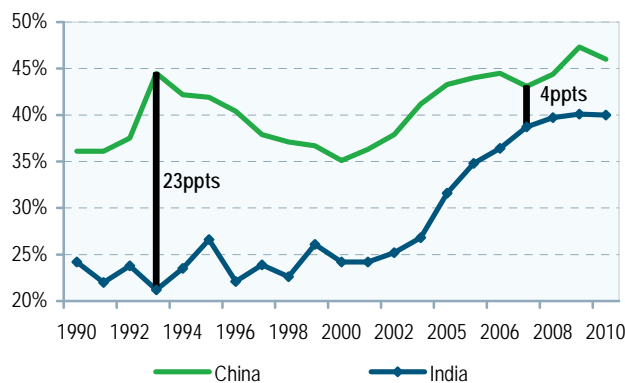
2. Scale and perspective

Chart 7: Contribution to global working-age population
% and mn



Sources: UN, Standard Chartered Research

Chart 8: India's investment is catching up with China's
Investment as % of GDP



Sources: World Bank, Standard Chartered Research

We forecast that India will become the fastest-growing major economy in the next 20 years, with its growth rate set to overtake China's by 2012

We forecast that India will become the fastest-growing major economy in the next 20 years, with its growth rate set to overtake China's by 2012. The country has massively stepped up investment from 24% of GDP in 2000 to 40% today (Chart 8). Annual growth in investment between 2000 and 2008 was 15%, outpacing that of China or Russia, both at 12%. This new productive capacity and infrastructure, together with the government's efforts to improve educational standards, should unlock India's tremendous growth potential in the coming years. Following India's services revolution, manufacturing – which currently represents less than 28% of output, compared to China's 49% – is next. Favourable demographics (a young and growing population) will also support growth, provided that the economy creates new jobs (Chart 7). Macroeconomic management based on a flexible exchange rate and appropriate monetary policy should help policy makers manage imbalances that could result from such fast growth. Deep and broad capital markets should facilitate the absorption of foreign capital inflows and help finance the government's fiscal deficit. India, which was not even in the top 10 in 2000, should overtake Japan as the world's third-largest economy by 2020 (Table 1).

Indonesia will be the region's star performer; the 28th-largest economy in 2000, it may be the world's 10th-largest in 2020 and fifth-largest in 2030

The rest of Asia

Abundant supply of low-cost and productive labour should continue to support growth in the rest of Asia, which is forecast to average 5.2% over this super-cycle. Indonesia will be the region's star performer, set to grow at nearly 7% on average over the next two decades. Its growth will continue to be supported by commodity exports as well as the industrialisation of the economy. The 28th-largest economy in 2000, it may be the world's 10th-largest in 2020 and the fifth-largest in 2030. Indonesia should overtake Russia, so the well-known BRICs grouping (Brazil, Russia, India and China) may have to be re-thought.

The region's fortunes are closely tied to those of China. The biggest challenge facing other Asian economies is upgrading their manufacturing bases to higher-value-added activities to supply intermediate and capital goods to China as it moves up the value chain, and to get ahead of inevitable competition from India in lower-end manufacturing. For many countries, including Indonesia, this implies addressing chronic infrastructure shortages. Services should complement the manufacturing sector, and provide further impetus for growth. A knowledge-driven services sector



2. Scale and perspective

can create opportunities for highly educated workers at home, supporting further development. However, continued improvements in education will be the key to expanding services industries.

Asia's future success also hinges on the deepening and strengthening of domestic financial markets to effectively channel savings into private-sector investment. Meanwhile, FDI will facilitate access to skills and technology, but only if governments continue to promote favourable business environments, including clearer regulations, simpler tax laws and increased bureaucratic efficiency.

Sub-Saharan Africa

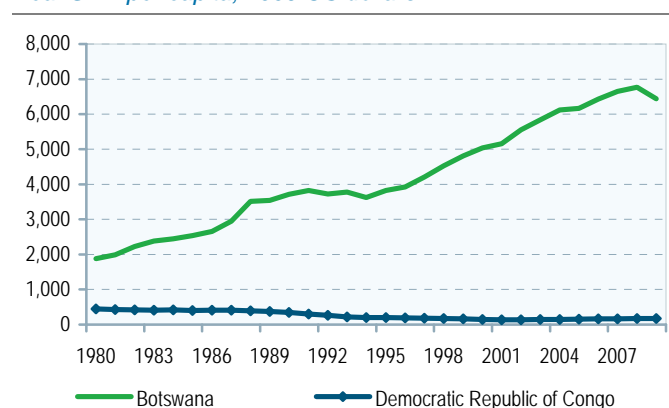
Until recently, Sub-Saharan Africa's growth story was one of divergence from, rather than convergence with, the rest of the world

Until recently, Sub-Saharan Africa's growth story was one of divergence from, rather than convergence with, the rest of the world. This was because of political instability, weak rule of law, inadequate human capital due to poor health and education standards, unfavourable demographics, high inflation and low investment. While real GDP per capita increased by 3% annually during the post-war super-cycle, following African countries' independence, it contracted by 0.6% annually between 1973 and 2000.

However, since the mid-1990s, many Sub-Saharan African countries have become more politically stable, as reflected by their steady advance in the World Bank Worldwide Governance Indicators. To illustrate how much governance matters, Chart 9 shows the divergent performance of Africa's best-governed country, Botswana, and the worst one, Democratic Republic of Congo, over the last 30 years. While Botswana's GDP per capita increased 3.5-fold between 1980 and 2009, that of the Democratic Republic of Congo declined by 61%. Indeed, Botswana is a great example for the rest of Africa, as it has achieved a sustained high growth rate despite being natural-resource-dependent and landlocked – two factors often cited as curses for Africa's growth.

Chart 9: Botswana vs. Democratic Republic of Congo

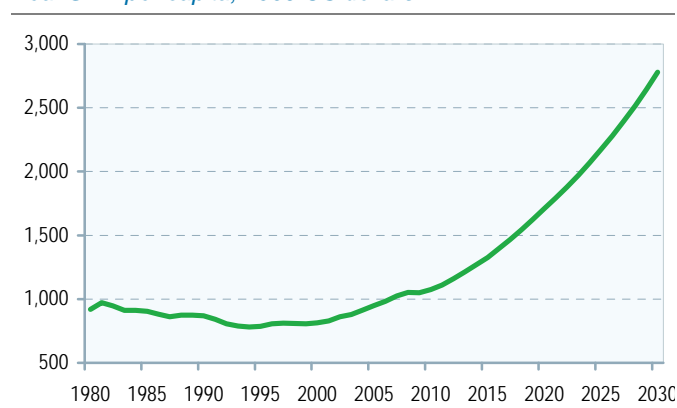
Real GDP per capita, 2009 US dollars



Sources: World Bank, IMF WEO

Chart 10: Sub-Saharan Africa, 1980-2030

Real GDP per capita, 2009 US dollars



Sources: IMF WEO, Standard Chartered Research

On the back of an improving investment environment, better economic management and rising Chinese demand for Africa's resources, Sub-Saharan Africa grew by 5.5% in the last decade, its strongest performance since independence in the 1960s. Its GDP per capita also resumed an upward trend, rising by 31% in the last decade (Chart 10). And it is not just the resource-rich countries that have done well.



2. Scale and perspective

On the back of an improving investment environment, better economic management and China's rising demand for Africa's resources, growth there will accelerate to 7% in the next 20 years

Real output is expected to grow four-fold over the period to 2030, real per-capita income will likely grow only 2.6 times, as Africa will have the fastest population growth of any region

The Middle East's progress on economic reforms and its good management of the oil windfall during the 2002-08 boom made the region more resilient to the global crisis

Diversified economies in East Africa – Ethiopia, Mozambique, Tanzania and Uganda – have also had impressive growth rates, averaging 7-8% since 2000. The region's low-cost labour, large and growing internal market, and natural resources hold considerable potential for the next 20 years.

We believe Sub-Saharan Africa will grow at an average rate of 7% per year to 2030, leveraging off China's and India's success. Even though the region's share of exports to Asia may currently be relatively small compared to that of the West, Asian demand should continue to help Africa via higher commodity prices. Moreover, China is providing development aid to Africa and helping to build infrastructure. There is a technical reason, too, why we expect African growth rates to accelerate. Several countries are rebasing their GDP calculations, which have proven to be too narrowly based, omitting to measure output from new sectors such as telecoms. For example, Ghana's economy, one of the better managed in Africa, has proven to be 75% larger than previously thought.

While the region's real output is expected to grow four-fold over the period to 2030, real per-capita income will likely grow only 2.6 times, as Africa will have the fastest population growth of any region. The region's share of global output should increase from 2% today to 5% in 2030 – nearly the same size as that of the Middle East and North Africa (MENA) region, which is currently twice Africa's size. South Africa, the region's largest economy, may be overtaken by Nigeria by 2023 if Nigeria capitalises on its vast oil wealth and favourable demographics. If bold banking-sector reforms can be extended to the power and the hydrocarbon sectors, Nigeria's potential is enormous.

The key challenges will be providing infrastructure and jobs for a population which will have increased by 50% between 2010 and 2030. A problem with commodity-driven growth is that it does not generate jobs. The development of a non-commodity economy will be key, which will require substantial investment in infrastructure and human capital. Sub-Saharan Africa can look to Mexico as an example of a commodity exporter that transformed itself successfully into a major manufacturer, or to Brazil for increasing agricultural yields in a tropical environment.

Middle East and North Africa

The Middle East's progress on economic reforms and its good management of the oil windfall during the 2002-08 boom made the region more resilient to the global crisis (bar Dubai, which suffered in the aftermath of a burst real-estate bubble). The region has made progress on building up its non-oil economy, which has accelerated in the last two years with the help of stimulus plans focused on achieving this goal.

Large oil reserves – two-thirds of the world's total – will keep the Gulf countries at the centre of the hydrocarbon supply stage. Their position is likely to remain unchallenged, as new discoveries, like those in Brazil and Ghana, will not add much to global capacity. Both Iraq and Iran have the potential for significant production increases. Libya, after years of political and economic isolation, is emerging as an important oil player, with the ninth-largest reserves in the world. Egypt, following its bold reforms since 2004, has become the new darling of foreign investors due to its large and diversified economy, stable politics, strategic position as a gateway between the East and West (thanks to the Suez Canal), and its new-found gold reserves.

2. Scale and perspective

While MENA's economy today is less than half the size of Japan's, it will be twice as big by 2030

We expect the MENA region to grow at an average 5% annual pace until 2030. However, this could exceed expectations if the present challenges – slow progress on political reform, an opaque business climate, low integration with the global economy and high unemployment rates among the young – are overcome. MENA's share of world output should increase from 4% today to 5% by 2030. While the region's economy is today less than half the size of Japan's, by 2030, it could be twice as big.

Latin America's strength is attributed to its successful economic reforms over the last decade – flexible exchange rates, inflation targeting, prudent fiscal and debt management, and, with a few exceptions, stable politics

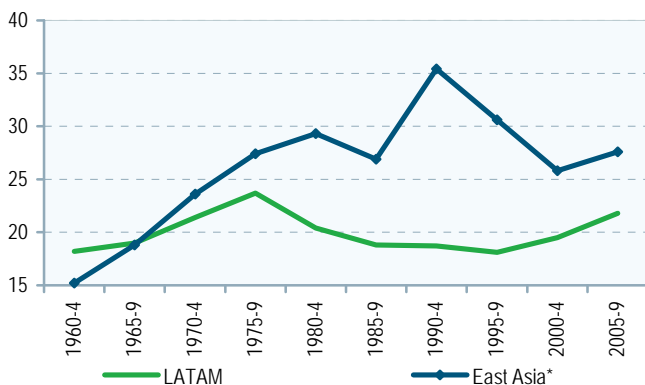
Latin America

Historically, Latin America's growth has lagged that of Asia. The region performed well until the 1980s on the back of high commodity prices, and attracted large capital inflows. In the post-Bretton Woods world, this meant that the region's currencies appreciated and inflation soared. High inflation and frequent bank failures destroyed savings, which depressed investment. Overvalued currencies also fuelled imports and widened current account deficits. These imbalances, combined with unstable politics, made the region a prime candidate for a hard landing, as exhibited by the 1980s and 1990s debt and balance-of-payments crises. A study by de Gregorio and Lee (2003), looking to explain the growth differential between East Asia and Latin America between 1970 and 2000, attributed 51% of the difference to institutions and policy. Investment disparity explained another 20% of the differential, and education another 9% (Charts 11 and 12).

But Latin America has had a great decade since 2000, and proved surprisingly resilient during the global financial crisis. Investment picked up, and growth between 2000 and 2008 averaged 3.8%, the highest since the 1970s. The region contracted by only 1.7% in 2009, and that was mainly because Mexico, which depends on the US for 80% of its exports, suffered a deep recession. Brazil, historically one of the most vulnerable countries to any crisis, came out the winner. The region's resilience is attributed to its successful economic reforms over the last decade – flexible exchange rates, inflation targeting, prudent fiscal and debt management, and, with a few exceptions, stable politics. Many countries have also been helped by rising commodity prices.

Chart 11: Asia vs. Latam investment rates

% of GDP

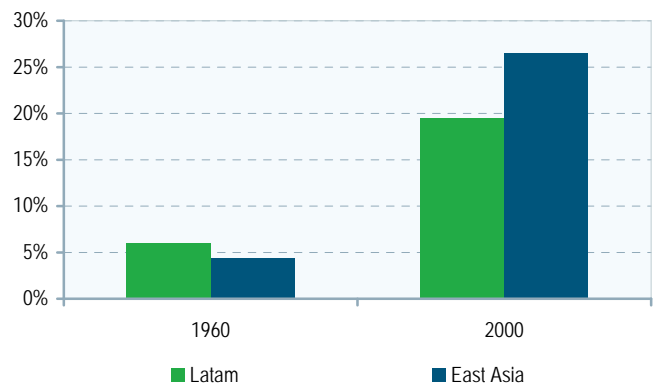


*Indonesia, Malaysia, Taiwan, Thailand;

Sources: World Bank, IMF WEO, John Weeks (2000), Standard Chartered Research

Chart 12: Asia vs. Latam educational attainment

% of population with secondary education



Sources: Barro and Lee (2001)



2. Scale and perspective

With a robust macroeconomic framework in place, Latin America now looks set to fulfil its potential

With a robust macroeconomic framework in place, the region now looks set to fulfil its potential. Latin America is rich in natural resources – fertile soil (25% of the world's arable land and 30% of its water supply) and commodities (15% of the world's oil; Brazil alone is the world's number one exporter of sugar, coffee, orange juice, tobacco, ethanol, beef and chicken). As a result, the region will remain at the centre of China's and India's attention as they seek to secure access to the natural resources they lack. Already last year, China overtook the US as Brazil's number one export partner, and China is now the largest buyer of Brazilian oil. However, the rise in commodity exports may be detrimental to the region's future growth if it results in the de-industrialisation phenomenon known as 'the Dutch disease'.

We expect the region's growth to average 4.5% annually over the next 20 years, with GDP increasing 2.4-fold in real terms. However, to truly unlock its potential, Latin America will need to further improve labour productivity by raising its educational levels and addressing bureaucratic and infrastructure bottlenecks. Unequal income distribution and the drugs trade are causing social tensions and violence in many parts of the region, including Mexico, Colombia and Brazil. These issues will also need to be addressed. Social policies such as Brazil's Bolsa Familia are making a significant impact but need to be upgraded in order to unlock the region's potential human capital. Growth in Venezuela will likely remain volatile as a result of weak policy management, which discourages private-sector development, and an overdependence on commodity exports. Argentina could face a similar fate unless there is political change, which could come as early as next year.

Mongolia will be the star in the region as its vast copper and gold, and possibly coal resources are tapped

Russia and CIS

Between 2000 and 2008, as oil prices tripled, the Russian economy nearly doubled in real terms. With oil prices expected to rise more modestly over the next 10 years, Russia's economy is expected to grow at only 3% annually. A more positive outlook will require structural reforms, which have stalled in recent years despite the government's rhetoric of 'modernisation'. These include unpopular public-sector reforms to cut red tape (and the fiscal deficit), banking-sector reform and, most crucially, improvements in the business climate. Investors continue to be deterred by structural rigidities, the state's pervasive interventionism, and a lack of respect for the rule of law and property rights. As a result, the non-oil sector is largely uncompetitive.

The region overall should grow at an average of 4.9% to 2030, driven by fast-growing hydrocarbon-based economies like Kazakhstan and Turkmenistan. However, the real star in the region will be Mongolia (which is included in this group for reasons of geography and similarities in economic structure) as its vast copper, gold and (possibly) coal resources are tapped. Mongolia's growth is forecast to accelerate from 8% this year to 28% by 2013, and should continue at double-digits for several years thereafter.

The US will lose its status as the world's largest economy to China by 2020, while Japan will be surpassed by India by 2020 and Brazil and Indonesia by 2030

The West – US, EU and Japan

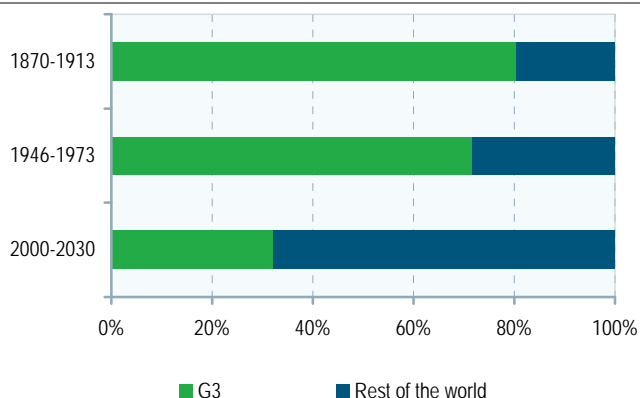
In the past decade, Western growth has accelerated on the back of the IT revolution, but also the credit-fuelled housing and consumption bubbles which culminated in the global financial crisis. Meanwhile, Japan, once predicted to overtake the US as the world's leading economy, has been in the doldrums for the last two decades due to macroeconomic policy mistakes, a weak banking sector, an ageing population and inadequate reform of the inefficient services sector.

2. Scale and perspective

Although the West will remain at the forefront of the technological frontier, it will struggle for the next few years as the structural issues of large debt burdens and fragile financial sectors work themselves out. Growth in the US and in Europe will be below trend for the next two to three years, followed by a more robust recovery for a few years thereafter, before returning to trend growth of approximately 2.5% in the long term. Retaining their creative lead will be key to the long-term success of these economies.

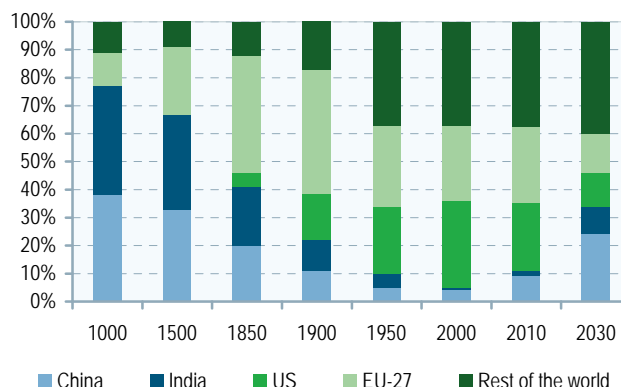
The US is expected to lose its status as the world's largest economy to China by 2020, while Germany, France and the UK will probably lose their top-five status by 2030. Japan's economy is expected to limp along. Its share of global output will decrease from 9% today to 3% in 20 years. By 2030, we expect the balance of economic power to have decisively shifted from West to East (Charts 13 and 14).

Chart 13: Contribution to world growth by super-cycle
% of total, real terms



Sources: Angus Maddison, IMF WEO, Standard Chartered Research

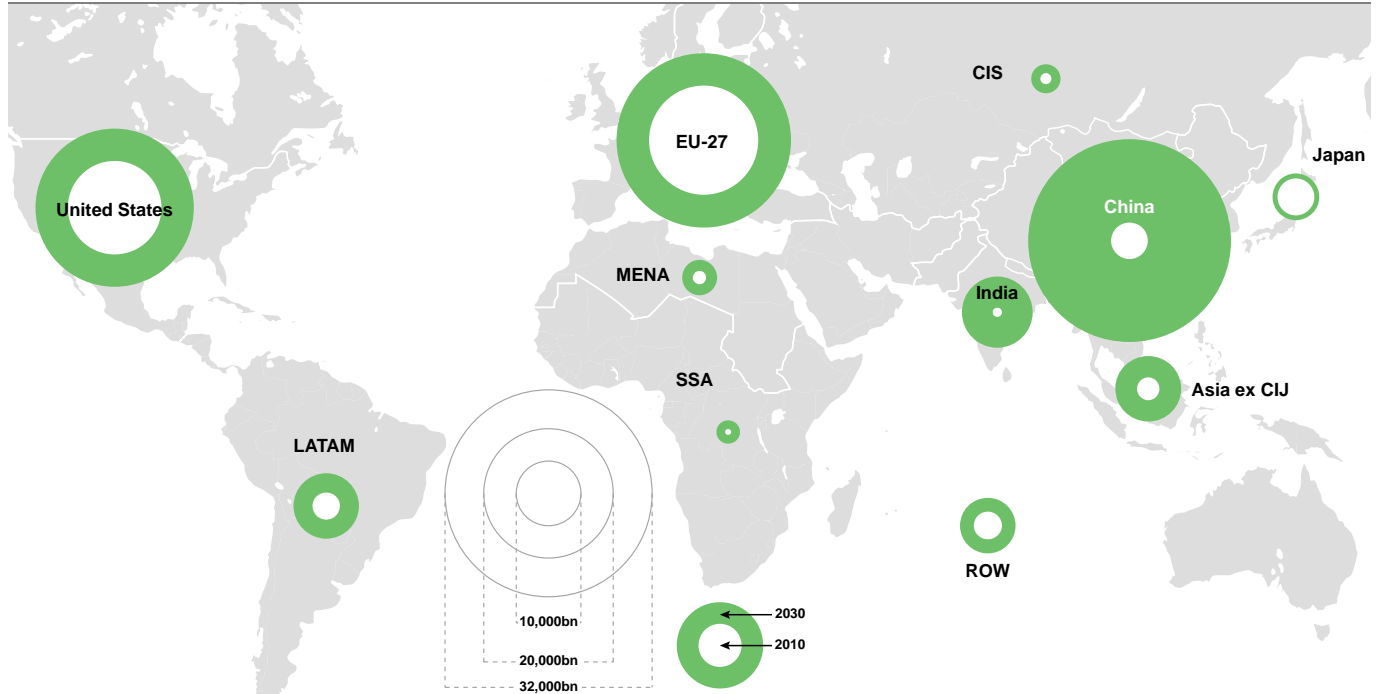
Chart 14: Back to the future – share of global output
% of total (nominal basis 2000 onwards, PPP-basis prior)



Sources: Angus Maddison, IMF WEO, Standard Chartered Research

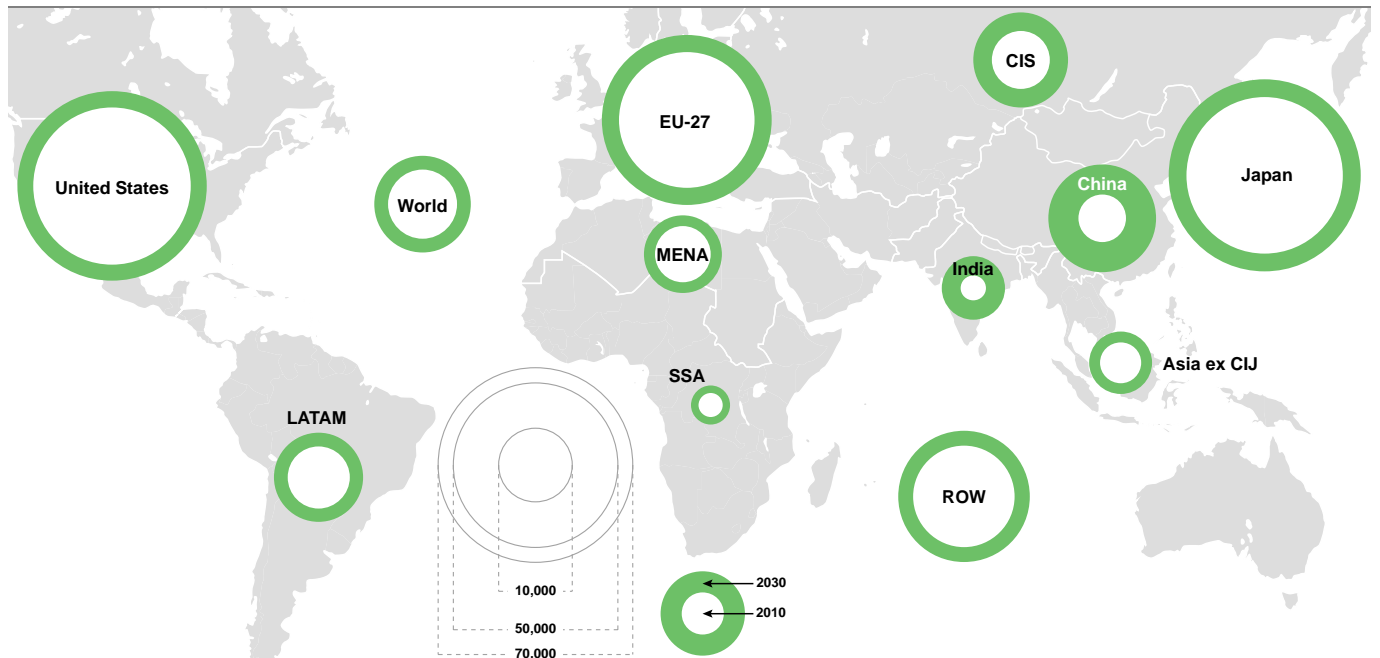
2. Scale and perspective

Chart 15: Real GDP in 2010 and 2030
 2009 prices and market exchange rates (USD bn)



Sources: IMF, Standard Chartered Research

Chart 16: Real GDP per capita in 2010 and 2030
 2009 prices and market exchange rates (USD)



Sources: IMF, Standard Chartered Research



2. Scale and perspective

Box 2: Assumptions and data sources

Our GDP calculations are expressed in nominal and real terms. **Nominal GDP** incorporates the effects of growth, inflation and exchange rates. It is a helpful measure to compare the relative size of economies at a particular point in time, for example, to evaluate when China will outgrow the US. When we compare growth across time, we use **real GDP**, which isolates the effect of inflation and/or exchange rates. Our real GDP calculations are in constant 2009 prices. Historical figures also assume constant, 2009 dollars, because of (1) the lack of exchange rate data prior to 1980, and (2) anomalies that this measure creates in countries that experienced hyper-inflation, such as Latin America and the former Soviet Union in the 1980s and 1990s. In our forecasts, we also consider the series at market exchange rates for major countries, as exchange rate appreciation is an important part of the catch-up and wealth creation process.

Another measure used in comparative studies of growth is **purchasing power parity (PPP)**, which corrects GDP size for relative price levels across countries. Accordingly, poorer countries have greater weight in global GDP than richer countries. The problem with PPP is that it can be difficult to interpret. For example, in PPP terms, China was the world's second-largest economy in 2001, while in actual dollars, it only became so this year. Moreover, the consistent PPP weights are difficult to estimate across time. Thus, we do not present our results in PPP terms, although they would reinforce our conclusions.

Per-capita GDP is calculated as the respective aggregate measure divided by a country's or a region's population.

Our historical growth, inflation and exchange rate data from 1980 are from the IMF, while forecasts are our own. Pre-1980 growth data are calculated from Angus Maddison's database for consistency, as his data set extends through all super-cycles, while most other international sources only go back to the 1960s. Population data come from the UN Population Division.

Box 3: Definitions of regions

Asia ex-China, India and Japan: Hong Kong, Korea, Singapore, Taiwan, Vietnam, Thailand, the Philippines, Malaysia, Indonesia, Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, China, Fiji, Kiribati, Laos, Maldives, Myanmar, Nepal, Pakistan, Papua new Guinea, Sri Lanka, Timor-Leste, Tonga and Vanuatu.

Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

Middle East and North Africa: Algeria, Bahrain, Djibouti, Egypt, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, UAE and Republic of Yemen.

Latin America: Antigua and Barbuda, Argentina, The Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. Georgia and Mongolia, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarities in economic structure.

EU-27: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

Rest of the world: Australia, Canada, Israel, New Zealand, Turkey, Switzerland, Norway and others not included in the regional definitions.



3. Trade

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- Trade is both a driver and a result of global growth
- This is the third global trade super-cycle, characterised by the increasing role of the East
- The East should overtake the West within the next decade in importance to world trade
- The world trade map is evolving as new trade corridors emerge

Trade is growing faster than the world economy, and this should continue as trade between emerging markets booms

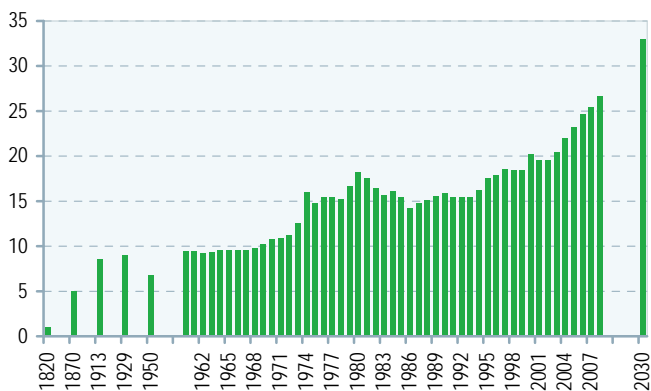
A new trade wave

Growth in trade is a powerful driver of economic growth, which in turn drives further growth in trade. This virtuous circle has ensured that growth super-cycles have been accompanied by trade cycles, but it relies crucially on the openness of economies. A rapid transformation of the world economy is reshaping the global trade landscape. Since the 1990s, the globalisation of the world economy has accelerated, and the lowering of trade barriers has allowed trade to explode across the globe and reinforce further growth. The electronic communications revolution over this period has probably added to this trend. The old patterns of world trade dominated by advanced economies are being reversed in this new trade super-cycle as the economies once referred to as the ‘periphery’ rapidly take a central role in world affairs. This role is unprecedented in recent history, at least in the last two centuries. China, still considered a developing nation, has become the leading export powerhouse; it is set to remain so in the 21st century, succeeding the US, which dominated most of the 20th century, and Great Britain, which dominated the 19th century.

By 2030, we forecast that world exports will represent 33% of nominal world GDP, up from 26% in 2010

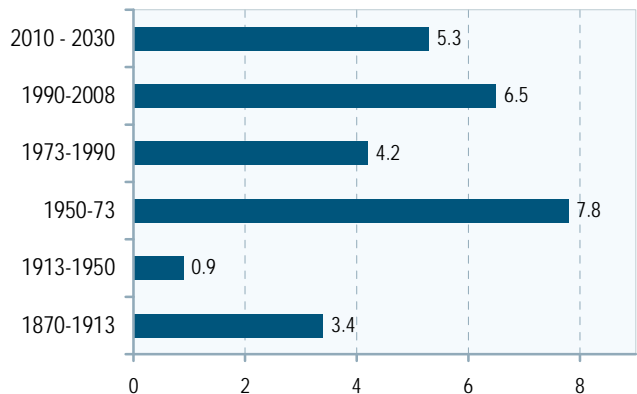
By 2030, we forecast that world exports will reach USD 103trn, representing 33% of nominal world GDP, up from USD 16trn in 2010. China will be the largest exporter. Some of the busiest trade corridors will be between emerging markets such as China and Africa, or India and MENA.

Chart 1: The world is more open than ever
World exports-to-GDP ratio



Sources: Maddison, IMF WEO, Standard Chartered Research

Chart 2: World export growth during selected periods
Real average growth rate, % y/y



Sources: Maddison, IMF WEO, Standard Chartered Research

3. Trade

Three super-cycles since the 19th century

Periods of booming trade are not new. There have been three trade super-cycles since the 19th century, corresponding to phases of expansion in the world economy and to the commodity cycle.

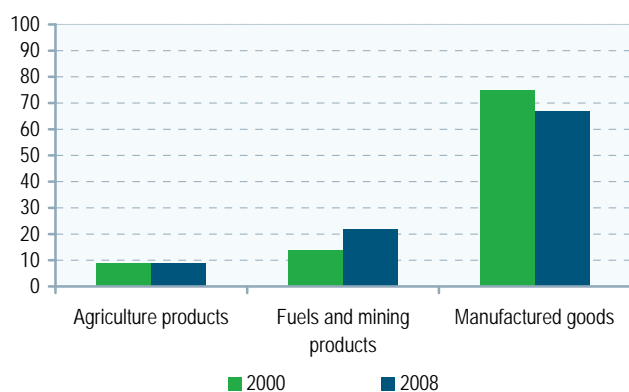
- 1) The first took place from the latter part of the 19th century until the First World War, driven by transport developments and an industrial revolution. Mass migration to the Americas and the opening up of the American continent to agriculture and industry both fuelled global growth and were a consequence of liberal trade policies. Two world wars and the Great Depression brought a period of protectionism and put an end to that boom. Chart 1 shows the rise in the world's exports-to-GDP ratio – a measure of internationalisation – for selected years between 1820 and 1950, and from 1960 to 2008.
- 2) The second cycle ran from the post-World War II period until the early 1970s (Chart 2 shows that exports grew at an average of 7.8% p.a. between 1950-73), in line with a period of strong economic growth and economic transformation – the so-called 'golden age' of prosperity. The trade liberalisation associated with the early rounds of the General Agreement on Tariffs and Trade (GATT) helped fuel the growth of the 30 or so developed nations that participated. This cycle was halted by the oil shock of the 1970s and, in many emerging markets, the 'lost decade' of the 1980s.
- 3) Finally, in the late 1990s (Chart 2), a new world trade cycle started, corresponding to the so-called second globalisation period, which continues today. The world changed profoundly in the 1990s with a wave of trade liberalisation and a decrease in tariff barriers, this time involving both developed and emerging countries. In the 2000s, openness ratios reached unprecedented levels. Chart 3 shows that commodities (here titled 'fuels and mining products') have increased their importance to world trade in line with the commodity boom.

The UK dominated trade in the 19th century, the US in the 20th century; now China should dominate the 21st century

It is worth noting that the previous two periods of strong trade growth also coincided with periods of stable exchange rates. In contrast, the latest one has involved floating exchange rates, though with many more hedging tools available and at least a large bloc (including China) with relatively stable exchange rates centred on the US dollar.

Chart 3: In the new super-cycle, commodities represent a larger share of world trade

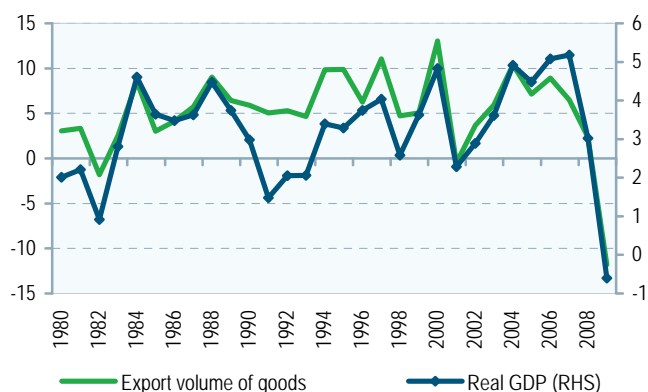
% of world exports by major product group



Source: WTO

Chart 4: Growth in world exports vs. world GDP

% y/y, constant prices



Source: IMF WEO

3. Trade

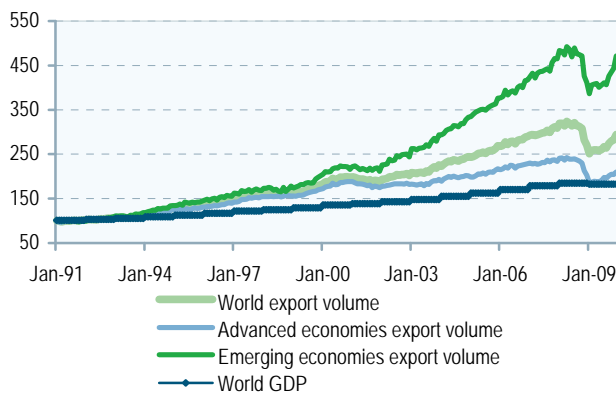
Global trade liberalisation set the scene for the explosion in world trade and its impact on the pace of world growth

The globalisation wave of the 1990s was different from past cycles

World export volume, as shown in Chart 5, has tripled since the early 1990s, substantially outpacing world GDP growth over the same period. A combination of global developments have driven this phenomenal growth: Asia’s rapid industrialisation; the Uruguay Round of GATT, which involved 123 nations, and China’s WTO accession (and the realignment of global supply chain operations around these developments); the large positive supply shock as emerging markets have integrated into the global trading system; the expansion of North-South trade flows on the back of the spending spree in the West; and the opening of new South-South trade corridors, especially riding on the global commodity boom. All of these factors have propelled export volumes in developing economies to rise five-fold from their levels 20 years ago (albeit from a relatively low starting point), with particularly steep gains observed over the past decade. The outlook for global trade tariffs is uncertain given the current deadlock in the WTO Doha Round negotiations, but trade flows are likely to increase further given strong economic growth, especially in emerging markets (EM); bilateral trade deals; and new global supply-chain characteristics, with a final product often made of more parts coming from different countries.

Chart 5: Global export volume has exploded, especially in emerging economies

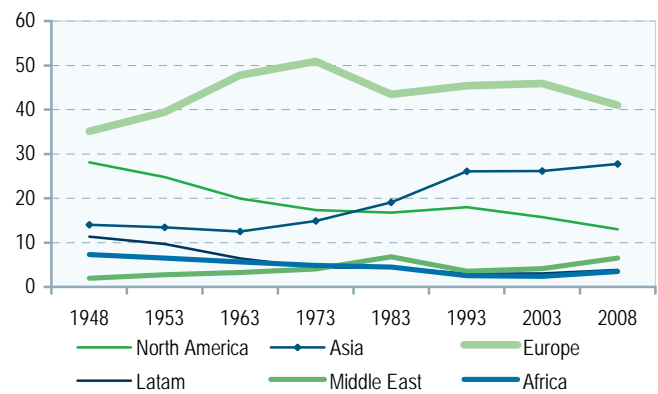
Index, 1991=100



Sources: IMF, CPB Netherlands Bureau for Economic Policy Analysis

Chart 6: Emerging economies gain export share at the expense of developed economies

% of world merchandise exports by region



Sources: WTO, Standard Chartered Research

The current boom in global trade is different from previous booms

The current boom in global trade is different from previous booms and is characterised by three key new phenomena: (1) the world is clearly more open than it has ever been, as measured by the ratio of global exports to GDP; (2) emerging markets are increasingly important to world trade; and (3) South-South trade is rising. The increase in services trade is a fourth phenomenon. Although services have been traded for many years, the revolution in electronic communications has enabled India in particular, but other countries as well, to develop significant outsourcing industries. We expect the second part of the super-cycle (from 2010 to 2030) to show lower trade growth than the early period (Chart 2), as many of the gains on openness have been achieved, plus we forecast lower growth in commodity prices and an increasing emphasis on domestic growth within the high-growth markets. But even if the rate of growth slows, the absolute increases in trade will be larger than ever before.

3. Trade

It is no longer about ‘the West and the rest’

The periphery is taking a central role

The prominence of emerging markets in world trade is rising

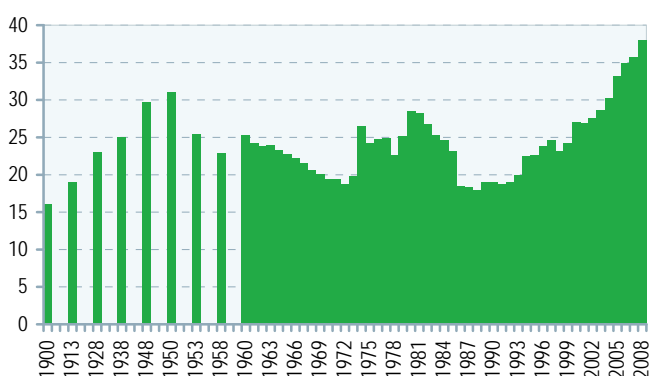
The prominence of emerging markets in world trade is rising (Chart 6). Emerging economies are gaining market share at the expense of advanced economies, though everyone’s trade is growing. Looking at the most recent cycles, it is clear that emerging and developing economies used to play a much less important role in world trade. It was really about ‘the West and the rest’, to use the words of economic historian Angus Maddison. This is reflected, for example, by the dominance of Asian ports in the container shipping industry.

Table 1: World’s largest container ports – 1989-2009

Rank	1989		2002		2009	
	Port (country)	mn TEU*	Port (country)	mn TEU*	Port (country)	mn TEU*
1	Hong Kong	4.5	Hong Kong	19.1	Singapore	25.9
2	Singapore	4.4	Singapore	16.9	Shanghai (China)	25.0
3	Rotterdam (Netherlands)	3.9	Los Angeles/Long Beach (US)	10.6	Hong Kong	21.0
4	Los Angeles/Long Beach (US)	3.6	Busan (South Korea)	9.4	Shenzhen (China)	18.3
5	Kaohsiung (Taiwan)	3.4	Shanghai (China)	8.6	Busan (South Korea)	12.0
6	Kobe (Japan)	2.5	Kaohsiung (Taiwan)	8.5	Los Angeles/Long Beach (US)	11.8
7	Busan (South Korea)	2.2	Shenzhen (China)	7.6	Guangzhou (China)	11.2
8	New York/New Jersey (US)	2.0	Rotterdam (Netherlands)	6.5	Dubai (UAE)	11.1
9	Keelung (Taiwan)	1.8	Hamburg (Germany)	5.4	Ningbo (China)	10.5
10	Hamburg (Germany)	1.7	Antwerp (Belgium)	4.8	Qingdao (China)	10.3

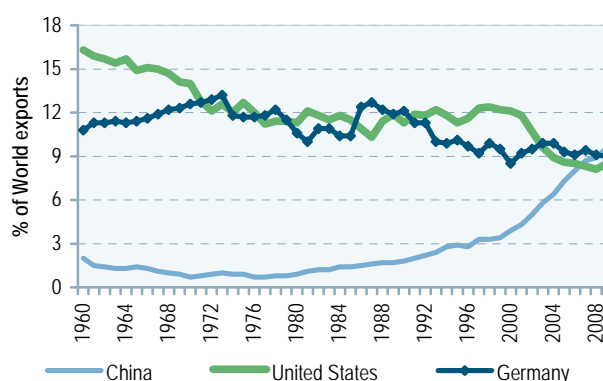
* Twenty-foot equivalent units; Source: AAPA

Chart 7: The weight of developing nations over 108 years
% of world exports



Sources: Paul Bairoch, WDI

Chart 8: China, the leading trade powerhouse
% of world exports



Sources: WDI, WTO



3. Trade

China's great leap forward

Britain was the world's leading exporter in the 19th century. The US dominated the 20th century, and Germany took the lead in 2002. The 21st century is set to be dominated by China, which has already become the world's largest exporter (overtaking Germany in 2009) and is likely to retain that status in the coming decades as its growth momentum and potential remain well ahead of other major exporters'.

Many East Asian economies have developed in tandem with the region's growing share of world trade. China is going through the same export-led industrialisation, only on a much larger scale, given its huge population and the fact that it is starting from a much lower base of development. China's 1.3bn people represent one-fifth of the world's population – double that of all other East Asian countries combined and more than the total population of all the advanced economies. In the early 1980s, China's GDP per capita was only 5% of what Japan's was in the mid-1950s, or 13% of what Korea's was in the 1970s (Table 2) at the start of their export-led industrialisation. Even after three decades of rapid export and industrial growth, China's per-capita GDP is still only 10% of the OECD average in current US dollar terms, or 20% in PPP terms.

Table 2: Asia's high-growth economies – growth and per-capita GDP compared

	Period (30 years)	GDP growth		GDP per capita		Population (mn)
		(annual real %)	(annual real %)	(USD, start of period)	(USD, 2009)	
China	1978-2008	9.9	8.6	283	3,650	1,335
Japan	1955-1985	6.8	5.7	5,261	39,750	127
South Korea	1970-2000	7.3	6.0	2,187	17,180	49
Taiwan	1951-1981	9.0	6.0	668	16,440	23

Sources: WTO, Standard Chartered Research

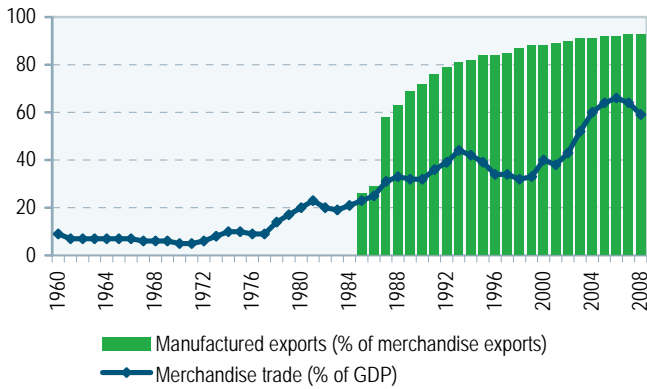
The opening of China changed the world of trade

From a historical perspective, China as the world's leading economy is not a new concept: it was by far the world's largest economy until the 19th century (in PPP terms), accounting for 20-30% of the world's output; along with India, it dominated the world economy for nearly two millennia. However, China's position in the world economy faded with the industrialisation of the West in the 19th century, and by the 1950s, its share of global output had dropped to below 5%. This was the result of the 'closed-door policy' that China adopted in the 16th century, which prevented it from reaping the benefits of trade and exposure to the technological advances in the West.

But China has changed. Chinese policy makers decided in 1979 to open up the economy and use trade to drive development (Charts 9 and 10). Today, China – a country still considered a developing nation, with per-capita income that is still expected to be lower than most advanced economies by 2030 – is the world's leading exporter.

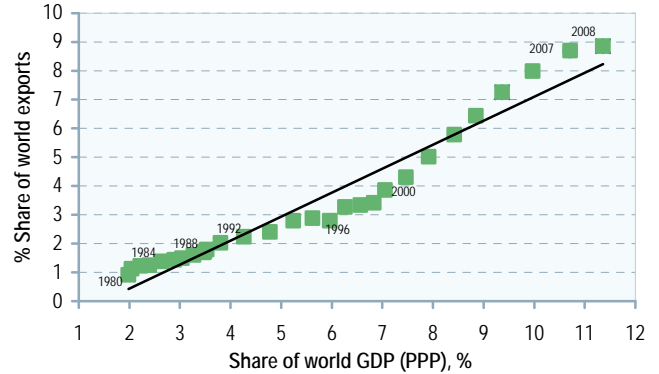
3. Trade

Chart 9: China opened up and has developed rapidly
Merchandise trade-to-GDP ratio, %



Source: WDI

Chart 10: China's increased weight in the world economy
% of world GDP vs. % of world exports (1980-2008)



Source: WDI

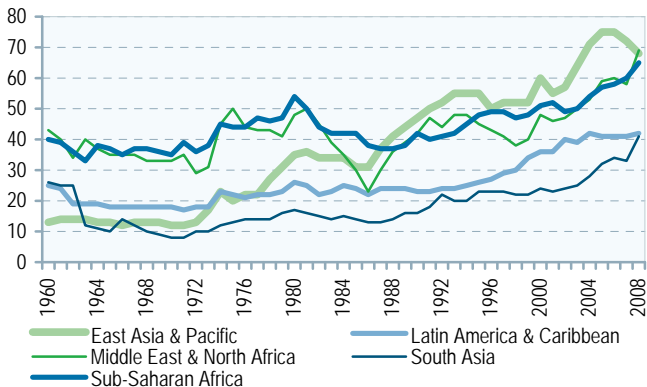
All emerging markets have been transforming

Emerging markets as a whole have become more important to world trade

We make a special mention of China, as it is set to become the leading trading power. It is worth emphasising that emerging markets as a whole have become more important to world trade. This process is likely to continue. We have seen a general trend of accelerating economic development in emerging markets as they have become more open (Charts 11 and 12). This is in sharp contrast to the post-1945 super-cycle, when trade liberalisation and growth were notably absent from the developing world. While there are huge variations across countries, with some still relying more on their domestic markets, there is no doubt that globalisation has made its mark. Across the world, most countries are now more reliant on trade than they were 50 years ago.

Chart 11: Emerging economies are more open than ever before . . .

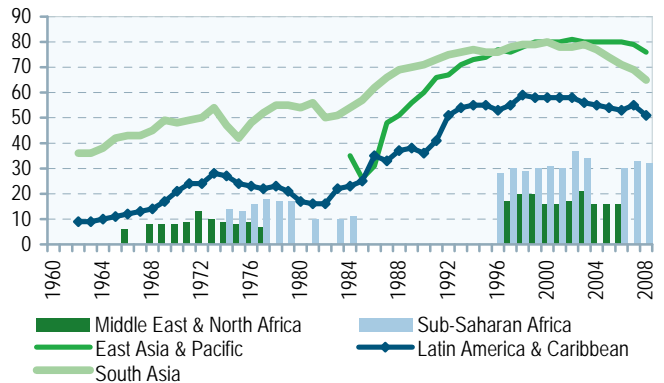
Merchandise trade-to-GDP ratio, %



Source: WDI

Chart 12: . . . and are exporting more value-added products

% of total merchandise exports by region



Note: For Africa and MENA, the series were discontinued;

Source: WDI



3. Trade

All of the emerging markets are in on the act – South-South trade should be leading by 2030

In previous cycles, emerging economies tended to export commodities; more recently, they exported manufactured goods mainly to developed economies, and now they are producing more higher-value-added products and consuming more themselves

Rising South-South trade

Rising South-South trade – trade between emerging markets – is another key characteristic of the current trade super-cycle. Since 1990, South-South trade (including Asia's newly industrialised economies) has risen from 7% of total world trade to 18%, while North-North trade has fallen from 65% to 50% (IMF DOTS). Interestingly, North-South trade has remained fairly stable, at around one-third of total trade. This is linked to emerging markets' rising global importance and the fact that they account for a large share of supply. In previous cycles, emerging economies tended to export commodities; more recently, they exported manufactured goods mainly to developed economies, as most of the demand was in the developed world. Now, in line with their development, these countries are not only able to produce higher-value-added products that can compete with those produced in the developed economies; they are also able to consume such products thanks to their rising income levels. The many trade synergies among emerging economies make South-South trade a sustainable trend. These trade corridors have shown the strongest growth, especially since the recent economic and financial crisis. Assuming that recent trends continue, the three largest trade routes in 2010 – EU-US, EU-Asia and US-Asia – could be rivaled or overtaken by Latam-Asia, MENA-Asia and Africa-Asia by 2030.

Within the web of South-South trade, the roles of individual countries or regions are rather well-defined. Brazil, Russia, the Gulf region, Indonesia and Africa are resource-rich. South Korea and Taiwan excel in high-end manufacturing. Meanwhile, manufacturers in Thailand and Malaysia may be more concerned about the competitive threat from China's exports given the significant overlap in their export structures with China's. Africa has a bit of both – commodities and long-term potential – but for now, competitiveness is a big hindrance. Collectively, developing economies' consumption is set to rise over time, generating an alternative source of demand – including for the West, as can be clearly seen in the market for luxury goods.

Regional trade snapshots

Looking more closely at each EM region shows how these new trade patterns are playing out (Table 3).

Table 3: Exports by region

USD bn

Total exports	2000	2008	2030	Major trade corridors 2008-2030	2008	% share of inter-regional trade	2030
China	249	1,429	23,700	EU - China	408	11.3%	5,600
India	42	195	5,600	China - Asia	698	10.3%	5,100
Asia ex-CIJ	830	1,835	11,800	US - Latam	667	6.4%	3,200
Africa	125	446	7,400	China - US	324	5.8%	2,900
MENA	30	221	6,800	MENA - India	123	5.4%	2,700
Latam	365	899	6,400	EU - US	643	5.0%	2,500
US	772	1,300	4,400	China - MENA	172	3.8%	1,900
EU-27	2,424	5,928	21,700	Latam - China	113	3.8%	1,900
Japan	478	782	2,200	EU-Africa	298	3.7%	1,800
ROW	1,060	2,990	14,900	China - Africa	86	3.5%	1,700
World	6,379	16,029	103,800	Inter-regional	7,066	100.0%	56,900

Sources: IMF DOTS, Standard Chartered Research

3. Trade

Asia – trade has been transformational

Trade has been a key growth driver in many Asian economies. It amounted to 310% of Hong Kong's GDP and 280% of Singapore's in 2009.

China is already a significant export market for many Asian economies

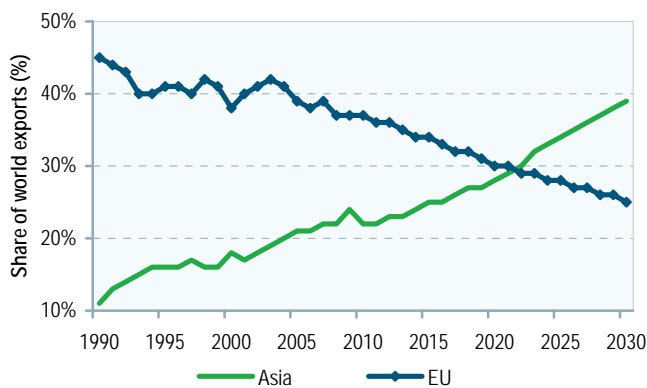
Traditionally, the G3 markets (the US, the EU and Japan) have been the main sources of final export demand. Their share of Asia's exports has been declining since 2000, while intra-Asian trade, including China and India, has provided a new source of demand. This should continue, as Asian income levels and purchasing power – especially in China and India, the two most populous countries – are still far below the levels of traditional G3 buyers. The gap has been narrowing quickly and is likely to continue to narrow in the coming years. China is already a significant export market for many Asian economies. A large share of Asian exports to China are semi-manufactured goods that are ultimately destined for G3 markets (about 60% of Malaysia's exports to China are destined for the G3, and 30% of Indonesia's exports to China are re-exported).

Malaysia and Thailand are under the greatest pressure to maintain competitiveness against Chinese exports given the similarity of their export patterns to China's

China is also increasing its share of the manufactured exports market within Asia. Malaysia and Thailand are under the greatest pressure to maintain competitiveness against Chinese exports given the similarity of their export patterns to China's. China is expected to develop its high-value-added manufacturing sector further. It appears to be only a matter of time before it catches up with the competition in East Asia, and before long, China should be challenging the high-end manufacturing economies of Korea, Japan, Taiwan and Singapore.

Chart 13: Asia to surpass EU in terms of importance to world trade

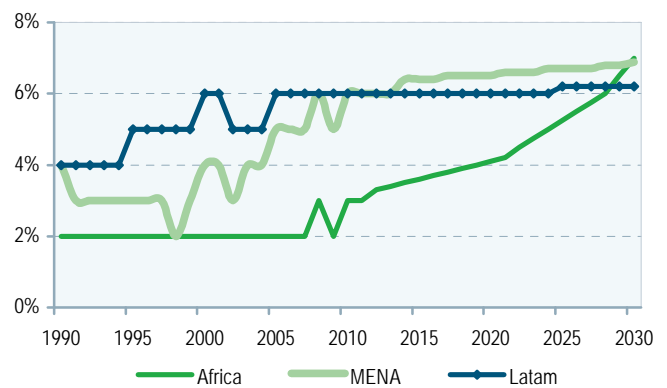
% of world exports, projections for 2010-30



Sources: IMF, Standard Chartered Research

Chart 14: Other EM regions could also increase their share of world trade

% of world exports, projections for 2010-30



Sources: IMF, Standard Chartered Research

India will also become a key market for East Asia in the future

India will also become a key market for East Asia in the future. India recently surpassed China as a contributor to ASEAN's net external demand. India ran a larger trade deficit with ASEAN-6 (Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam) than China in 2009, despite the fact that China's total trade with ASEAN-6 was almost five times India's. China's narrowing deficit partly reflects ASEAN buying more Chinese-made manufactured products, and partly reflects China itself becoming less dependent on imported components as it expands its range of manufactured products. India, in contrast, mainly consumes.



3. Trade

India is coming late to the game but is making up ground quickly

Taking a broader view, India's deficit with other developing economies has surged, while China's has stabilised. Given India's strong economic performance, it will play an increasingly important role as a source of demand for other developing economies seeking to diversify their growth drivers, while India's exports should rise as the country develops its manufacturing base.

Middle East trade with Asia has substantially overtaken trade with the US

The evolution of Middle East trade is a good example of the dynamics at play in the world's recent trade history. Europe's share of the region's trade has more than halved, while Asia has become the principal trade partner – its share has grown almost three-fold in the last 10 years. Trade with Asia overtook trade with the US around 1995, and the gap has been widening since then. The Middle East and North Africa (MENA) region's share of world trade (as measured by its exports to the world) has not increased significantly since 1980, reflecting its small share of global GDP. By 2030, the Middle East should increase its participation in world trade, driven largely by deepening trade links with Asia. Oil prices and export volumes will play a large role in this growth. Forecast increases in oil prices and modestly increasing export capacity, combined with increasing demand from Asia, should see this trend continue to 2030.

Africa has yet to cement its place in the New World Order

In Africa, much attention has been paid to China-Africa trade, which surpassed USD 100bn in 2008. China overtook the US as a key source of imports, though Europe remains Africa's main trading partner. But other emerging markets are also trading more with Africa. Overall, although North-South trade continues to dominate for now, a shift is underway.

Africa's share of world exports (around 2% over the past two decades) remains small for now but should increase; the infrastructure drive underway now could be a game-changer

Africa's share of world exports (around 2% over the past two decades) remains small for now. However, given the rapid increase in global trade and Africa's relative economic underperformance in recent decades, there is scope for Africa's share of world trade to increase as the continent moves closer to its real potential. Competitiveness has been an issue – not only price competitiveness linked to real exchange rate appreciation, but also competitiveness linked to infrastructure and geographic location. African exports are also dominated by oil, and trade flows are concentrated mostly in a handful of resource-rich countries. But the infrastructure drive currently underway might be a game-changer, allowing Africa to benefit from increased trade and to boost its participation in world trade. Asia is set to surpass Europe as Africa's main trading partner by 2030.

Latin America is benefiting from the demand for resources, but is building domestic demand as well

Latin America – much greater openness and booming Latam-Asia trade

A notable change in Latin America in the past 10 years has been its increased openness to trade (defined as the value of exports plus imports relative to USD GDP). This is a key change from the 1960s to the 1980s, when much of the region pursued import substitution policies. However, we are unlikely to see levels of openness on par with Asia's economies. As a whole, Latin America still does not have an export-driven growth model, despite its commodity dependence; rather, domestic demand accounts for the bulk of growth.



3. Trade

In addition to the increase in trade seen in Latin America in recent years, trade patterns have changed. China has become one of the top five export destinations in value terms for Argentina, Brazil, Chile and Peru. China is the top export destination for Brazil, and was one of the top five sources of imports in 2009 for all six major Latin American countries.

But this growth in Latin America-Asia trade is not all about China. South Korea is also a key trade partner for most Latin American countries. Looking ahead, we expect India to be an increasingly important player in trade with Latin America. The region's export base has become more balanced. North American countries remain the predominant export markets, but their importance is declining. Exports to China in particular grew at an annual average pace of over 20% from 2000-07.

Another testament to the growing importance of trade between Latin America and Asia is the rising number of trade agreements between the regions, as well as the increasing financial component of Latin America's relations with Asia. Bilateral loans, which are paid back in commodities, have become increasingly common.

2030 – the East and the rest

Trade corridors to continue to evolve

Forecasting trade patterns is not straightforward. We have built our model for regional trade levels using trends in regional GDP, and trends in trade as a share of both world and regional GDP. We have also looked at the patterns of various trade corridors over time, though we have focused on inter-regional flows because intra-regional trade patterns are more challenging to track. Table 3 shows what we expect the main trade corridors to look like by 2030. The main conclusions are as follows:

- China will be at the centre of many significant trade corridors: China's trade with the rest of Asia is set to grow strongly and become a major trade corridor. The same trend is likely to develop for China's trade with the Middle East and Latin America.
- Middle East-India is also set to become a major trade corridor.
- China-Africa is likely to become a more important trade corridor than EU-Africa by 2030 – in other words, China will be a more significant trading partner to Africa than Europe.

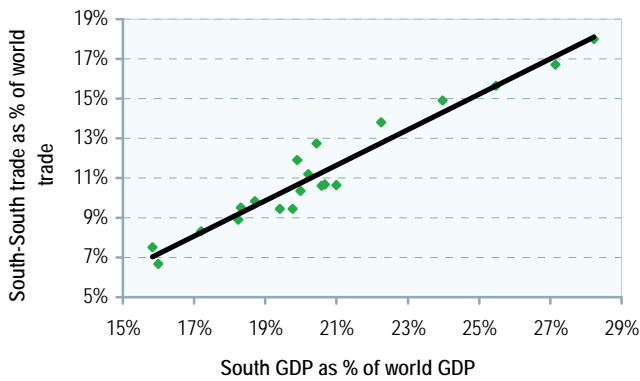
South-South trade to increase

By 2030, South-South trade could increase to roughly 40% of world trade, up from a current level of 18% (and 7% in 1990). As South-South trade is correlated to the EM share of the world economy, in addition to the analysis above, we estimate a simple regression between the share of South-South trade as a percentage of world trade and the share of EM GDP as a percentage of world GDP (we use our forecasts for macroeconomic aggregates over the period from 2010-30). We have combined the results in our analysis.

By 2030, South-South trade could increase to roughly 40% of the total

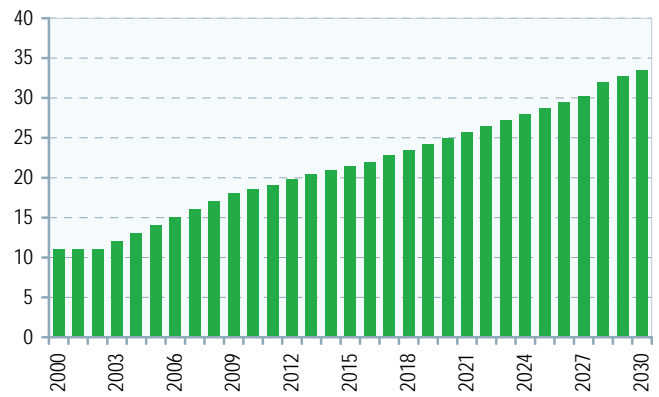
3. Trade

Chart 15: South-South trade vs. EM share of world GDP
1982-2009



Sources: IMF, Standard Chartered Research

Chart 16: South-South trade likely to continue booming
% of world exports or imports



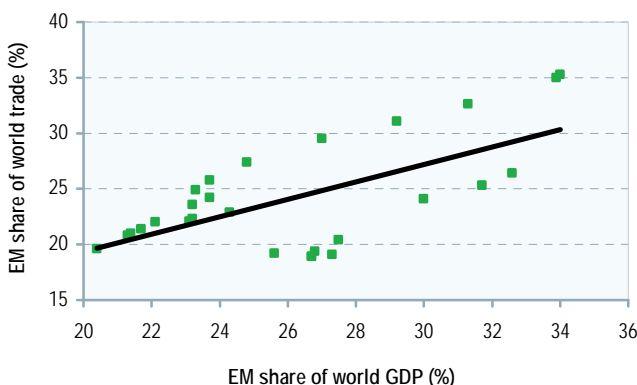
Sources: IMF, Standard Chartered Research

As emerging markets become the world's biggest economies, they will dominate trade – welcome to the multi-polar trade world

Emerging markets to continue to increase their share of world trade

As EM economies continue to grow, this should naturally lead to growth in trade. Thus, as EM economies continue to outpace the West, they are likely to dominate world trade by 2030, with China leading the way and becoming the trading powerhouse of the 21st century. This is the New World Order – the shift in the balance of power from West to the East that we have often described. In this new trade cycle, there has been a close relationship between the rising importance of emerging economies to the world economy and their rising role in world trade. This trade role has strengthened during the 1990s and 2000s, a period of globalisation and trade liberalisation for the world economy.

Chart 17: EM share of world exports vs. share of world GDP



Sources: IMF, Standard Chartered Research

Chart 18: The East is catching up with the West
% of world total, projections for 2010-30



Sources: IMF, Standard Chartered Research

We believe that emerging economies will represent more than half of world trade by 2030. In Chart 17, we show our projections of the EM share of world trade up to 2030. We perform a simple regression between emerging markets' percentage share of world GDP with their trade as a percentage of world trade, and find a strong

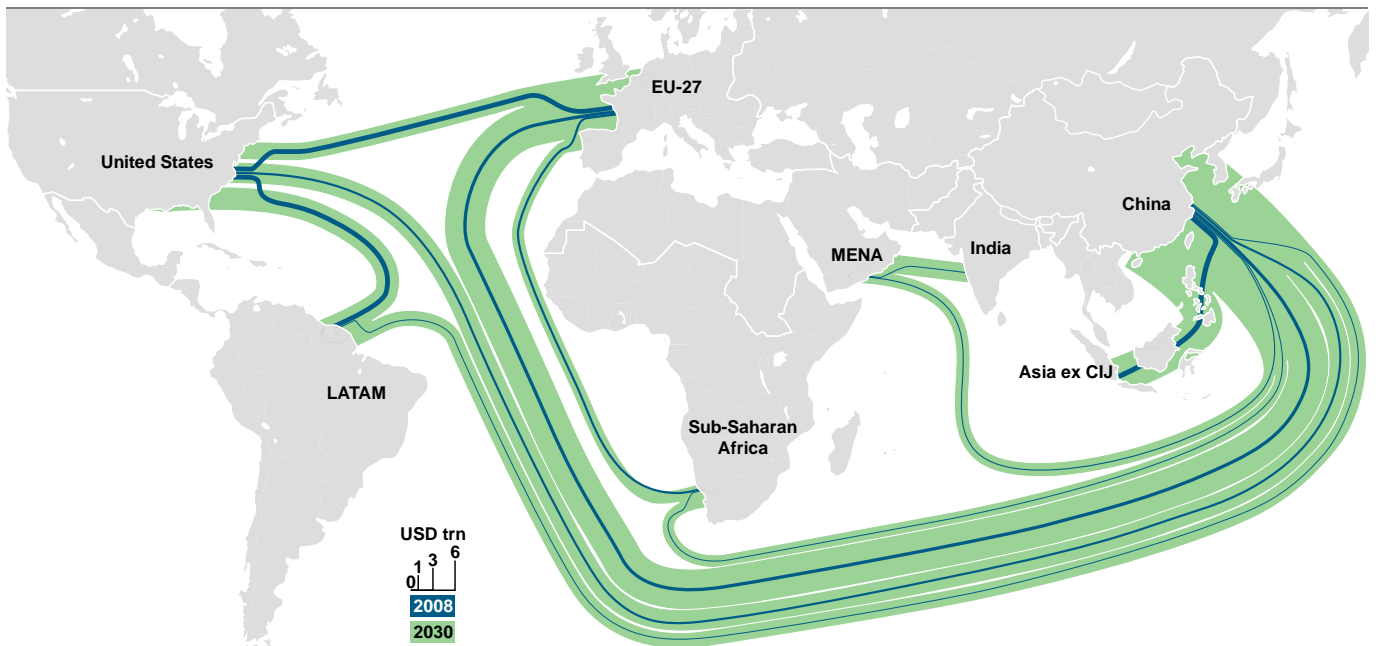


3. Trade

relationship between the two. On the export side, a limitation may arise from the fact that emerging markets will probably compete more among themselves eventually, taking market share from each other rather than taking market share from the West, so the relationship is more one of diminishing returns than a linear one.

In an increasingly open world, GDP and trade grow together. As emerging markets' per-capita incomes, populations and GDPs increase, these countries will still be important exporters but will also become increasingly important consumers – not just of commodities, but of higher-value-added products too.

Chart 19: Exports – major trade corridors



Sources: IMF DOTS, Standard Chartered Research

4. Financial resources

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- Global savings and investment rates have moved up and will climb further
- Imbalances will narrow only gradually
- Major emerging countries now have high reserve levels and low debt
- Sovereign wealth funds will be an important catalyst for development
- The debt problems of the advanced countries should be eased by the super-cycle

Investment and savings

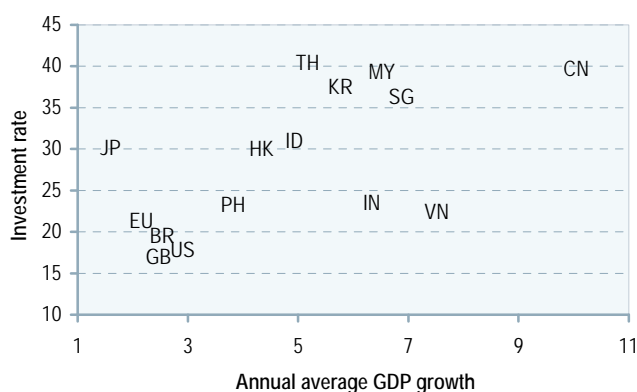
High growth is linked to high investment

The main direction of causation is that faster growth brings higher savings, which then supports continuing high investment and growth

To achieve rapid rates of growth over an extended period, countries usually need to invest 25% of GDP or more (see Charts 1 and 2). It used to be argued that, if only countries could raise their savings rate, higher investment and growth would follow. But recent research suggests that the main direction of causation is from growth to savings rather than the other way around. Thus, emerging countries need to find their way into a virtuous circle where faster growth brings a higher savings rate, in turn enabling high investment to sustain rapid growth.

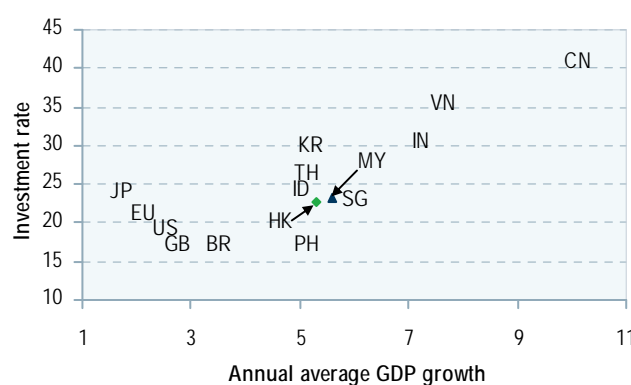
Imbalances and timing mismatches will remain and, in the absence of domestic savings, emerging countries need to attract foreign capital in the form of foreign direct investment (FDI), equity portfolio investment or overseas borrowing. India and Vietnam have climbed onto that virtuous circle over the last decade; however, to support their huge infrastructure investment requirements, they will still need to attract foreign capital. Foreign investment capital has historically come from the US, Europe and the rest of the developed world. In future, we expect other emerging countries, especially China, to deploy more of their excess savings in this way. The two leaders of the super-cycle, China and India, now have investment rates of about 45% and 40%, respectively.

Chart 1: Investment propels growth, 1990-97 (%)



Sources: World Bank, Standard Chartered Research

Chart 2: Investment propels growth, 2000-07 (%)



Sources: World Bank, Standard Chartered Research

4. Financial resources

Global savings and investment rates are forecast to rise mainly because of China's growing size in the world economy

Perhaps our boldest forecast is for Sub-Saharan Africa to see a marked acceleration in investment

Our forecasts for savings and investment

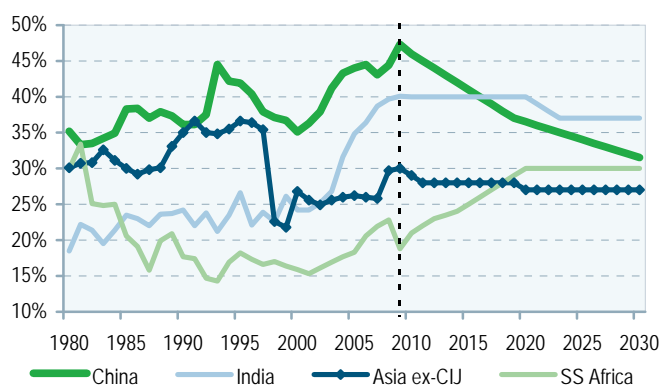
From 1980-2010, the global savings and investment rate was about 22-23%. We project it to accelerate to an average of 25-26% over the next 20 years. Much of this increase will come from the rapidly increasing size of the high-saving Chinese economy, even though we forecast China's saving and investment rates to fall as the economy matures. We expect India's investment rate to remain at current high rates for many years, around 40%, as it passes through the high-accumulation stage of development, before declining slightly late in the forecast period. Latin America's rate should move up modestly.

Perhaps our boldest forecast is that Sub-Saharan Africa will see a marked acceleration in investment, to 30% of GDP by 2020 – a level previously seen mainly in Asia. This reflects both the expected high investment in commodity development and our forecast that a number of new countries will move up to the virtuous circle of high investment and high savings. Meanwhile, we project that the US, Europe and Japan will stay near their current levels. For Japan, this means that the deceleration in the investment rate which began more than 30 years ago is finally leveling off, now that corporate Japan has restored its balance sheets.

The direction of savings rates is broadly similar to that of investment in each region. Thus, the savings rate should rise in India, Sub-Saharan Africa and Latin America, and move lower in the rest of Asia, including China and Japan. We also project the US savings rate to recover from the depressed levels of the 2000s as household savings rise further and the budget deficit is brought down. Again, China and Sub-Saharan Africa are likely to see the largest moves, China down and Africa up.

Chart 3: Forecast investment rates by region

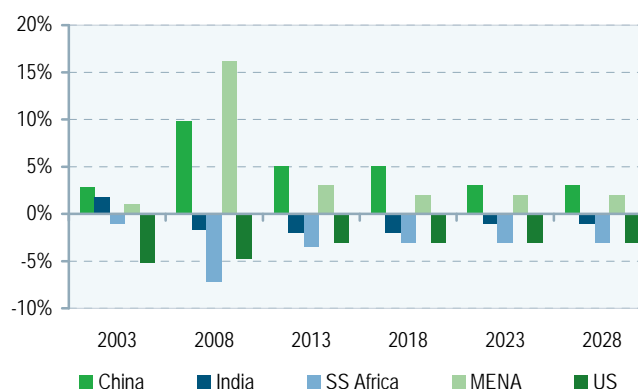
% of GDP



Sources: World Bank, Standard Chartered Research

Chart 4: Forecast imbalances

% of GDP



Sources: IMF, Standard Chartered Research

The imbalances seen in the run-up to the latest crisis will narrow gradually over time

Imbalances will narrow but remain

Imbalances are to be expected with free capital flows

Forecasts for savings and investment trends are subject to wide margins of error; this makes the differences between them – which show up as current account deficits or surpluses – even more uncertain. Over the last decade, large current account surpluses in China, Japan, Germany and the oil-producing countries have been matched by large deficits in the US and a range of European countries. For the surplus



4. Financial resources

countries, managing the exchange rate and the monetary consequences of large surpluses is a major headache. For the deficit countries, the economic booms and asset bubbles associated with the deficits led to disaster for many countries, including the US, Greece, Portugal, Spain, Iceland and several Central and Eastern European countries.

The first super-cycle, from 1870-1913, was also characterised by very large imbalances. At the end of the period, Britain was exporting 7% of its GDP, while between 1870 and 1890, Argentina and Australia were importing 18.7% and 8.2% of GDP, respectively. Argentina was unable to handle such large flows and had periodic payment difficulties. Australia managed better. In the 1945-73 super-cycle, limitations on capital flows prevented large imbalances, although they did not prevent even modest imbalances from causing crises, as with the repeated balance-of-payments crises in the UK.

Today, most of the former deficit countries have no choice but to adjust. In the US, however, external financing is still available and the US current account deficit is opening up again. In making our forecasts, we had to consider whether large imbalances could be managed for another 20 years or whether there would be strong pressure for rebalancing. Our conclusion is that imbalances are likely to decline over time, but it may take longer than some hope and will still require large net flows. The forces reining in the US deficit and China's surplus may not be strong enough to outweigh the structural forces that keep them large.

The US net liability position tends to worsen more slowly than the current account deficit alone would suggest

US foreign liabilities are increasing but can still rise further

After more than two decades of large deficits, the US has moved from a surplus of international assets over liabilities to a deficit, currently at 27% of GDP. This compares with 19.8% in 2003. If the current account deficit remains around the 3% range, as we forecast, the ratio of foreign liabilities to GDP will rise gradually but never explosively. This is especially true since the US has long experienced a slower expansion of net liabilities than the scale of its current account deficits would suggest. This is primarily because foreigners tend to lend fixed to the US (mainly Treasuries and agency debt), while the US acquires equity abroad via direct investment and stocks, which enjoy higher returns – a trend that foreign owners of US Treasuries may not wish to see continue. Even if the US repeated its 2003-10 rate of increase in net liabilities (when the current account deficit averaged 5% of GDP), its liability ratio would move up to only about 48% of GDP in 2030 – high but still likely to be manageable, given the US attractions of deep and liquid markets and political stability.

China will retain a hefty surplus, but a greater proportion will be privately owned and invested in diverse assets rather than mainly in US government debt

China's surplus will remain, but the pattern of outflows will change

China's current account surplus averaged 9.3% of GDP from 2005-08 and declined to 5.8% in 2009. The latest IMF forecasts see it moving back towards 8% in coming years. Our forecast is lower, around 5% of GDP for the coming decade, before a further move lower to 3% of GDP. The continuing surplus reflects the likelihood that even though China's savings rate will fall in response to the ageing population and government measures to expand the social safety net, so will its rate of investment.



4. Financial resources

As China increases its economic, diplomatic and military power, resistance to its large surpluses and increasing ownership of overseas assets is likely to mount. Nevertheless, many countries will welcome China's financing, as well as its know-how and technology. These are already making a significant difference in parts of Africa and Latin America, as well as in Asia, and China's drive to develop is likely to be a major stimulus to economic growth elsewhere. China's build-up of assets could well go further than many imagine, so that the numbers will become huge in US dollar terms. Based on our estimates, China's cumulative current account surplus from 2011-30 will be USD 21trn, or about 28% of its 2030 GDP. We expect China's capital outflows to shift from being mainly into US Treasuries and agency debt to a much wider range of assets, and more will be privately owned as China liberalises its capital accounts.

High FX reserves will support growth

High reserves reduce the risk of a crisis

Historically, a shortage of FX reserves has frequently caused balance-of-payments crises and interrupted growth. However, the reserve positions of most major emerging countries have been transformed since the crises of the 1990s, with high reserves in relation to both GDP and balance-of-payments flows. Much of the recent accumulation of reserves has been aimed at containing exchange rate appreciation rather than adding to the war chest. But rising reserves risk creating bubbles, an over-investment boom or inflation – any of which also could cause a crisis and interrupt growth. In our central scenario, we expect Asian countries to continue to be able to manage the process, keeping their currencies sufficiently competitive while avoiding a bubble-and-bust scenario. This does not mean that the ordinary business cycle will be eliminated, only that we do not expect a setback large enough to derail the super-cycle.

However, some countries still have scant reserves and remain vulnerable to balance-of-payments crises. They include Vietnam, Pakistan and some countries in Central and Eastern Europe. Timely devaluations, combined with supportive fiscal and monetary policy, can shorten the adjustment periods. Countries that are unable to manage the adjustment well, or that face repeated crises, will see disappointing growth. Very often, the difference between countries which periodically suffer balance-of-payments crises and those that manage sustained growth is that the latter pursue continuous structural reforms.

The role of sovereign wealth funds

High reserves can not only help to avoid crises but can also directly support development, via the activities of sovereign wealth funds (SWFs). The latest estimates put the total holdings of SWFs globally at about USD 4trn, and these funds are increasingly a force for economic development. For example, Dubai International Capital has made investments in aerospace, marinas, airports and education, all with an eye to importing technology and know-how to aid development. Mubadala's 5% stake in Ferrari has brought a Ferrari theme park to Abu Dhabi, which is expected to boost tourism. China's SWFs are best known for focusing on developing resources overseas; the China-Africa Development Fund was set up to build infrastructure, much of it to support exports of raw materials. Once in place, that infrastructure can support the development of other industries.

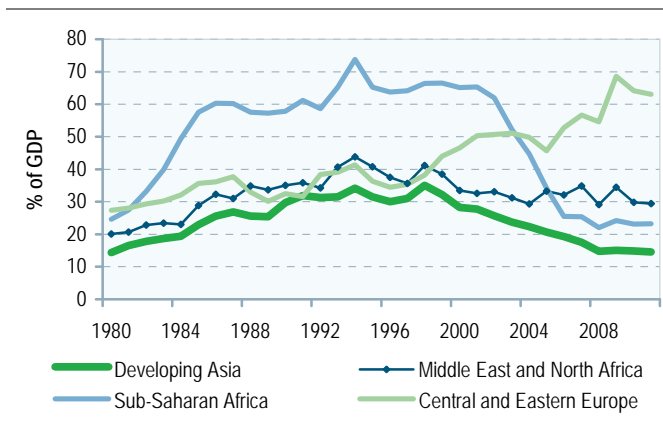
The reserve positions of most major emerging countries have been transformed over the last decade

Sovereign wealth funds have grown rapidly and will contribute to economic development



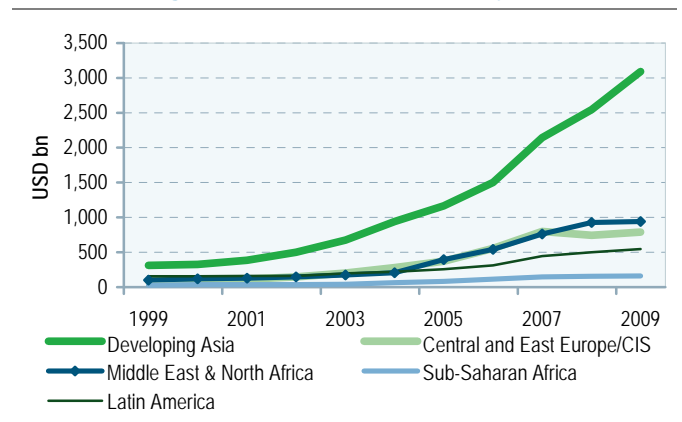
4. Financial resources

Chart 5: External debt is down, except in CEE



Sources: IMF, Standard Chartered Research

Chart 6: Foreign reserves are up, especially in Asia



Sources: IMF, Standard Chartered Research

Most emerging countries outside Europe have sound debt positions, but now developed countries face serious problems

High debt is now mostly a developed-country problem

Foreign currency debt is still a problem in Europe

The tables have turned in the last few years. Many emerging countries are radically improving their foreign debt and government debt ratios, while the older industrial countries are facing more difficult government debt dynamics and, in some cases, excessive household debt. Most Asian countries turned around their foreign balance sheets after the 1997-98 Asian crisis, recording regular current account surpluses and paying down external debt. In Africa, debt reduction under the Heavily Indebted Poor Countries (HIPC) initiative has helped to reduce debt burdens in about 30 countries. Moreover, the process has fostered reform and structural change. In Latin America, debt positions have also improved in recent years, although some countries are still vulnerable.

The emerging region with the most problems now is Central and Eastern Europe, which saw its external debt-to-GDP ratio more than double from below 35% in the mid-1990s to 68.5% in 2008. In the next few years, this will constrain some countries' growth, which was previously solid. In the euro area, the debt problems of the so-called Club Med countries are particularly difficult to solve, as they have, in effect, also borrowed in a foreign currency. They can neither devalue the euro on their own nor inflate their way out of the problem. Our view is that a debt restructuring in Greece, Portugal or Ireland is quite possible, but can be contained. Dealing with a restructuring in a larger country, such as Spain or Italy, would be more difficult.

Rising debt in the developed countries is a threat to their long-term growth rates

Domestic debt is now a problem for the US, Japan and UK

The combination of the Great Recession, fiscal stimulus packages and the looming costs of ageing now poses a potential threat to fiscal stability in the US, Japan and the UK. Research suggests that once a country's debt/GDP ratio climbs above 90%, growth tends to be significantly lower over the medium term, with median growth rates lowered by 1ppt (Reinhart and Rogoff, 2010). One reason is that high government borrowing crowds out private-sector borrowing and lowers investment. The other is that high debt puts stress on the economy, making it impossible to use proactive fiscal policy and requiring frequent painful fiscal adjustments.



4. Financial resources

Japan is already above the 90% level, and the US, UK and others will rise close to it in the coming years. They will have no choice but to stabilise and then reduce their debt ratios before long, which will require difficult political decisions on spending and taxation. These debt dynamics are a potential threat to the super-cycle (see the 'Risks' chapter of this report), but as Asia increasingly leads global growth, we expect the old industrial countries to benefit, making it easier to manage their debt problems.

Growth in the US will be held back in the near term by household-sector deleveraging

Corporate and household debt also a concern

As well as government debt, excessive corporate or household debt can also hold back an economy. Japan's 'lost decade' was largely a result of prolonged savings efforts by the corporate sector when it sought to reduce debt levels as asset prices fell. This excess debt had been largely worked off by about 2000, allowing Japan to grow much faster from 2001-08. In the coming years, growth in the US and other housing-bubble countries may be held back by a continuing retrenchment in the household sector. But, in the US at least, the savings rate has already risen to 5-6%, and we expect the household-sector adjustment to be over within the next two to three years.

Emerging economies will be the main driver of the super-cycle; major economies will see a spurt as they finally recover from the recession but then revert to a slower trend

Countries driving the super-cycle over the next 20 years

By the middle of the current decade, the advanced countries should have managed to shake off the effects of the Great Recession and financial crisis, enjoying a spurt of above-trend growth as unemployment is brought down. This process will be pulled along by the continued strong pace of growth in increasingly large emerging economies, and the impact is already being felt by some export-oriented economies in the developed world. Switzerland, for example, has seen a decade of more than 29% growth p.a. in its exports to China. But after this spurt of growth, we expect the combination of slower labour force growth and a reluctance to re-leverage to reduce trend GDP growth in the US and Europe to lower rates than before.

We see the new trend growth rate for the US as 2.5%, down from 3.5% a decade ago. However, slow growth in the advanced economies will matter less to global growth as the emerging countries power ahead. By 2030, we project that China and India will have nearly tripled their combined share of world GDP, to 33%, from 11.9% in 2010. The combined share of the US, the EU and Japan will have declined to 29% from 60% (in current US dollars).

As well as China and India, many other emerging economies should be able to register strong growth. We have labeled these countries the '7% Club'. Growth of 7% leads to a doubling of GDP every 10 years. Since 1945, every country recognised for outstandingly rapid development has achieved 7% growth for 25 years or more, including China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Singapore and Thailand.

We have identified 10 countries which are likely to be members of the 7% Club over the next 10 or 20 years, with a combined total of almost half the world's population. They are: China, India, Indonesia, Bangladesh, Nigeria, Vietnam, Ethiopia, Tanzania, Uganda and Mozambique (see Table 1). They have been chosen because of their large populations, but some are still relatively small in GDP terms and will have a limited impact on world growth. Meanwhile, there are several other large, emerging



4. Financial resources

economies which might not make the 7% Club but could still grow relatively fast, perhaps 5-7% p.a. They include Russia, Brazil, Pakistan, Mexico, the Philippines, Egypt, Turkey and Korea (see Table 2). There will also be some small but spectacular growth stories among commodity-producing countries. For example, just as Turkmenistan, Azerbaijan and Angola saw double-digit GDP growth rates in the last 10 years, Mongolia is poised for dazzlingly fast growth now.

Politics sometimes stands in the way of achieving rapid economic growth, but more and more countries have made progress in reforms over the last decade. The results can be seen in higher savings and investment rates, reduced debt, and improved foreign reserves positions. It is this acceleration in emerging-economy growth which lies behind the super-cycle.

Table 1: Potential members of the 7% Club in the 2010s

	Population 2009 (mn)	GDP 2009 (USD bn)	GDP per capita USD	GDP growth (10 yrs to 2008)
China	1,340	4,908	3,663	9.7
India	1,187	1,235	1,040	7.1
Indonesia	237	539	2,274	4.7
Bangladesh	164	94	573	5.7
Nigeria	158	173	1,095	5.6
Vietnam	86	92	1,070	7.2
Ethiopia	79	32	405	7.6
Tanzania	45	22	489	6.3
Uganda	34	16	471	7.3
Mozambique	23	10	435	7.5

Sources: IMF, World Bank, Standard Chartered Research

Table 2: Large countries with the potential for 5-7% growth

	Population 2009 (mn)	GDP 2009 (USD bn)	GDP per capita USD	GDP growth (10 yrs to 2008)
Brazil	193	1,574	8,155	3.3
Pakistan	170	162	989	4.9
Russia	141	1,232	8,716	6.8
Mexico	108	874	8,134	2.4
Philippines	94	162	1,748	4.8
Egypt	79	188	2,450	4.8
Turkey	72	614	8,711	4.5
Thailand	67	263	3,941	4.7
South Korea	50	835	17,074	4.4
Malaysia	29	193	6,950	5.5

Sources: IMF, World Bank, Standard Chartered Research



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- **The super-cycle will drive rapid urbanisation and a growing middle class, and vice-versa**
- **Successful job creation is vital for growth and stability**
- **Demographic prospects favour India over China, with Africa and MENA also well-placed**

85% of the world population is catching up – driving the super-cycle

Population growth is slowing, but by 2030, the world population will still be 20% higher than today

The rates of growth of both population and urbanisation are slowing, but the absolute numbers over the next 20 years are still huge. Moreover, the increasing interconnectedness of the world due to improvements in transport and communications means that the globalisation trend has a long way to go. More and more people in emerging countries, hitherto largely isolated from the world economy, are becoming integrated. The first super-cycle was substantially driven by the opening up of the US, and the second by the reopening of Europe and Japan following the Second World War. The current super-cycle is being driven by vast numbers of people in emerging countries entering the global workforce and, with the emergence of middle classes, buying internationally traded goods. The two key countries are China and India, which by 2030 will account for over 35% of the global working-age population.

Who will be where in 2030? Asia and Africa have the fastest growth

UN estimates project the world's population to increase to 8.3bn by 2030 from 6.9bn today, a rise of just over 20%. The pace of world population growth is slowing – from an average of 1.9% between 1950 and 1975 during the second super-cycle to 1.1% a year from 2010. By 2030, population growth is likely to be a mere 0.7%, mainly due to a sharp deceleration in Latin America, China and India, although Africa and MENA are forecast to grow at still-robust levels of 1.8% and 1.2%, respectively.

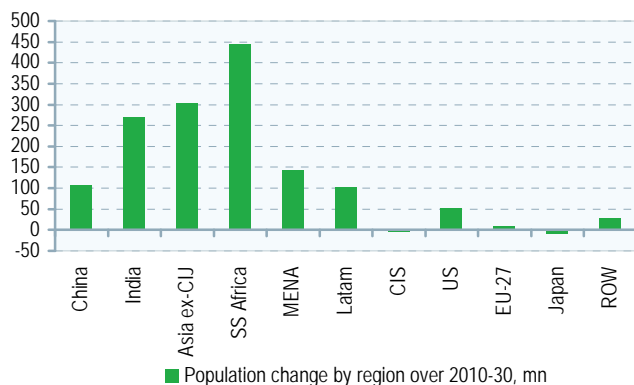
Of course, these are just estimates and it should be noted that, even though population numbers change only gradually, forecasts are subject to significant variability over a 20-year time span. Our prediction of a super-cycle for economic growth implies that the world's population could grow slightly more slowly than these estimates predict, as higher incomes imply that fertility rates in emerging countries will decline faster. But in this report, we stay with the main UN forecasts.

Close to 98% of the projected increase in population by 2030 will be in the emerging world

Almost 98% of the projected increase in population will occur in the emerging world, of which Asia accounts for about 48%, followed by the Middle East and Africa with 40%. Europe, Latin America, North America and the rest of the world all show far less dramatic changes, although a few countries – notably Russia and Japan – will see absolute declines in population. About 10% of the increase comes from increasing longevity, which will have a greater impact in the developed world.

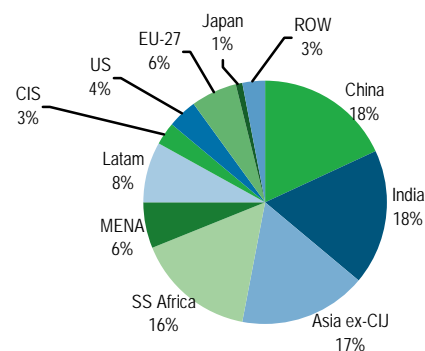
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Chart 1: Population change by region, 2010-30
(mn)



Sources: UN, Standard Chartered Research

Chart 2: Share of world population, 2030
(%)



Sources: UN, Standard Chartered Research

India and China will be by far the most populous

India's population is expected to surpass China's in 2028, when India will become the world's most populous country – and its median age will be lower than that of China. Indonesia will remain the 4th most populous country. Pakistan and Nigeria are set to overtake Brazil, followed by rapidly growing Bangladesh and Mexico and a shrinking Russia. Asia will dominate the world's population, with eight countries likely to have populations in excess of 100mn: Japan (population set to shrink to 116mn by 2030), China, India, Indonesia, Bangladesh, Pakistan, the Philippines and Vietnam.

Table 1: Top 10 countries by population, 2010 and 2030

Rank	Country	2010	Country	2030
1	China	1,354.2	India	1,484.8
2	India	1,214.5	China	1,462.0
3	EU-27	497.3	EU-27	505.7
4	United States	317.7	United States	370.0
5	Indonesia	234.6	Indonesia	284.5
6	Brazil	193.3	Pakistan	244.1
7	Bangladesh	167.7	Nigeria	231.0
8	Pakistan	166.6	Brazil	222.8
9	Nigeria	156.1	Bangladesh	219.6
10	Russia	140.4	Mexico	135.2

Sources: UN, Standard Chartered Research

Large populations can boost economic growth by offering a large pool of labour, significant consumer demand and a large internal market

Large populations can be an important factor in boosting economic growth. Firstly, the pool of labour is a key factor in the attractiveness of economies for inward investment, especially in manufacturing, because clustering of industries is economically efficient. Size does matter. The noteworthy point here is that – excluding Japan – per-capita incomes in Asia's most populous countries are still very low, so they will continue to offer an attractive, cost-effective environment for investment in labour-intensive industries, despite rising costs.

Secondly, investment is attracted by the size of the consumer market and the accompanying economies of scale. Thirdly – and possibly most importantly for



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growth – large countries can create a hugely competitive internal market, driving efficiency gains and economic growth. This does not always happen – in China and India before their opening, competition was frowned upon. Today in China, but also in some advanced federated countries like the US and Canada, local governments often restrain competition. But overall, large countries are more likely to be able to create the right conditions for building competitive, efficient internal markets, the US being the prime example.

Asia has the most countries with very large populations; in 2030, Africa is likely still to have a lower proportion of its population of working age

In Africa, the population rise is a reflection of continued high fertility rates and increasing life expectancy. By 2030, Sub-Saharan Africa (SSA) may contain close to 16% of the total world population, compared with 12.5% now. However, provided that Africa is able to create jobs, birth rates should slow as income and education levels rise. It should be noted that the current picture has been badly distorted by the HIV/AIDS epidemic, which has cut life expectancy and markedly skewed the dependency ratio. 44% of the population is now aged under 14, compared with 26% in Asia. By 2030, the under-14s cohort in SSA could fall to 36%, while the working-age population would be 58% of the total, compared with 51% now – still lower than the equivalent ratios for Asia (64% in work now, 62% by 2030).

MENA needs to create enough jobs to avoid an erosion of political stability

From 2010-2030, the population of the Middle East and North Africa (MENA) is forecast to grow at an average annual rate of 1.6%. This is slower than the 2.4% rate seen in the last two decades and is a result of rising incomes. Egypt and Iran are the two largest countries, followed by Iraq, Saudi Arabia and Yemen. The region is currently characterised by large and young populations, although by 2030, the median age could increase to 30 in Egypt and Saudi Arabia from 24 and 25, respectively. Yemen and Iraq should continue to have much younger populations, with median ages of 22 and 25, respectively. This relative youthfulness could be a positive feature if job creation is sufficient and living standards rise, but if unemployment rises sharply, the outlook for social and political stability could be far less benign.

Turkey will have a lower median age by 2030 than the rest of Europe

Europe is one of the most densely populated regions in the world, but serious demographic challenges now loom, centred around two related issues: an ageing population and an overall decline in population. Most of this decline is in Russia and Eastern Europe, a process that started in 1990 (coinciding with the fall of the Berlin Wall and the emigration that followed). The biggest positive contributor to population numbers will be Turkey, which is forecast to have 90mn people by 2030. If Turkey were to join the EU, it would be the second-largest member by population. In contrast to the rest of Europe, Turkey's population is still young – with a median age of 35 by 2030 compared to an average of 45 in the rest of Europe – and could provide a significant boost to Europe.

The Americas are more diverse. The US has much stronger demographics than Europe, reflecting the higher fertility rates among the Hispanic migrant population as well as high immigration rates. However, by 2030, population growth could slow to just 0.6% throughout the continent. Latin America's profile seems to reflect more of a demographic dividend, as fertility levels are forecast to fall and infant mortality should drop sharply. This could bring the dependency ratio down from 53 to 49 by 2030.

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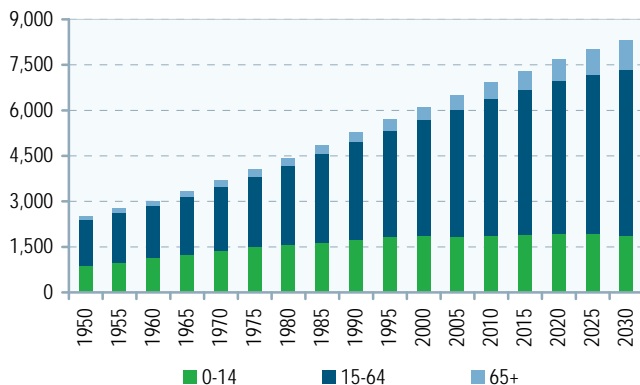
The world is ageing, and fertility rates are falling as education improves; better health care helps mortality rates decline

An ageing world by 2030

Not only is the world population growing rapidly, it is also ageing very fast. In the least developed countries, ageing is positive as it reflects better health care, resulting in falls in mortality levels and gains in life expectancy. Moreover, as development levels rise, fertility rates typically fall. This reflects the impact of higher education standards on the number of births per woman, as well as the better health care.

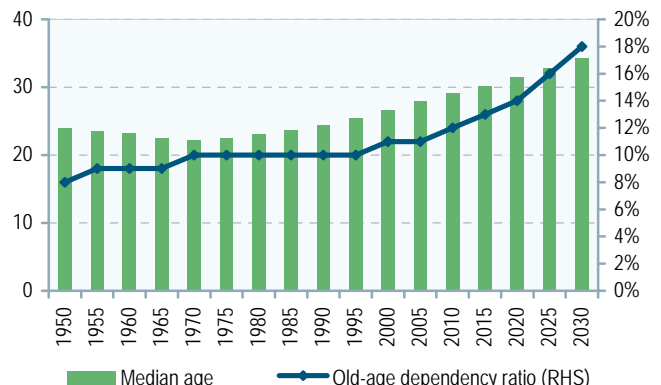
Urbanisation levels typically rise in parallel with higher levels of development, which also push the birth rate lower. Better health-care provision in cities than in rural areas means that death rates fall, and a gradual increase in life expectancy generally follows. Dependency ratios therefore fall until the ageing population becomes a burden. This is already the case in the developed world, and by 2030, the dependency ratio will be higher, even in Sub-Saharan Africa. MENA is a younger region than elsewhere, although its dependency ratio is rising. India's median age will stay low, while its dependency ratio will rise but will still be lower than most other regions. Sub-Saharan Africa has a low median age and dependency ratio, but by 2030, both will be higher.

Chart 3: The world working-age population will jump, but so will the number of over-65s



Sources: UN, Standard Chartered Research

Chart 4: The median age is rising in Asia, but the old-age dependency ratio is rising faster



Sources: UN, Standard Chartered Research

India's population is likely to grow fastest in its least prosperous regions; this will affect the quality of the new purchasing power

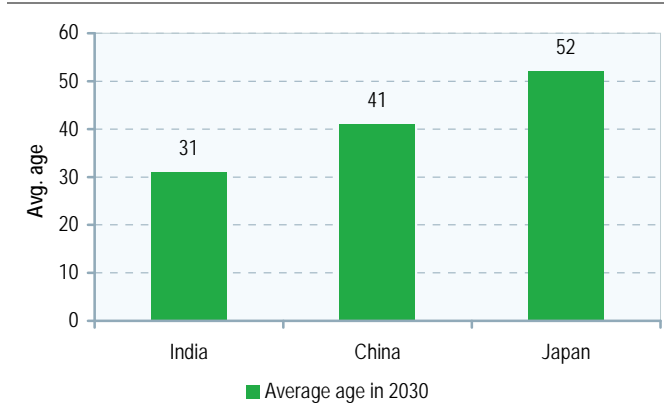
Contrasting China's profile with that of India highlights India's advantage – and China's relative disadvantage. Already India is adding more than China to the world's population of working age. That increment will lessen in the coming decades, but India's share of the global workforce will climb towards 30% by 2030, while China's workforce will be falling by then.

India was one of the first countries to embrace a population policy, starting in 1952, with the intention of constraining the then-rapid rate of population growth. Overall fertility has gradually declined to 2.8 in 2010 from over 5.9 in 1950. But fertility remains higher in India's often-poorer northern states. Highly populous Uttar Pradesh and Bihar have a total fertility rate of over 4. These and other northern states will determine the country's future population size. This will have implications for the pattern of Indian consumer demand and internal migration, as the population growth momentum is greatest in some of the less prosperous areas. Because of its higher fertility, India's population is expected to surpass China's in 2028.



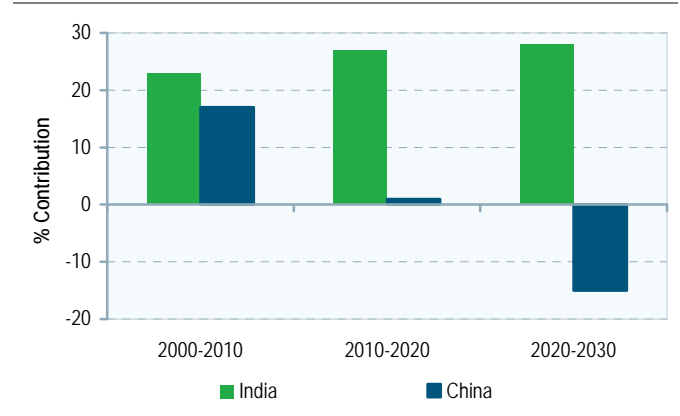
5. Demographics

Chart 5: Average age in India, China and Japan in 2030
Years



Sources: UN, Standard Chartered Research

Chart 6: Contribution to increase in global working-age population (%)



Sources: UN, Standard Chartered Research

China is expected to age fast, with its median age rising from 34 to 41 by 2030

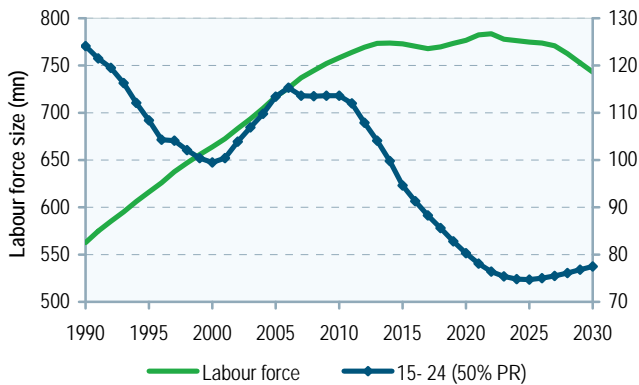
Most of the ageing is expected to be in the developed world, with the median age rising to 45 in Europe, 40 in North America and 52 in Japan by 2030. However, China is also expected to age fast, with its median age jumping from 34 to 41 by 2030. The size of China's labour force appears to be close to its peak now, after rapid growth over the last two decades. It will stabilise after 2014 before starting to decline slowly. The younger segment of the labour force has already peaked and will decline sharply over the next decade. The implications of this for global imbalances are positive, as the older population in China will need to dis-save, a process which is already underway in Japan, and labour should be able to command a higher share of the income. Spending on imported consumer goods typically increases as incomes rise, and this should help erode China's external surplus. However, the continuing ageing trends in advanced countries with current account deficits, such as the US and the UK, will put the focus back on their fiscal positions.

Europe is ageing, bringing difficult policy challenges

The ageing trend, especially in Europe, makes pensions and health care critical policy issues. In countries where state pensions are provided, promises of generous pensions add to the fiscal burden. In turn, this may raise the risk of sovereign defaults, especially in the highly indebted southern European countries already facing sovereign challenges. In some countries, notably the US and the UK, existing defined-benefit, private-sector pensions could become a significant burden on the corporate sector. But here the super-cycle should help by generating stronger economic growth and better investment returns. Another consequence of the ageing trend will be a continuing reassessment of the retirement age, which will help to maintain workforce levels, despite flattening population growth.

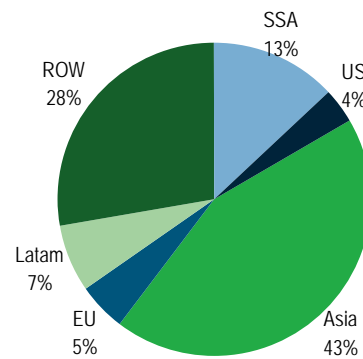
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Chart 7: China's working population, total and young segments (mn)



Sources: US Census Bureau, Standard Chartered Research

Chart 8: Share of global 15-64 population by region (2030)



Sources: US Census Bureau, Standard Chartered Research

Job creation

One of the most important aspects of the changing demographics will be job creation. There are three key aspects to look at: (1) migration of manufacturing jobs, (2) creation of new service jobs, and (3) protectionism and local politics.

Infrastructure – hard and soft – will determine where jobs are created

We expect globalisation to continue and so labour-intensive manufacturing is likely to continue its trend of migration to lower-cost environments. However, the hard infrastructure is vital as goods and parts need to be transported in and out – this will be especially important in a future with higher energy-related transport costs and with increasingly globalised supply chains (see the 'Trade' chapter of this report). Much of Africa may have the raw population but, without the infrastructure, it is difficult to leverage. Still, we do expect the existing pockets of efficient manufacturing in Africa to increase substantially in coming decades, and eventually Africa could become a significant manufacturing-export area.

The more recent trend of globalisation of services jobs via outsourcing is likely to continue and to grow. New service jobs are less dependent on hard infrastructure, but rather require more 'soft' infrastructure, with education and communications key inputs. This 'soft' infrastructure is often much more difficult to put in place but it is possible if there is a long-term plan. Initiatives like the *Bolsa Familia* in Brazil help to improve the human capital of the country. Improving literacy is a long-term positive, and highlights the current differences between China, which has 99% literacy, and India, which has 75% male literacy but only about 50% female literacy. This will not be solved overnight.

Of course, trade in services is not simply about Indian call centres. In many ways, it is more about the role of the advanced countries in the developing world production structure. Engineering design in Germany, fashion design in Italy and France, financial services innovation in the UK and entertainment media in the US, are examples of how the West will need to continue to develop its services industries as manufacturing increasingly migrates to Asia.



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An important driver of the super-cycle will be the benefits of past investment in education. Even in the developed countries where there is often concern about the quality of new graduates, the percentage of the workforce with tertiary education will continue to rise for several decades yet. In emerging countries, the proportion of the workforce with basic literacy skills is still rising. Another key element, which is also important for job creation, will be increased entrepreneurship.

Education is key; sufficient job creation is also required to prevent political tensions from emerging

Finally, protectionism and local politics. Job creation is probably the most important task for politicians and country leaders. Large-scale unemployment leads to social inequality, civil unrest and long-term economic underperformance. It will be a key challenge for every country to create jobs, but is especially important for those countries with rapidly growing populations of working age. When job creation is seen as a zero-sum game, there is a danger that countries try to generate 'more than their fair share' of jobs. This can be attempted by lowering wage costs (competitive devaluations); environmental arbitrage (lowering the costs of doing business at the expense of the environment); protectionism (tariffs, non-tariff barriers); or other methods to try to ensure that fewer jobs move elsewhere and more are brought onshore. If all politics is local and all jobs are local, then jobs become political. Again, if we are right about the super-cycle, these political pressures, very evident at the moment, should dwindle in time.

Urbanisation is likely to be fastest in Africa, although Asia still has further to go

Urbanisation

Urbanisation is both a consequence of economic growth, as job opportunities encourage internal migration, and a growth driver. It drives growth because it creates commercial and industrial centres, provides a concentrated source of demand for agricultural products and consumer goods, and enables economies of scale to emerge, thus increasing overall efficiency. This, in turn, pushes up incomes and speeds up the rise of the middle class. The number of people living in cities has been rising by an average of about 46mn per year since 1950. This is expected to increase to an average of 70mn a year by 2030.

Already, more people live in cities than in the countryside; by 2030, the ratio could be close to 60:40

In 2009, the number of people living in cities edged above the rural population for the first time. By 2030, the trend is expected to have become even more marked, with 60% of the world's population becoming urban dwellers, compared with 29% in 1950. This is a phenomenal shift. On these estimates, close to 5bn people will live in cities, compared with 3.4bn now. Again, these are UN projections and the rate of urbanisation could easily be even faster than this, given our expectations for the super-cycle.

Most of the growth will take place in Asia and Africa, although in Asia, the bulk of urbanisation has already occurred. In 1950, only 16% of Asia's population was living in urban areas, rising to 37% by 2000, and to 42% by 2010. By 2030, this could rise to 53%, although the rate of growth is likely to have slowed to below the 2% a year projected between 2010 and 2020. By 2025, there are likely to be 16 cities with a population of 10mn or more, compared with 11 now and one in 1950.

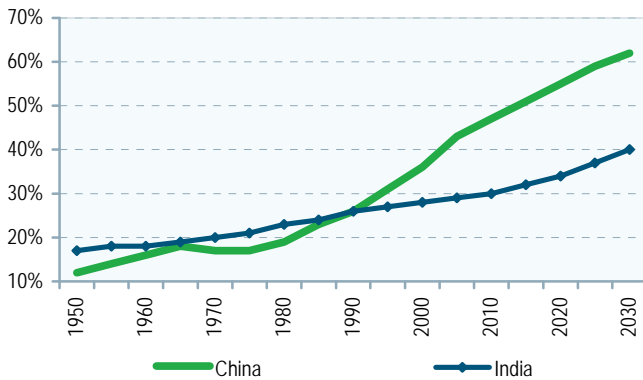
Within Asia, India is likely to have the fastest urban growth

China and India are at very different stages of urban migration, with China near the end of fast urban population growth, despite further scope in the less-inhabited western and central regions. India is yet to see urban population growth picking up.

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This is an important turning point that gets with the more rapid ageing of China's population to highlight the greater upside India enjoys in the medium term.

Chart 9: Urbanisation rate in China vs. India (%)



Sources: UN, Standard Chartered Research

Chart 10: Annual urban population additions, 2010-30 (mn)

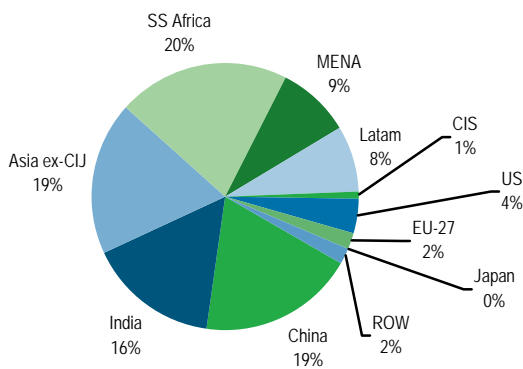


Sources: UN, Standard Chartered Research

Africa should see urban populations swell by over 3% a year by 2030

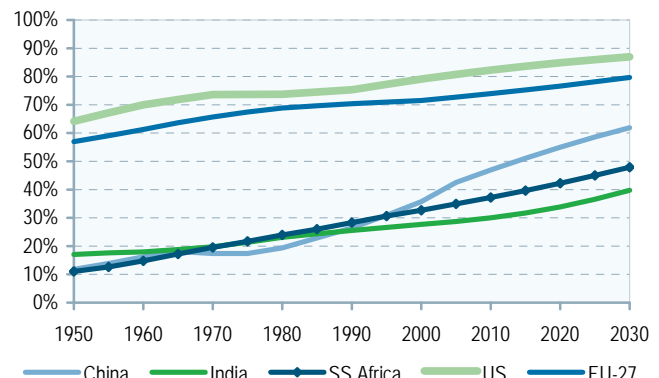
In Sub-Saharan Africa, the pace of urbanisation is also expected to accelerate. Currently 37% of the region's population consists of urban dwellers; by 2030, we expect this to rise to 48% (compared with 11% in 1950). While the pace of urbanisation will decelerate, it will still average over 3% a year by 2030, providing a critical mass that will create eight cities with over 5mn people, (of which two could have over 10mn people), compared with three cities of over 5mn now.

Chart 11: Share of incremental increase in world urban population, 2010-30 (%)



Sources: UN, Standard Chartered Research

Chart 12: Urbanisation rates by region 2010-30 (%)



Sources: UN, Standard Chartered Research

Urbanisation will boost consumer finance, fixed asset investment, commodity demand and housing; more investment in infrastructure and technology will be required

This shift will have a big impact on fixed asset investment, commodity demand, housing markets and consumer finance – and thus demand for consumer goods, again fuelling the super-cycle. More investment in infrastructure and technology will be required to prevent negative spill-over effects, especially in lower-income areas where growth will be most rapid. Without such investment, there is a risk that environmental and social constraints could emerge and limit the upside potential for growth from the greater urbanisation.

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Urbanisation also creates great wealth, as landowners benefit from higher prices while inner city homeowners typically see large gains as commuting times increase. A big downside, however, is the loss of agricultural land which puts more pressure on food supplies. China is already responding to this by trying to limit urban sprawl, but that again tends to boost house prices in some specific places.

Table 2: Real GDP per capita by region at points between 1980 and 2030 (at market exchange rates from 2010)

Year	China	India	Asia ex-CJ	SSA	MENA	Latam	CIS	US	EU-27	Japan	ROW	World
1980	316	319	1,086	920	5,404	5,375	5,342	27,892	20,232	23,508	12,117	5,866
2000	1,605	616	2,290	814	4,483	5,829	3,643	42,751	30,027	38,337	16,726	7,490
2010	4,166	1,164	3,094	1,075	5,763	7,114	6,203	45,561	33,904	45,128	18,961	8,801
2020	10,851	3,789	4,653	1,710	7,866	9,956	9,979	55,169	41,610	46,336	23,632	12,089
2030	21,420	7,380	7,210	2,780	11,202	14,608	16,594	66,073	53,237	61,425	31,795	17,240

Sources: UN, Standard Chartered Research

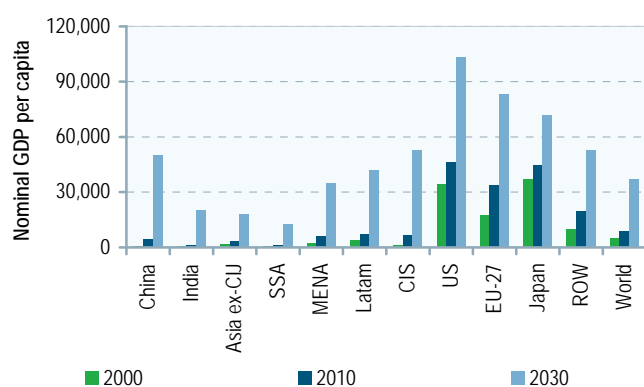
Income gains in India and China are staggering

Income trends

By 2030, our calculations show that China's income per capita in real USD terms will be 43 times higher than in 1980, whereas India's will be 17 times than the 1980 level, and the rest of Asia will be up seven-fold. Per-capita income in the world as a whole will be nearly three times higher. Latin America and Sub-Saharan Africa will be treble and MENA double their 1980 levels in real terms. Highlighting the relative loss of Western prosperity, income per head in the US, the EU and Japan will be only about 2.5 times higher than in 1980.

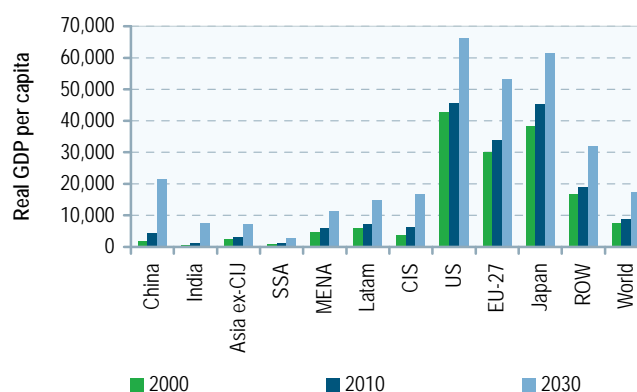
These are phenomenal shifts in purchasing power and in the distribution of world incomes. However, as the charts below illustrate, they will still leave very large differences in real incomes between countries. Our analysis looks only as far as 2030, but the potential and need for catch-up will continue for decades longer.

Chart 13: Nominal GDP per capita 2000-30, per region (USD)



Sources: UN, Standard Chartered Research

Chart 14: Real GDP per capita 2000-30, per region (USD) At 2010 market exchange rates



Sources: UN, Standard Chartered Research



5. Demographics

The rise of the middle class tends to cement a more sustainable growth trend

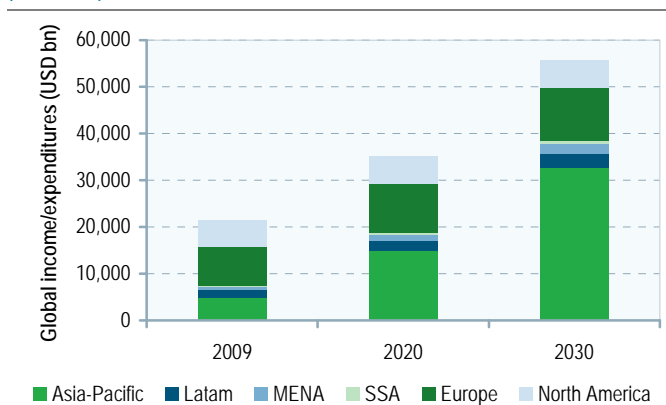
The rise of the middle class

As economies evolve, it is the rise of the middle class that tends to cement a more sustainable growth trend. The larger the middle class relative to a country's total population, the more stable its domestic demand and the more consensual its society. The middle class is also often seen as the source of entrepreneurship and innovation, running the small businesses that generate jobs and wealth. The middle classes also consume different kinds of goods and services compared with the rural or urban poor.

The middle class can be defined in relation to income in each country, but as the world globalises, it is more relevant to consider it in absolute terms. A recent OECD study chose a range of USD 10-100 daily per capita income (in PPP terms) for the definition, and the results are striking. By 2030, the total number of people in this range will increase from about 1.8bn to 4.9bn. However, the numbers in Europe and America remain about the same and all the increase is in the emerging countries, with Asia's share of the total rising from 28% to 66%. Meanwhile, the absolute numbers in other emerging regions will also rise, although their share will fall.

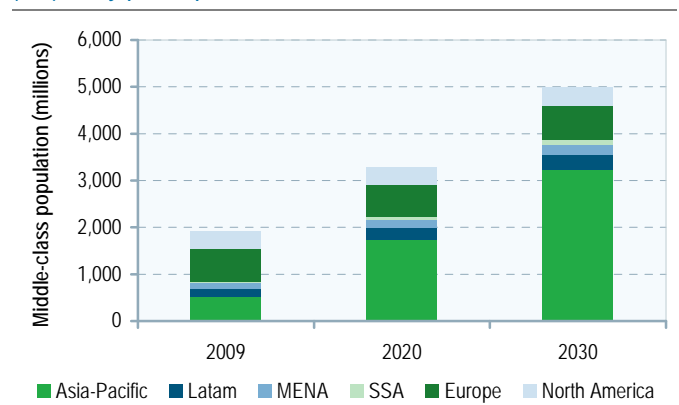
The same study also calculates the spending of the middle classes. The projections are entirely in the same direction, although Europe and North America are slightly less overwhelmed, retaining 30% of world middle-class spending, compared with 21% of middle-class numbers by 2030. This is because more of the advanced countries' middle classes earn towards the higher end of the USD 10-100 range. Still, more than 80% of the growth of middle-class demand comes from Asia. The study also projects that the middle classes in China and India will account for about half of middle-class spending by 2040.

Chart 15: Spending of the middle class
(USD bn) PPP dollars



Sources: OECD, Standard Chartered Research

Chart 16: Size of the middle class
(mn) Daily per-capita incomes of USD 10-100 in PPP terms



Sources: OECD, Standard Chartered Research

Studies have shown that as incomes rise and reach certain thresholds, spending patterns change. However, the demographic outlook to 2030 implies that much of the 'new' middle class will be less rich than the 'current' middle class, who reside primarily in the developed world. This could mean that consumer demand in 2030 is less brand-loyal than at present. In addition to current luxury-goods providers,



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As incomes rise, so does demand for services, including financial services

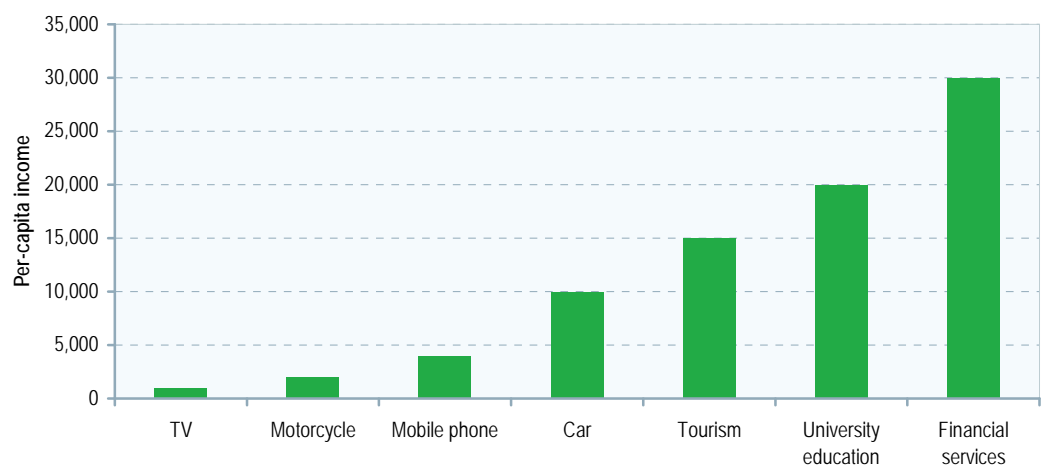
companies that stand to gain most by 2030 could be those that can develop lower-cost options that reflect the particular constraints of the countries where the ‘new’ middle classes are concentrated. Innovation will be critical. The battle to develop ultra-cheap small cars in India is a good example.

The increase in incomes will also drive the expansion of services including tourism, education and health care. In turn, all these trends – as well as higher savings – will increase demand for financial services. The development of financial services will fuel yet more growth as the financial leverage of economies rises. The emergence of a modern services sector will also be crucial in job creation.

The quality of education and the provision of health services and welfare support matter increasingly to the middle classes. The changing pattern of available employment as the services sector grows also highlights the importance of education and increases employment prospects for women. To build on their success, countries need to ensure that a sufficient number of their populations are receiving an adequate level of education. Notably, those countries with low female participation rates, low tertiary education reach or limited secondary transfer stand out as ones that may struggle to take advantage of rising incomes.

The absolute numbers of people involved in this demographic shift is unprecedented. It is a shift that, combined with rapid urbanisation, is expected to lead to an enormous increase in demand for raw materials – richer people living in cities simply consume a lot more ‘stuff’. What ‘stuff’ they buy kicks in at different levels of income, as set out in Chart 17 below. We will explore the impact on the commodity markets in the ‘Commodities’ chapter of this report.

Chart 17: Spending habits at different per-capita income levels



Source: IAFM (International Academy of Financial Management)



5. Demographics

Conclusion

The role of demographics in the super-cycle is complex, and we have only highlighted some of the main trends here. In a few places, notably India and SSA, rapid population growth will help to generate fast economic growth. In other countries, slow population and labour force growth points to slower GDP growth than in the past, although we have argued that increased longevity and pension deficits could keep people working longer, delaying this deceleration. For the world as a whole, population growth is slowing and indeed the super-cycle could mean that it slows more than the UN's current projections.

However, in absolute terms, the numbers of people moving to cities, the numbers entering the global labour force and the numbers of middle class have never been greater. The scale of the challenge in building homes and basic infrastructure to meet the urbanisation trend is huge. Moreover, as more and more people join the middle classes, the demand for more sophisticated consumer items – from goods such as TVs, motor cycles and cars, and increasingly for services including tourism, education and financial services – will increase dramatically.

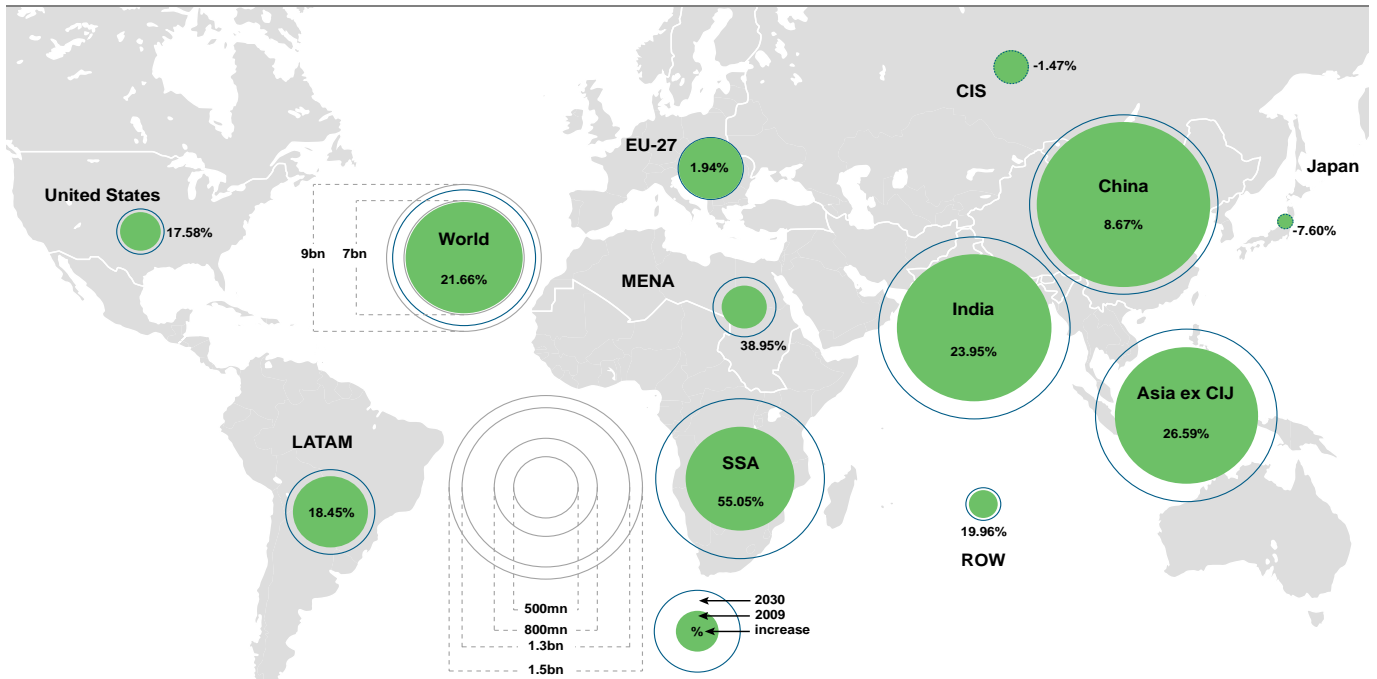
The use of the internet, though well advanced in high-income countries, still has a long way to go in many emerging countries. The physical infrastructure is still being put in place, and the price of computers continues to fall, but people also need to be able to read and write. Here, the investment in education over the last 30 years will continue to upgrade the labour force as educated cohorts move through.

Demographics is not destiny, but it does give a country opportunities. With young, growing populations and many people moving to urban areas, much of the emerging world has a great opportunity. In order to take advantage of it, the raw numbers of people need to be combined with education, an attractive investment environment and improvements in infrastructure. Job creation needs to be appropriate to meet each country's particular needs and avoid social discontent, but without disadvantaging other countries.

Demographics favour India, but that potential will not be enough without the accompanying investment and policy initiatives. We are optimistic, though, that these will be put in place, as momentum is building and many of the problems are eminently solvable, especially the under-investment in infrastructure. China is facing less favourable demographics, but has huge opportunities to realign its economy to prepare for the day when its vast pool of young workers starts to shrink. Both India and China are in a much better starting place than many developed nations, but all can perform well if they create jobs in the worthwhile areas. This is an area we will explore later (see the 'Creativity chapter of this report).

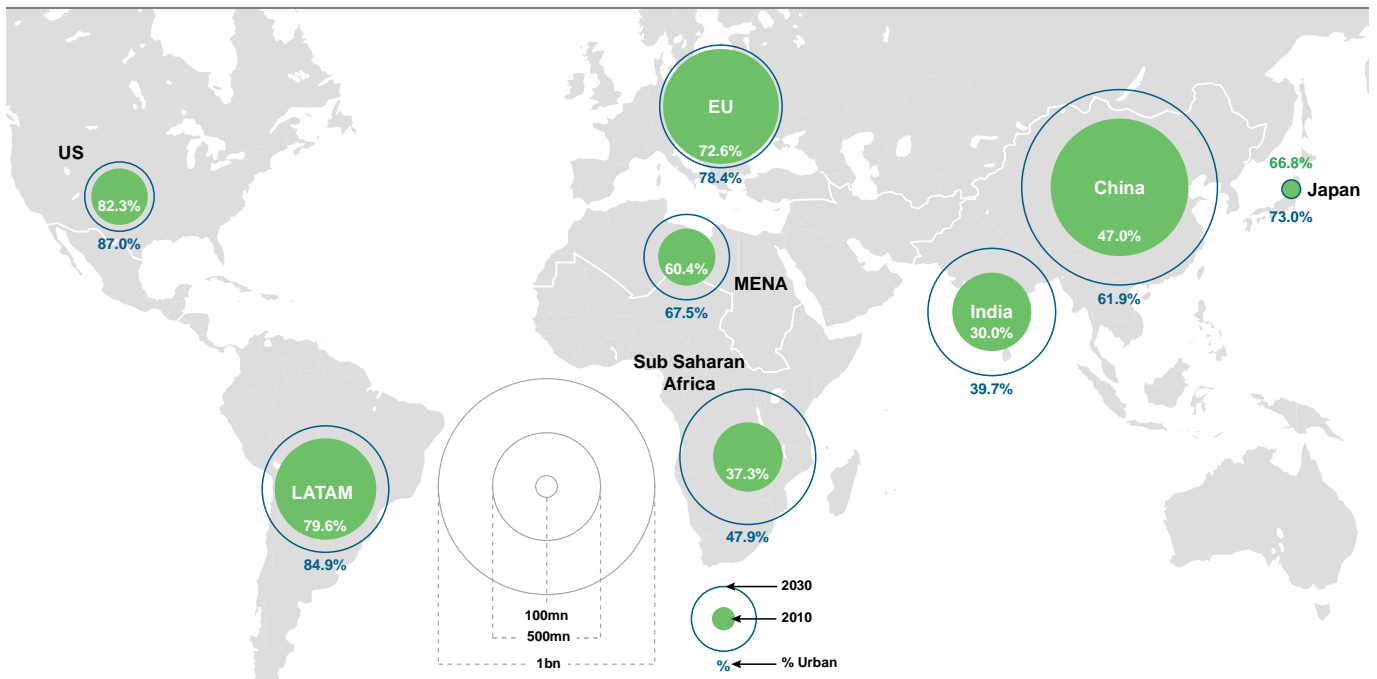
5. Demographics

Chart 18: Population in 2009 and prediction for 2030



Source: Standard Chartered Research

Chart 19: Urbanisation in 2010 and prediction for 2030

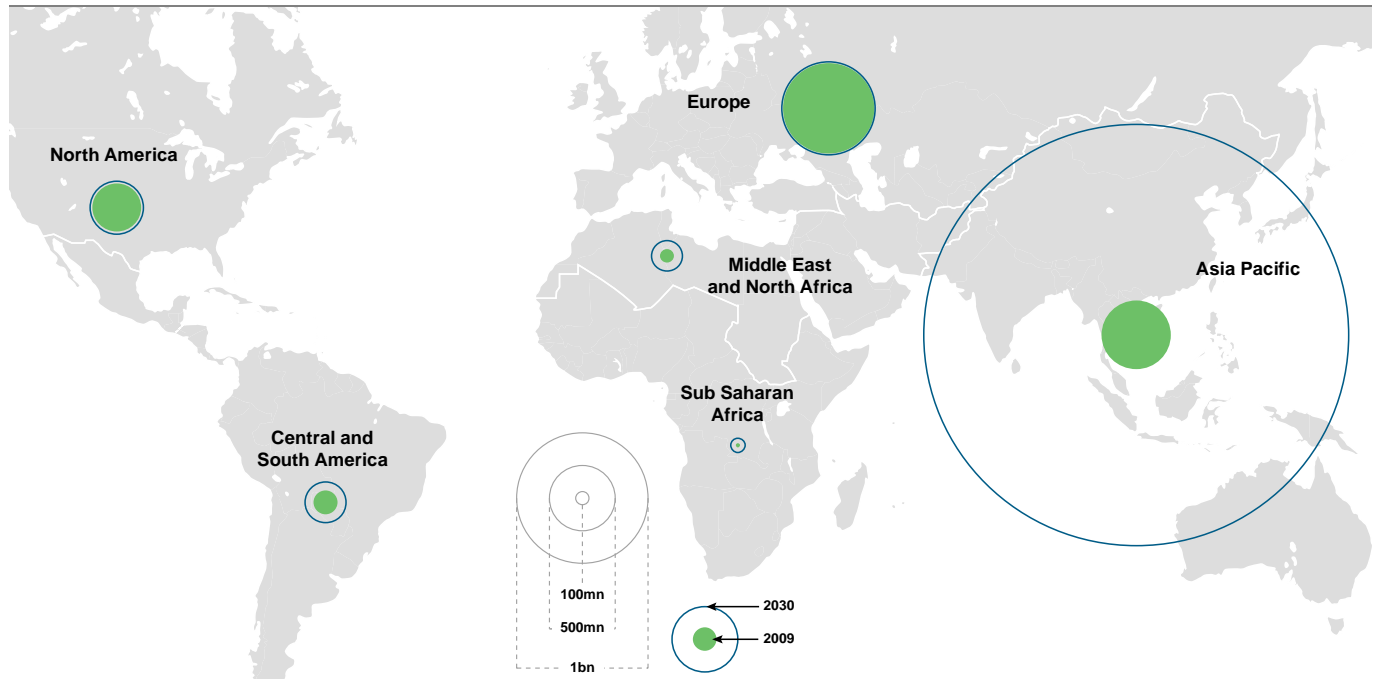


Source: Standard Chartered Research



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Chart 20: Global middle class in 2009 and prediction for 2030



Sources: OECD, Standard Chartered Research



6. Creativity

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- **The continuing success of developed countries will depend more than ever on creativity**
- **Emerging countries are narrowing the gap in education, research and innovation**
- **The internet is the 'network technology' of the current super-cycle**

The West still leads but emerging countries are catching up

Creativity is both a driver of the super-cycle and an outcome. Advances in, and mass adoption of, technology help to drive up the pace of growth. Larger markets provide incentives to innovate or create. Increased wealth and higher per-capita incomes free up resources to go into research and development or into further education, increasing the pace of innovation. This feedback loop is enhanced by ease of communication and by liberal trade and investment regimes. All these factors are in place today, and creativity should be a key element of this current super-cycle of growth. Today, much of the innovation and creativity is generated by the already-rich and connected economies of the West. Tomorrow, the newly wealthy, increasingly open emerging-market economies will also be in a position to make significant contributions.

Creativity will drive productivity gains, provide even greater opportunities for the West as emerging economies get bigger and richer, and generate new EM creative champions

Over the last 250 years, rapid invention and innovation have transformed the world from a Malthusian economy in which population increases absorbed any productivity improvements to a modern world of rising living standards alongside reduced fertility rates. Britain was at the forefront of creativity in the initial stages, and continental Europe and the US soon joined in. As countries develop, they increasingly move to the forefront of innovation, as Japan has demonstrated in the last 60 years and China and other emerging countries are beginning to show now.

We see three themes in the way creativity will impact the current super-cycle. First, the economic gains from computers and broadband networking will continue to drive productivity gains in developed countries and accelerate gains in emerging countries. The internet, the key 'network technology' of the current super-cycle, is opening up the world in the same way that railways, the telegraph, the car and aircraft did in previous super-cycles.

Second, creativity will increasingly be the main comparative advantage of the West and Japan. Unable to compete on labour costs and with high investment rates in emerging countries narrowing the gap in machinery, infrastructure and education, developed countries' success will depend on further developing their creative advantage. This means strengthening their ability to innovate products and processes and expanding their 'creative industries', including design, fashion, the arts and entertainment. As emerging-country consumers become wealthier and their middle classes swell, demand for these products and services will increase rapidly.

However, the West does not have a monopoly on creativity. In theory, emerging markets could develop purely by copying advanced countries – importing or



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reproducing their machinery, technical knowledge and management skills with minimal creativity. Japan was often accused of this, especially in the early stages of its development. And it explains a great deal of the 'catch-up' in emerging countries, led by China and India that is so fundamental to the current super-cycle. But in practice, emerging countries' sheer size and diversity, combined with their burgeoning educational achievements, point to increasing creativity and innovation, supporting and promoting their economic growth. Meanwhile, many smaller emerging economies, faced with China's enormous manufacturing scale, will have to find their own niches and add creative elements to products and processes in order to compete.

Hence, the third theme is that the West will increasingly lose its dominance in the creative sphere as more products and processes – as well as design, fashion, art and entertainment – come from emerging countries. These innovations will be targeted more at the needs of those on lower incomes than is typical of the today's Western middle classes. Asia, excluding Japan, will be home to half of the world's university graduates by 2030, and we have already seen a massive escalation in the number of researchers and R&D spending in China alone. China, India and other emerging countries will become increasingly important, reinforced by the internet's role as the dominant network technology.

Innovation and the super-cycle

Super-cycles are often thought of as being driven by an accelerated pace of new inventions and innovations. However, recent scholarship suggests that the causal link between new technologies and economic growth needs to be analysed carefully. New technologies do matter and do drive growth, but not always in the obvious ways, and usually not for several decades or more after their invention. Moreover, they may continue to drive economic growth for decades thereafter as they are used more widely.

For example, the internal combustion engine was invented in the 1870s, and the first automobile went on sale in 1888, in the middle of the first super-cycle. Yet in Britain, cars numbered only 8,000 in 1905 and 132,000 in 1914. Even in the US, which was well ahead in adopting the car, only 25% of people owned one in 1941. Buses played an important role in increasing mobility during that period, but the bicycle was probably even more important. Arguably, the full force of the car in promoting economic growth in developed countries was not felt until the second super-cycle, from 1946-73. At the beginning of that period, only a small minority of people in the US and Europe owned a car; by the end, most did. Meanwhile, the growing use of the car spurred enormous investment in highways, suburbs and tourism, and transformed the way most people lived. The current super-cycle will be driven in large part by the extension of car ownership to the new middle classes in emerging countries. This will involve designing cars and other products to meet the needs – and the lower incomes – of these middle classes.

There is a further problem with linking technology to economic growth. Arguably, growth causes technological development as much as the other way around. This arises partly because people are more open to spending on new products as their incomes rise, helping to create a large enough market. It also occurs because

The two super-cycles led by the West coincided with innovation of products (1870-1913) and business processes (1946-1973)

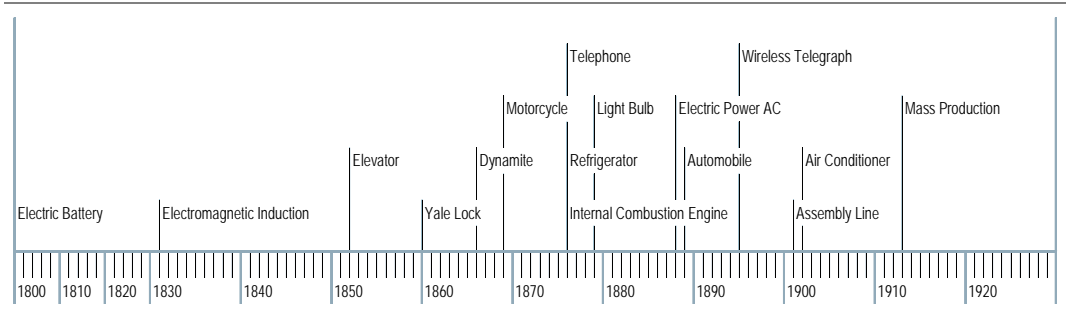


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periods of rapid growth involve substantial investment, and new processes and technologies are often incorporated at that time. Fast growth also tends to be a period of high profitability and rapid change in general, which are both conducive to innovation. Yet despite all these caveats, each super-cycle does tend to be associated with particular new products and technologies. Particularly important are so-called ‘network technologies’ in transport and communications, which open up new geographical areas to development and commerce.

1870-1913: Probably the most important technologies driving the first super-cycle were railways, steamships, cable telegraph and chemicals. The first three radically improved communications and transport and, in particular, facilitated the opening up of the US. The first transcontinental US railroad was completed in 1869, though the length of total track did not peak until 1916. Around the turn of the 20th century, new technologies – including electricity, the telephone, refrigeration and the automobile – began to have an impact but were still at the very early stages. Other entirely new industries emerged as wealth increased, from travel agencies to motion pictures.

Chart 1: Key product innovations during the 1870-1913 super-cycle



Source: Standard Chartered Research

1946-1973: As already noted, the proliferation of the car was a key driver of the second super-cycle, along with other consumer goods that relied on electricity. These included TVs, refrigerators, washing machines, vacuums, central heating and record players. There were also major innovations in processes and materials, notably plastics and chemicals. Cars, aircraft and telephones were the most important ‘network’ innovations, facilitating increased trade within and between countries and allowing businesses to exploit economies of scale and reduce cross-border barriers.

2000 onwards: What are the key technologies of the current super-cycle? While there will doubtless be significant inventions and discoveries over the next couple of decades, almost all of the economic growth during the current super-cycle will be based on existing scientific knowledge. Moreover, much of it has probably already been around for years. This does not mean that we can easily guess which products and processes will come to the fore. Nor does it mean that creativity will play no role. On the contrary, creativity in the application of technologies will be crucial. Firms need to solve practical problems before they can bring products to the market, and the full implications of new technologies – especially network technologies – often do not become clear for years or even decades.

In the 2000-10 period, the computer and internet have been important growth drivers, and this looks set to continue, both in advanced and ‘catch-up’ economies. They will



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drive growth through the investment required in machinery, broadband, software and website applications. More importantly, they will drive growth by improving efficiency and reducing the cost of information. But as a network technology, the internet opens up a host of new opportunities for products and services. Just as electricity made possible everything from the production line to consumer electricals and electronics, networked computers are spawning new products and services as well as new production processes.

Areas such as online retail and consumer services, business-to-business (B2B) commerce, search engines and online social networks have flourished over the last decade. While new products and components are constantly being developed, a greater emphasis has been placed on user experience in terms of how products are developed. This is arguably behind the success of companies such as Apple, which promoted the new business model of 'apps' and developed its user interface in order to appeal to the affluent class worldwide.

Broadband will spread widely and boost economic growth further

The West still has the advantage here, with computers and broadband more widely available and much cheaper than in most emerging countries, but Asia in particular is catching up fast. Meanwhile, Africa is being linked to broadband through an ambitious series of underwater cables. Internet usage is still much lower in poorer emerging countries than in advanced countries, but it is spreading quickly. Still, just as the telephone was mostly found in offices in the West until it spread widely into homes in the 1950s, broadband will likely follow the same pattern in many emerging countries. This will boost economic growth and potentially allow these countries to leapfrog the development process by skipping stages previously required, thanks to speedier and more efficient communications.

There are other areas in which innovation on a grand scale can be expected over the next two decades, using technologies that are currently in their infancy. Sustainability, climate change and the growing tension between human activity and nature's capacity to handle it are likely to dominate scientific research and product innovation. Renewable and sustainable energy, more efficient use of natural resources, artificial intelligence and genome research to enhance crop yields are all areas into which governments and corporates are pouring billions of dollars into research and development (R&D). The West still retains its lead in most of these areas, but many emerging countries are catching up fast. Brazil, for example, is one of the world's leaders in crop science through its Embrapa research institute.

Scientific innovation and brainpower – a matter of quantity

The developed countries have dominated the process of invention and innovation until recently, and it will continue to be their bread and butter. But the expected shift in economic power from West to East will not be limited to economic activity, but will extend to growth in the talent pool that will drive creativity in the years to come. According to World Bank data, 350mn people around the world between the ages of 15 and 65 (defined as working-age population) had received tertiary education as of 2000. Five of the top 10 countries, in terms of absolute numbers, were developed economies (the US, Japan, Germany, the UK and South Korea). By 2030, 1.1bn people in that age group are projected to have received tertiary education. Emerging Asia could occupy as many as six of the top 10 spots in a future ranking.

By 2030, 1.1bn people will have received tertiary education, with almost half of them from emerging Asia



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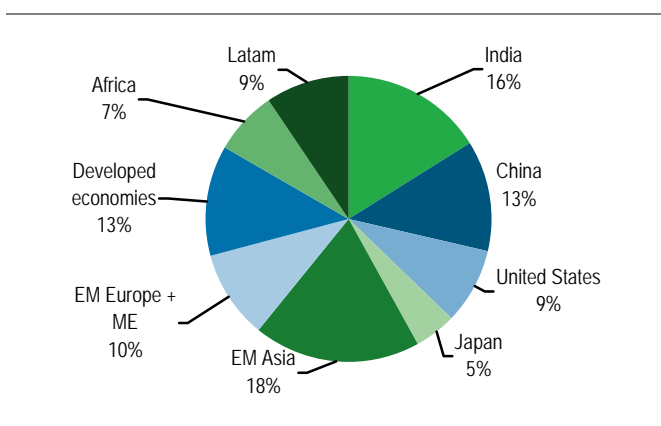
Table 1: Top 10 countries in terms of tertiary education for 15- to 65-year-olds

	2000	'000 people	2020	'000 people	2030	'000 people
1	United States	43,670	India	90,160	India	126,077
2	China	41,959	China	84,138	China	99,003
3	India	37,657	United States	59,575	United States	68,749
4	Japan	27,755	Japan	35,488	Japan	36,344
5	Russia	20,990	Russia	25,131	Bangladesh	27,558
6	Germany	11,052	Indonesia	20,057	Indonesia	26,508
7	Indonesia	8,707	Bangladesh	19,311	Philippines	26,506
8	United Kingdom	8,487	Philippines	19,090	Russia	25,163
9	Philippines	8,417	Nigeria	13,873	Nigeria	21,432
10	South Korea	7,594	Mexico	13,696	Pakistan	17,952

Source: WDI

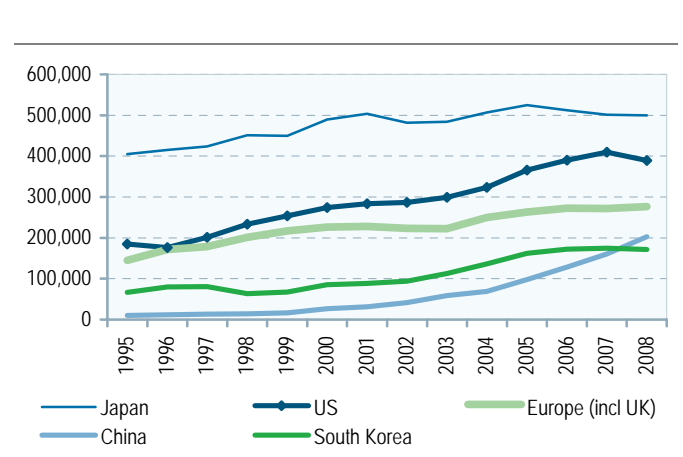
As Chart 2 shows, the US, Japan and other developed economies will make up 27% of the world's tertiary-educated population in 2030, slightly less than China (13%) and India (16%) combined. This implies that India will produce around 3mn graduates per year, and China will produce 2mn, for the next 20 years. Separately from China and India, emerging Asia will be home to 18% of the world's tertiary-educated working population. Africa, Latin America, Eastern Europe and the Middle East may together account for another 26%.

Chart 2: Distribution of tertiary-educated population by 2030



Sources: WDI, Standard Chartered Research

Chart 3: Number of patents filed by country



Source: WIPO

How this talent pool affects global development will be determined by labour mobility and connectivity to the world economy. Adjusting for standards of living and religious and cultural factors, human capital will typically flow towards high-growth areas that offer higher returns on such human capital. Given our expectation that emerging markets will outperform significantly in the years ahead, this implies that global talent will seek opportunities in these markets in order to maximise the return on skills. Already in recent years, the tendency for highly qualified individuals to prefer working in developed economies has shifted, reflecting both new opportunities and changing lifestyles in emerging countries. High tax rates in the West may also become increasingly unattractive. However, there is also a risk that governments worldwide could adopt selective policies to shield local workers from competition from foreign talent.



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With the exception of China, developed economies continue to dominate the number of patents filed

The quality of innovation also matters

While growth in the number of university graduates in emerging markets is expected to outpace that in developed markets, the quality of universities and other institutions of higher education also needs to be taken into account. Most international university rankings continue to be dominated by the US, UK and Europe. Yet this trend could change over time. First, Asian universities are increasingly featured in these surveys, reflecting a rise in their standards relative to Western universities. This is often associated with an increasing openness to global talent, both in terms of students and teaching staff. Second, a growing number of Western universities are expanding their programmes and courses to emerging markets, or offering joint courses with local higher education institutions. This should ensure cross-fertilisation of the educational structure and an evening-out of academic quality across geographies.

The need to emphasise creativity over rote learning is recognised in many emerging countries, particularly in East Asia. India may have a relative advantage here. But the West is the leader in terms of fostering creativity, and while this lead may be eroded, it will remain for now. Thus, education will continue to be a key industry for many Western countries.

Another frequently used measure of innovation and R&D is the number of patents filed. Japan, the US and Europe still lead the pack, but their advantage is dwindling (Chart 3). China has been steadily climbing up the ranks in terms of patents filed. In 2008, it filed more than 200,000 patent applications, the fourth-highest in the world, or the third-highest if European countries are counted individually. This is not surprising as China becomes the world's manufacturing powerhouse, but it clearly indicates that China is not simply copying. Meanwhile, progress in the rest of Asia and other emerging markets is still relatively slow. This could be due to the limited amount of financial resources, both public and private, being devoted to innovation and research; in addition, smaller emerging economies are unable to achieve optimal economies of scale in R&D. For some developing countries, the lack of intellectual property rights protection also hinders R&D and innovation.

China is climbing up the ranks in R&D spending

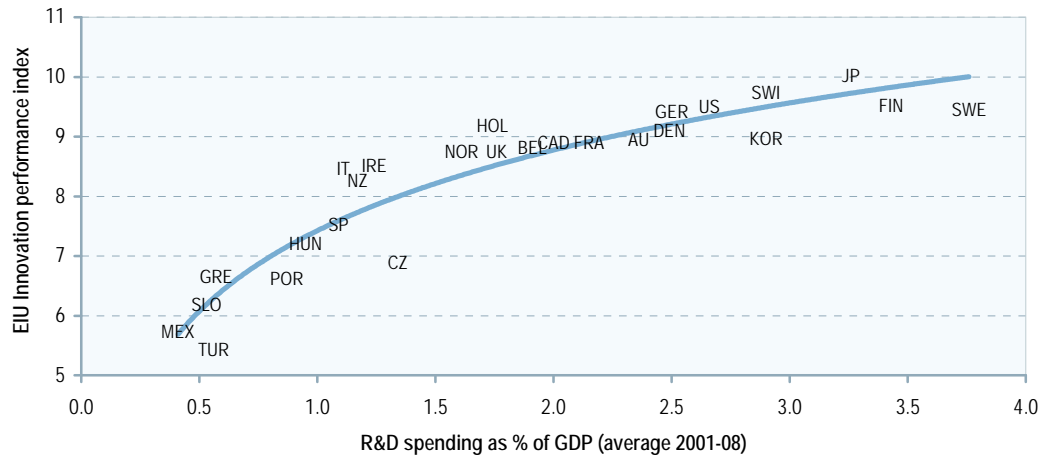
The experience of OECD countries shows the importance of R&D spending, not just having the right people. As Chart 4 shows, countries that have devoted more spending to R&D tend to have higher scores and better global rankings in innovation. (Innovation is not easily quantifiable, so we have used well-respected OECD and EIU measures.) Furthermore, countries that devote more spending to R&D also tend to have better hardware to facilitate innovation, such as broadband connectivity, access to mobile communications and lower access costs. This is an area where emerging countries may take longer to catch up, even though many of them are leapfrogging entire stages of technology development, for example by skipping the land-line stage and moving straight to mobile telephony. However, even previously less developed and poorly connected regions such as Africa are moving quickly in this area.

Unsurprisingly, innovation is strongly correlated with spending on R&D



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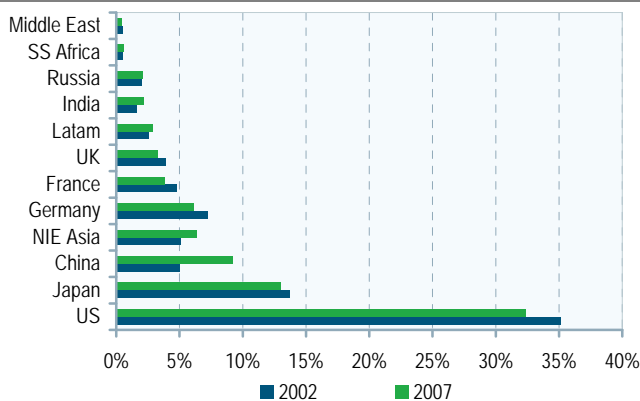
Chart 4: You get what you pay for – more R&D spending means more innovation



Sources: OECD, EIU, Standard Chartered Research

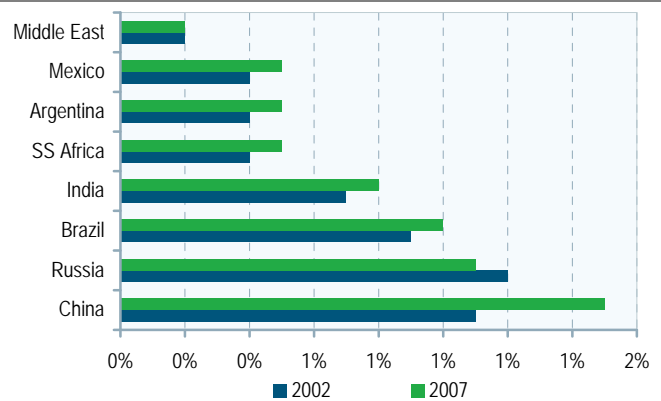
Data from UNESCO show that emerging economies tend to spend much less on R&D than developed economies (Chart 5). Sub-Saharan Africa and the Middle East spent less than 0.5% of their GDP on R&D (Chart 6). However, the momentum of China's R&D spending is worth noting. Between 2002 and 2007, China increased such spending from 1.1% of GDP to 1.5%. More importantly, as a percentage of global spending, China's share surged from 5% to 9.2%, making the third highest-spending country in the world on R&D. A sustained effort in this area will help China to join the ranks of many developed economies in terms of technological innovation during the current super-cycle.

Chart 5: Share of world R&D spending by country/region



Sources: UNESCO, Standard Chartered Research

Chart 6: R&D as % of GDP among emerging economies



Sources: UNESCO, Standard Chartered Research

Like manufacturing and services, innovation often takes place in clusters

Innovation clusters

Economic activity often takes place in clusters. China and India have established manufacturing and services clusters in their respective economies to enhance economies of scale. Innovation is the same – it rarely takes place in isolation, but is often an outcome of collaboration between researchers in a similar field working in close geographical proximity, or in innovation clusters. This could be a network of



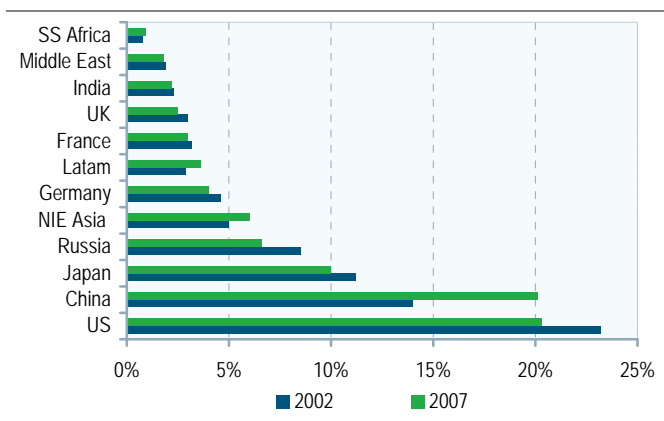
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companies in a specific field, such as biomedical or information technology, or a group of talented workers in a particular industry transferring knowledge as they move from one company to another. McKinsey and Co. depicts innovation clusters using US patent data from 1997 to 2006 to illustrate how different regions and cities around the world can act as powerful hubs of innovation. Whether it is the well-established technology hub of Silicon Valley or the creative visual arts based in Bristol, UK, these regions act both as magnets for creative talent and companies, and as hotbeds of shared ideas or a talent pools for the 'new new thing'.

McKinsey's analysis shows that cities in the US, Europe and Japan are currently the dominant innovation clusters. Silicon Valley, Tokyo and Yokohama in particular stood out in terms of diversity in patents, growth in patents granted, and absolute numbers of patents filed. In Asia, cities in South Korea and Taiwan, as well as Singapore and Hong Kong, experienced rapid growth in patents, but limited diversity and scale. Emerging markets such as China and India have yet to feature in this analysis. These centres are often linked to world-class educational facilities. Increasing urbanisation and rapidly increasing pools of graduates provide huge opportunities for these clusters of creativity to develop in Asia. This is already recognised by cities such as Nanjing, China, which aims to leverage off its world-class universities to build a vibrant creative cluster.

Alongside high R&D spending, clustering also requires a concentration of researchers. Charts 7 and 8 illustrate development in this regard. Japan, the US and European countries still have the highest density of researchers (measured by the number of researchers as a proportion of the population). By this measure, emerging markets are still trailing significantly behind. However, it is also worth noting that China featured prominently in the surge in R&D human capital. While it may have a relatively low researcher density (albeit relatively high among emerging markets), it was home to 20% of global researchers in 2007, the second-highest share in the world. Given the surge in spending noted above and a burgeoning pool of researchers, more innovation clusters are likely to form in China in the coming years.

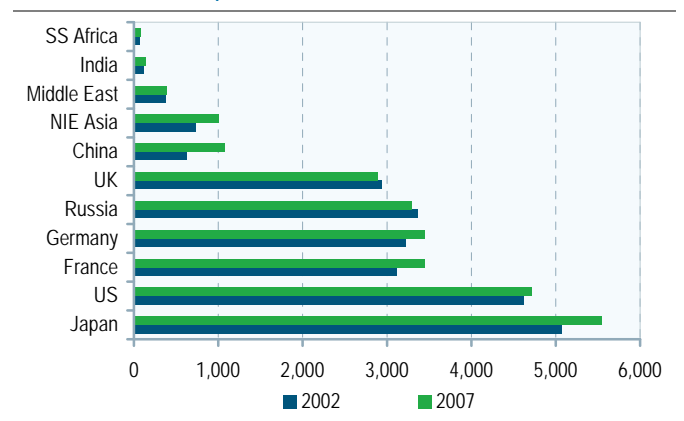
Chart 7: Share of world researchers by country/region



Sources: UNESCO, Standard Chartered Research

Chart 8: Researcher density

No. of researchers per million inhabitants



Sources: UNESCO, Standard Chartered Research

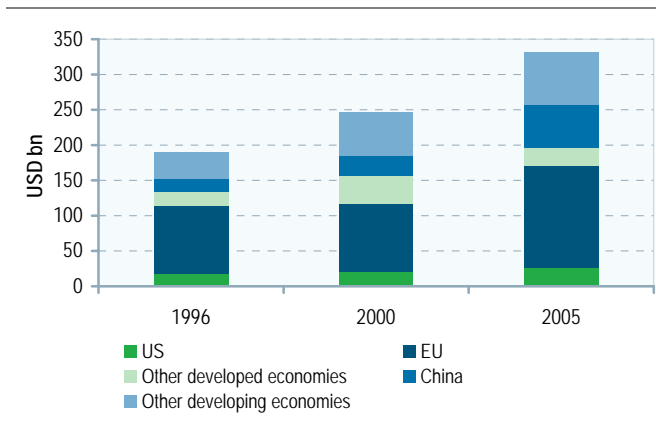


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Creative economy

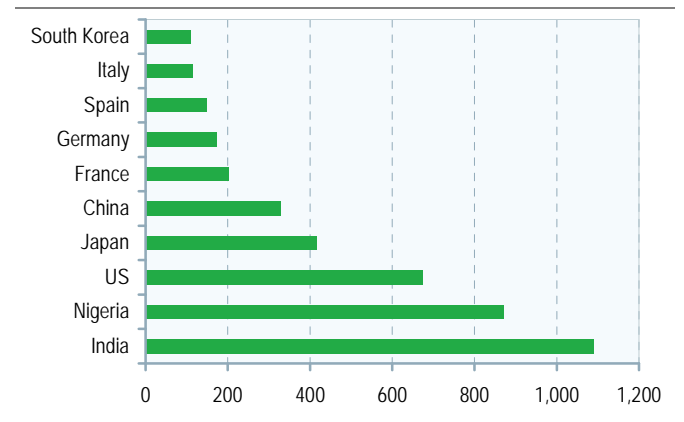
In addition to scientific and technological innovation, creativity plays a crucial role in the so-called creative industries, which are expanding rapidly. This includes areas such as media (film, music, television, publishing and software), design (fashion, architecture, advertising) and other industries where creativity is a primary input. The West leads, but many emerging countries are expanding rapidly. While countries' output in this area is often limited to domestic consumption due to language or cultural factors, these industries are increasingly globalising.

Chart 9: Exports of creative goods



Sources: UNESCO, Standard Chartered Research

Chart 10: Top 10 producers of feature films (2006)



Sources: UNESCO, Standard Chartered Research

In terms of creative goods, the developed economies dominate, with almost 60% of global exports of creative goods originating from the US, Europe and other developed countries in 2005 (Chart 9). That said, the rise of manufacturing in China has boosted China's production of creative goods, especially in fashion (high-end clothing), toys and furniture. However, these data need to be interpreted with care, since the creative design phase of these products can take place in a developed economy but the production phase may happen in low-cost countries (such as "Designed by Apple in California, assembled in China" for Apple products, or Ikea furniture designed in Sweden but produced closer to the end markets). Japan has advanced this notion, with its 'Made by Japan' concept, contrasting with the earlier 'Made in Japan' mantra.

Nonetheless, developed economies such as Germany, Canada, the UK, the US and Italy have a clear lead in exports of creative products such as music, publishing and new media. A broad range of factors has been cited to explain their comparative advantage in these areas, such as freedom of speech, adequate protection of intellectual property and better-developed media to deliver these products.

How will the creative industry fare in this super-cycle?

The creative industries will be one area where the developed world continues to enjoy a leadership position and provide high-value-added exports and services. This is partly because creative industries tend to benefit less from economies of scale, especially in the design phase. However, the return on a good design is likely to be much higher if the end product is made available to a much larger population.



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Creative industries are dominated by the West, but increasingly local champions are appearing... and going global

Online social media and networking are excellent illustrations of how emerging markets can impact the creative industry. Networks such as Facebook and Twitter have attracted a strong following in emerging markets. Five of the top 10 countries with the most Facebook user accounts are in emerging markets. In June 2010, Asia (including Japan), Latin America, the Middle East and Africa had a total of 45mn unique visitors to Twitter.com, a 245% increase from a year ago and just under 50% of the site's total traffic, rivaling North America and Europe.

Alongside being consumers of creative products, emerging markets could see more of their own creative products popularised in the global market as their influence rises. As Chart 10 shows, the film industries in India and Nigeria – nicknamed Bollywood and Nollywood, respectively – are the world's top two producers of feature films. Yet while many films from emerging countries have won awards at international film festivals, neither of these markets has made much impact on the mainstream international movie industry. In addition to economic flows, cultural exchanges can help to cross-fertilise the creative industries in emerging markets and developed markets, as well as those within emerging markets. For example, South Korea television drama, known as K-drama, has been hugely popular in East Asia in the past 10 years and often rivals locally produced programmes in Japan, Hong Kong, Taiwan and China. This was similar to the J-Pop (Japanese pop music) phenomenon in the 1980s and 1990s.

Conclusion – creativity as a super-cycle enabler, and vice versa

Although this super-cycle, led by the emerging economies, is likely to be driven by a catch-up in technology and rapid urbanisation, creativity and innovation will still have an important role to play. The full significance of the worldwide web is still emerging, and if the experience of previous network technologies is anything to go by, it will reverberate for decades to come. It will continue to open up the world and enable increasing numbers of people to fully engage with the world economy.

Innovation will also be important in dealing with some of the challenges thrown up by the super-cycle, in particular pressure on resources including energy, food and water. It also looks set to be the main answer to the problems of climate change, since the fast economic growth we forecast will inevitably create more greenhouse gases without technological mitigation.

Meanwhile, the creative industries themselves will only grow as incomes rise. More people will have more money for discretionary spending and will also seek differentiation in products and services, a key driver of creativity. This will involve the development of new products tailored to consumers on lower incomes. Countries and companies that can meet these demands will do well and stay at the forefront of living standards. Meanwhile, the rest of the world, led by China and India, will be catching up fast.



7. Commodities

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- Large-scale urbanisation and growing middle classes will drive commodity demand
- Despite reductions in intensity, energy prices will trend much higher
- Supply constraints in metals and coal will create dramatic price spikes
- Commodity producers should be big winners as consumers pay more

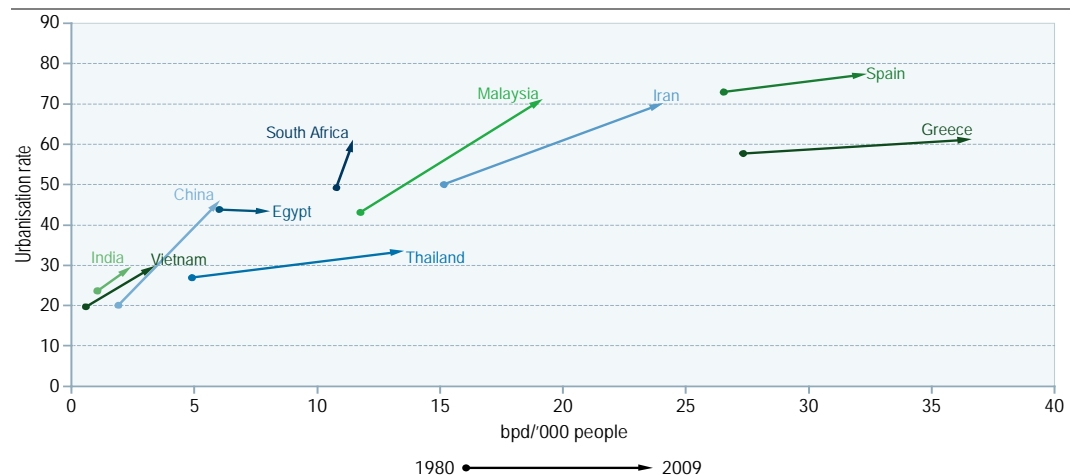
Super-cycles and commodities

A super-cycle of growth brings increased demand for commodities. Depending on the supply response, we often see a coincident super-cycle in commodity prices. During the current growth super-cycle, we expect strong price rises across many commodities, but especially for copper, coal, oil and cotton, as we believe the supply response will struggle to get ahead of demand due to the scale and pace of change. The higher prices received by many producers should have a positive impact on the world economy as investment increases (including foreign investment of proceeds) and domestic demand is spurred.

Unprecedented rates of urbanisation and phenomenal growth in the Asian middle classes will drive the commodity markets for the next 20 years

High urbanisation rates and rapid growth in the middle classes in Asia and other developing regions have a particularly big impact on demand for commodities. Urbanisation is a very commodity-intensive process, and historically, commodity consumption has significantly increased as annual per-capita income approaches a level deemed 'middle class'. The next 20 years will bring an unprecedented increase in the number of people living in cities (close to 5bn people will live in cities by 2030, compared with 3.4bn now). Indeed, the OECD projects an equally significant increase in the size of the global middle class (from 1.8bn in 2009 to about 5bn in 2030). Their increased consumption will drive demand for a variety of commodities. The commodity consumption of the middle classes in the US will still be higher on a per-capita basis, but the vast numbers involved in Asia will be overwhelming.

Chart 1: Per-capita energy consumption and urbanisation rate (1980 vs. 2009)

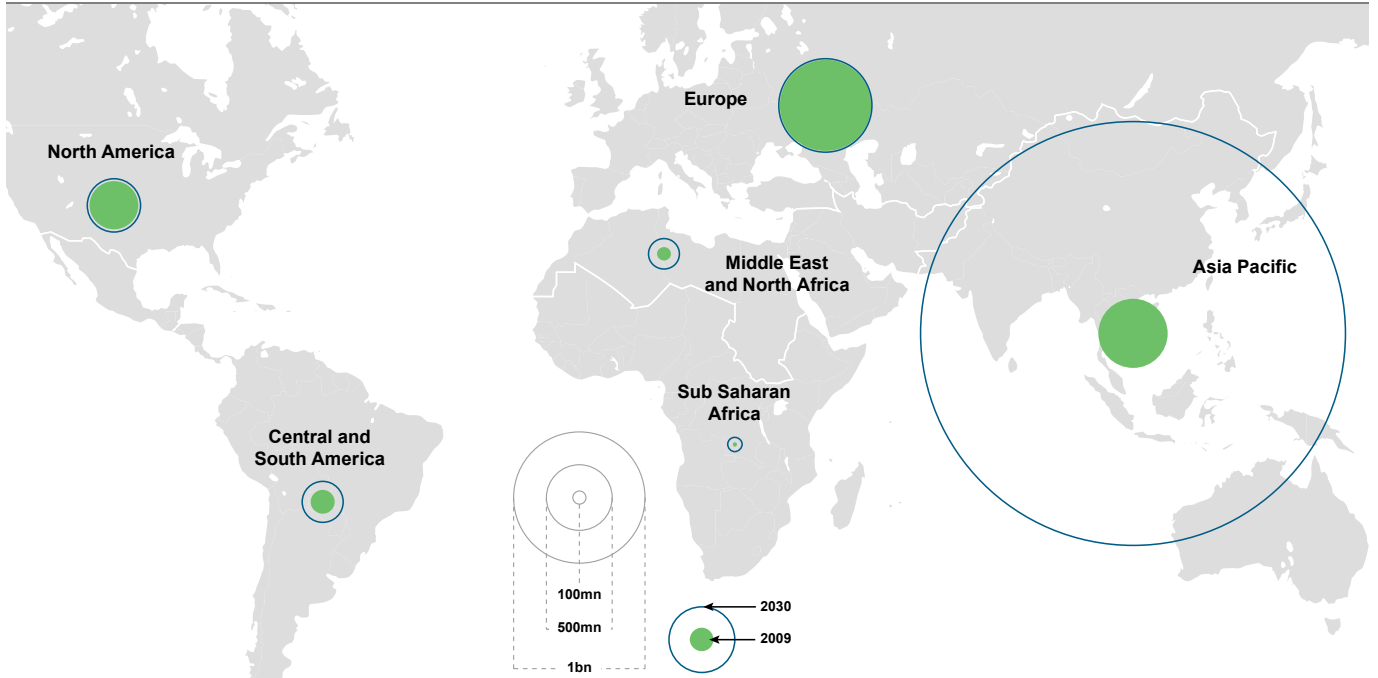


Sources: US DOE, EIA, United Nations



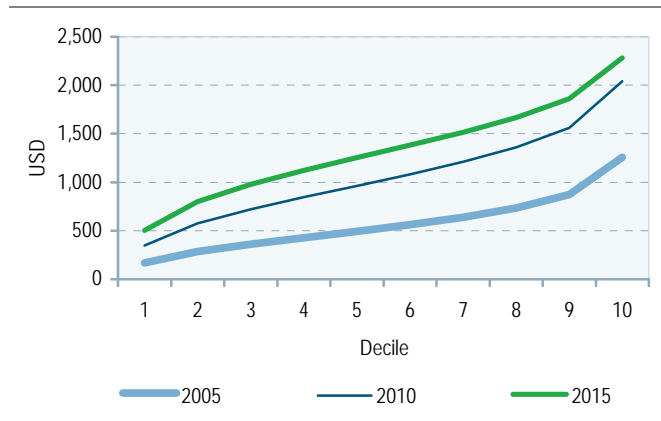
7. Commodities

Chart 2: Middle classes by region
Numbers of the world's middle class, mn



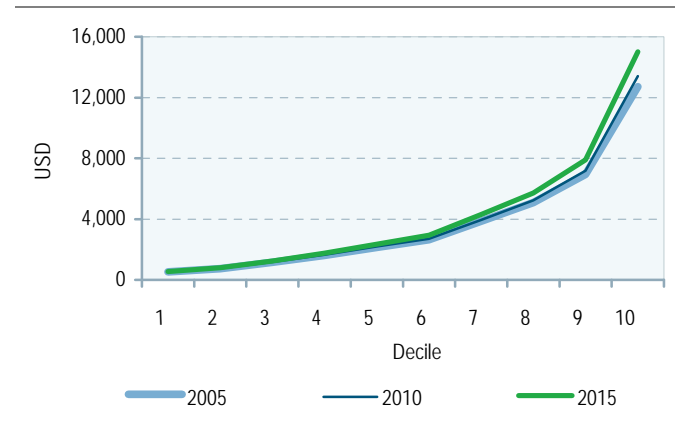
Sources: OECD, Standard Chartered Research

Chart 3: Chinese consumers' annual expenditure on food and non-alcoholic beverages



Source: Euromonitor International

Chart 4: US consumers' annual expenditure on household goods and services



Source: Euromonitor International

Copper traded at USD 9,790/t in 1890 (in 2010 prices); the current price is USD 8,850/t

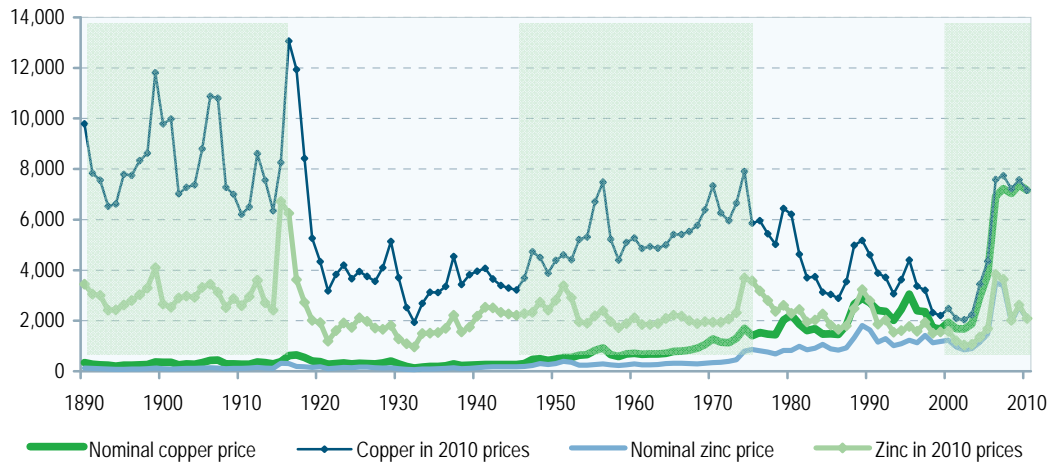
Super-cycles have varying effects on different commodities

Just because demand rises does not mean that prices inevitably follow. Commodities behave differently throughout super-cycles. Insufficient production, delayed supply responses, price controls, technological innovations and a general lack of investment result in noticeable differences. Different patterns emerge. Copper and zinc in particular are classic examples of commodities reacting strongly to super-cycles, given their low inventory levels and inelastic supply. In 1890, roughly halfway through the super-cycle (see first shaded section of Chart 5), copper traded at USD 9,790/tonne (t) in 2010 prices. Today, copper is trading at USD 8,850/t.



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Chart 5: Copper and zinc prices during super cycles (shaded)

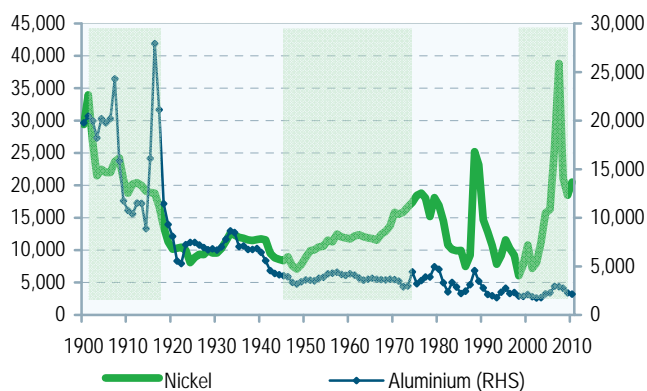


Sources: Bloomberg, USGS, US Dept of Labour, Warren & Pearson

Nickel, a new-age metal, was unaffected by the first super-cycle, from 1870-1913 (it was a luxury item during that time), but the second and third super-cycles (1945-1973 and 2000 onwards) had a noticeable effect on its price given its role as an industrial metal (Chart 6). By contrast, aluminium, where supply is quite elastic, is able to respond much faster to increased demand, hence capping price increases.

Chart 6: Nickel and aluminium in 2010 prices

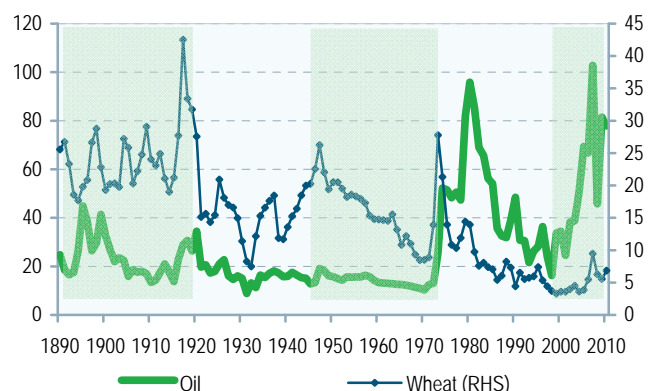
Tonnes



Sources: Bloomberg, USGS, US Dept. of Labour, Warren & Pearson

Chart 7: Oil and wheat in 2010 prices

Bbl and bushels



Sources: Bloomberg, US Census Bureau, US Dept. of Labour, Warren & Pearson

Oil was volatile in the first super-cycle and stable in the second; in the third, it is once again volatile

Oil's historical price performance has differed from that of other commodities during the super-cycles (Chart 7). During its infancy (starting in 1860), the oil market was exposed to periods of over-production followed by careless depletions of reservoirs, creating considerable volatility. Price controls during the second super-cycle reduced volatility, while oil's price moves since 2000 have shown increased volatility. Wheat's response has also varied from one super-cycle to the next. During the first period, reduced shipping costs and times due to the advent of steamships, combined with the opening up of the Americas, depressed prices at times. The second period witnessed the so called 'green revolution', which significantly increased wheat output, thus dampening prices.



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Proven oil supply globally rose 32% over the 20 years from 1999 to 2009

The Asian financial crisis of 1997 caused commodity projects to be put on hold. Once demand re-accelerated, supply could not keep up, and prices started to rise in 2000, marking the beginning of the third commodity super-cycle. The credit crisis of 2008 interrupted the cycle (note that historically there have been business cycles within super-cycles) and commodity prices declined dramatically. However, this setback is likely to make the next stage of the super-cycle stronger and longer-lasting. For example, nearly USD 200bn of mining projects were delayed or cancelled in the months after the credit crisis, and projects that were initially expected to come online in 2010 and 2011 are now unlikely to surface until at least 2014. Given this supply constraint – along with a strong demand recovery, increased urbanisation and a rapidly growing middle class – commodity prices are much higher now than they were 10 years ago. And this is happening in an environment where there are still concerns about the strength of the global recovery. In short, while super-cycles have violent swings up and down, as this one has, the overall price trend is up, and we expect this to continue.

Many individual commodities can be studied in the context of a super-cycle. Here we focus on several that provide insights into how markets may behave differently in a super-cycle. For energy, we focus on crude oil and coal. A central theme of these markets is that they are growing in a world where intensity of use is declining. For the industrial metals, we focus on copper given its inelastic supply characteristics and its behaviour over previous super-cycles. Lastly, we focus on agriculture (wheat and cotton). We choose to focus on these two not because they are complements or substitutes for each other, but because we believe that they react in different ways to the super-cycle – wheat is driven mainly by population growth, whereas cotton is driven by both population and income growth.

Energy

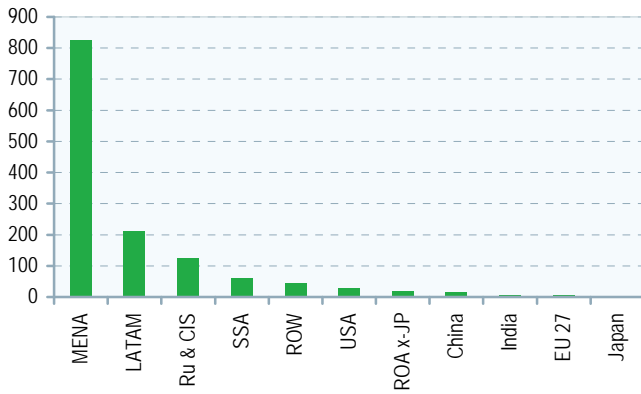
Oil – increasing supply is critical

An expanding global economy and the continuation of the super-cycle require growing energy supply. As we outline in the 'Climate change' chapter of this report, the energy sector is undergoing a significant transformation, driven by the need to de-carbonise the energy mix. But until suitable alternatives can be developed (in particular for transportation), more energy demand means higher oil crude demand. Prior to the latest global recession, oil demand in the OECD started falling as a result of both high prices and moves to de-carbonise and improve national energy security. Meanwhile, non-OECD demand continued to rise. However, even in non-OECD countries, the oil efficiency of the economy improved, with the result that the amount of oil required to produce a unit of GDP fell.

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Chart 8: Where global crude oil reserves stood in 2009

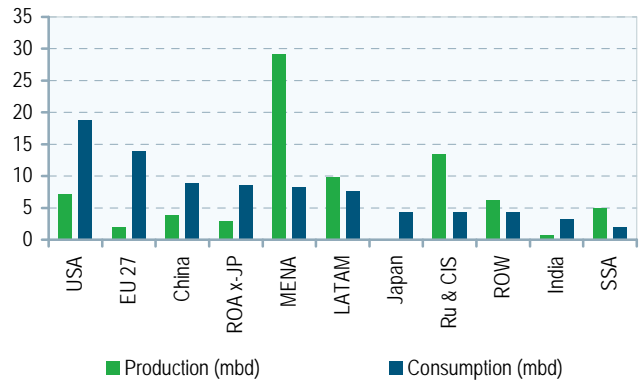
Billion barrels



Source: BP Statistical Review of World Energy 2010

Chart 9: Amount of crude oil used and produced in 2009

Million barrels per day



Source: BP Statistical Review of World Energy 2010

Additionally, proven crude oil reserves globally rose 32% over the 10 years from 1999 to 2009, to 1.33trn barrels (bbl). The cushion of spare capacity that has emerged as a result of the global recession, and the rapid recovery in oil prices to the USD 70-80/bbl range, around the levels of marginal cost (which ensures that investment plans remain financially viable and thus largely on track) have dampened concerns of immediate supply constraints. The key question is how much marginal costs will rise as new supply is brought on-stream to feed the enormous demand generated by a super-cycle.

Oil intensity varies widely across regions. We project that intensity will decline quite significantly over the next 20 years

Oil demand – a function of intensity all the way to 2030

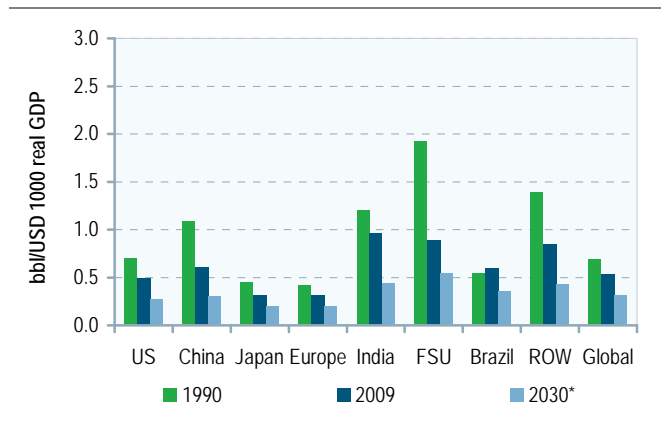
Our model for oil demand trends to 2030 is based on a forecast of oil intensity – the number of barrels of oil required to produce USD 1,000 of GDP. The global average is currently 0.54 (ranging from 0.31 in Japan and Europe to 0.96 in India). We use oil intensity as the basis for our model, rather than oil demand as a function of GDP growth, as oil intensity is less volatile yet incorporates key trends such as price-driven demand destruction (through inter-fuel substitution, greater thrift or increased efficiency) and policy-driven de-carbonisation of energy sources (see ‘Climate change’ chapter).

We analyse the top seven consumers (Chart 10), which account for two-thirds of global oil consumption, and assume a pace of decline in oil intensity based on recent history, local oil-market characteristics, technological changes and future policy expectations. We assume that the pace of change will accelerate after 2020 due to higher prices and the increasing commercialisation of alternative energy sources. The net result of our model is that global oil intensity will drop to 0.32 bbl per USD 1,000 of real GDP by 2030 (Chart 10). This suggests that demand will still rise to 112 million barrels per day (mbd) by 2030 from 87mbd today, and per-capita oil use will rise to 4.9bbl p.a., from 4.6bbl today (Chart 11).



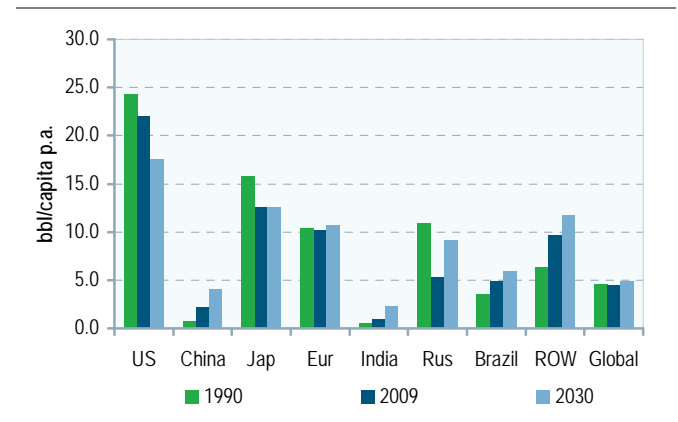
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Chart 10: Oil intensity of GDP



Sources: IEA, Standard Chartered Research

Chart 11: Forecasts for per-capita oil consumption



Sources: IEA, Standard Chartered Research

Oil supply – insufficient to meet demand

Our supply capacity forecasts are based on Cambridge Energy Research Associates (CERA) projections, incorporating forecasts for more than 24,000 fields and known discoveries, together with estimates for yet-to-find resources. Supply is limited not by underground reserves (which are ample), but by the pace of investment in capacity. CERA’s supply forecasts assume that prices will remain above marginal cost, and that demand will rise steadily to 106mbd by 2030 (6mbd below our own forecast). Our demand forecasts suggest that, towards the end of the forecast period, such supply will be insufficient to meet demand with the margin of spare capacity required to cushion geopolitical risks. Consequently, we expect supply concerns to re-emerge beyond 2024.

Because the forecast declines in oil intensity are already relatively aggressive and are ultimately limited by technology, we expect productive capacity to increase (albeit with a lag) to ensure sufficient output. We conclude that crude oil prices will need to rise in order to ensure adequate supply to meet the future demand implied by our GDP forecasts, even accounting for greater efficiency and substitution for other fuels.

Our oil demand forecast of 112mbd by 2030 suggests that supply cannot keep up over the super-cycle; spare capacity will drop below 3% of demand by 2030

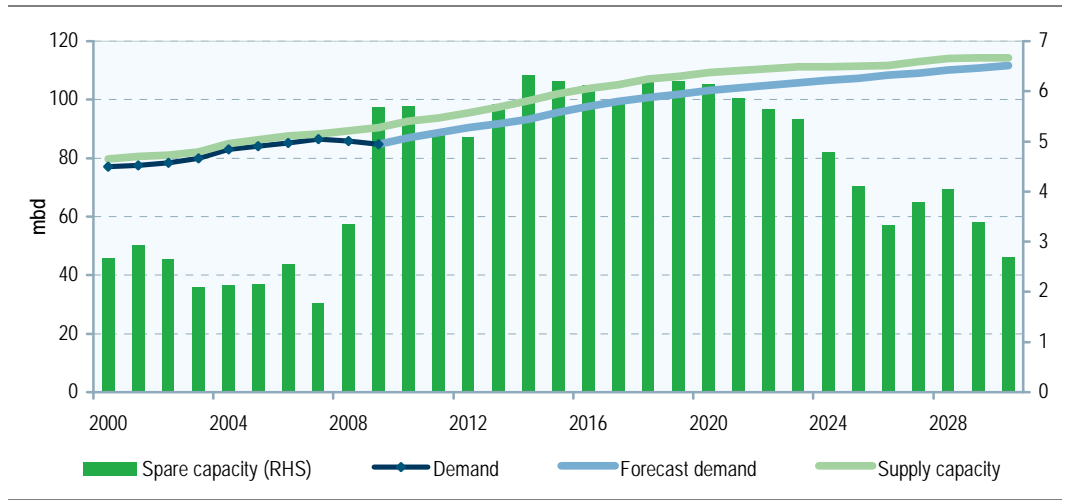
Oil price forecast – significant price increases on the horizon

By 2024, spare capacity will fall below 5% of demand, based on our forecasts; at that point, we expect a supply premium to be built into the oil price, lifting prices above marginal costs and raising supply further, albeit with a lag. By 2030, our model suggests that spare capacity will drop below 3% of demand for the first time since 2007, and we expect a supply risk premium of USD 20/bbl at this stage.



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Chart 12: Forecast demand and supply

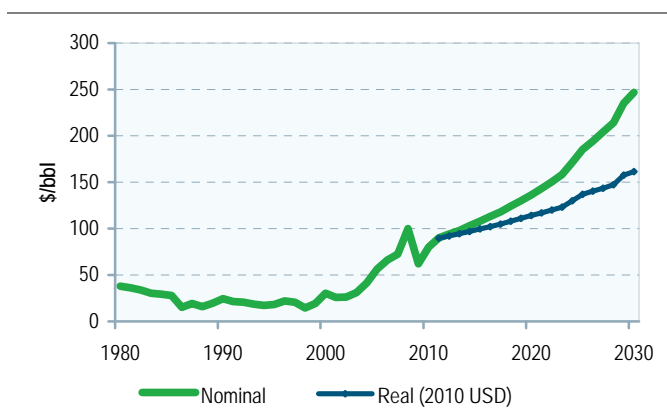


Sources: CERA, Standard Chartered Research

We forecast that oil prices will rise to USD 136/bbl by 2020 and trend higher to USD 247/bbl by 2030

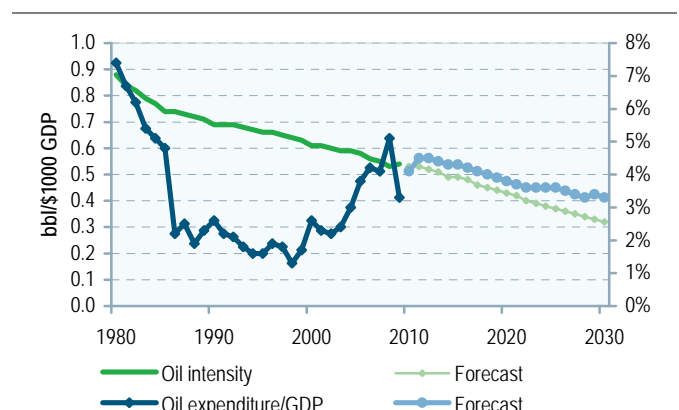
We forecast that prices will rise to USD 136/bbl by 2020 and USD 247/bbl by 2030 (Chart 13). In real terms, this is a doubling of prices. Expenditure on oil as a proportion of GDP will need to remain at a higher level than was seen during the 1985-2000 period (see Chart 14), putting a burden on personal budgets or, where subsidies are prevalent, government finances. Countries and regions with resources (MENA, Russia and Latam) will clearly benefit from the super-cycle, while those that lack resources and are heavily import-dependent (the US, the EU, Japan) will suffer.

Chart 13: Oil price forecasts



Source: Standard Chartered Research

Chart 14: Forecast global oil intensity and oil expenditure % of GDP



Source: Standard Chartered Research



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Coal – Asian demand growth and supply constraints to drive prices

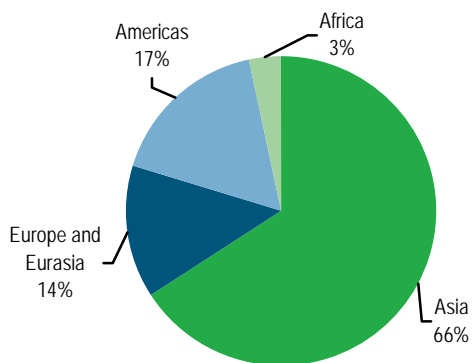
Coal accounts for about 29% of the total primary energy mix globally, but for some 52% of Asia's energy mix. Today, Asia accounts for about 66% of global coal consumption (Chart 15). The region's dependency on coal gives it a cost advantage. Coal is currently about 45% cheaper than gas on an equivalent heat basis, and 85% cheaper than oil (Chart 16). Relatively low costs for coal (and a resistance to carbon pricing) mean Asia is likely to remain reliant on coal for the rest of the current super-cycle. With Asia set to grow at a much faster pace than developed economies during the super-cycle, this sets the stage for secular growth in coal demand.

We forecast that the global coal market will grow to 12.8bn tonnes over the next 20 years, double the size of today's market

Coal demand – intensity reduction cannot stop the strong uptrend

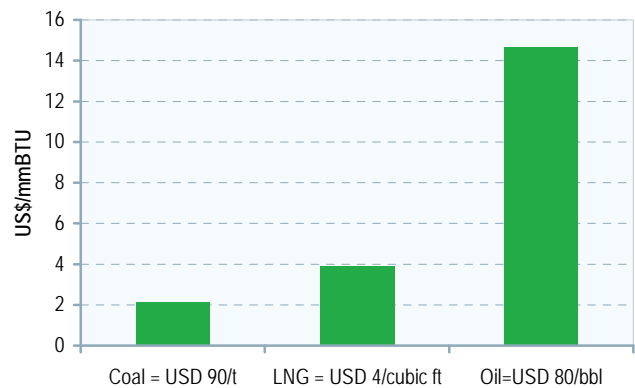
As with oil, we focus on coal intensity trends to analyse global demand during the super-cycle. Coal intensity has been fairly consistent globally over the past 10 years, growing about 1% p.a. However, in the next 20 years, we expect global coal intensity to drop 1% p.a. (Chart 17) on the back of efficiency gains and substitution effects (mainly in the EU, with natural gas being the substitute). We predict that the global coal market will grow to 12.8bn tonnes by 2030, nearly double the size of today's market. China's coal intensity declined from a high of 292t/CNY 1mn of GDP in 1980 to 94t/CNY 1mn of GDP in 2009, but has shown signs of slowing in the past decade (Chart 18).

Chart 15: Coal consumption breakdown by region



Sources: BP Statistical Review 2010, Standard Chartered Research

Chart 16: Energy cost on heat equivalent basis



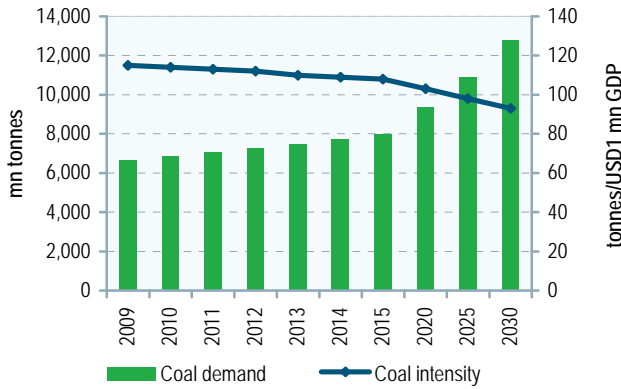
Source: Standard Chartered Research

We expect a global coal deficit of 30mt by 2018, putting upward pressure on prices

Based on our relatively aggressive assumptions of intensity reduction, China's coal market is still set to grow to 8.6bn tonnes by 2030 – 67% of global demand and double the size of today's market. Developments in coal intensity will hold the key to the ultimate size of China's and the world's coal markets, but absolute growth in China's energy demand is providing strong support to energy cost intensities, including coal. China's trade will be affected by its ability to develop infrastructure.

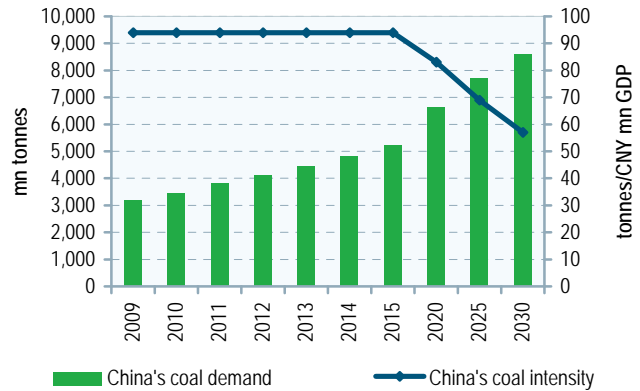
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Chart 17: Change in global coal intensity and demand



Sources: BP Statistical Review 2010, Standard Chartered Research

Chart 18: Change in China's coal intensity and demand

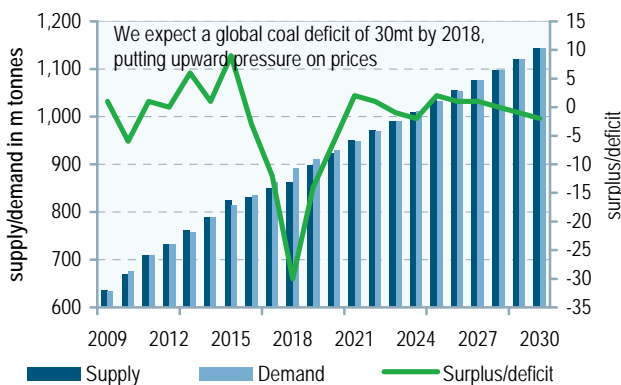


Source: Standard Chartered Research

Coal supply – massive deficits around the corner

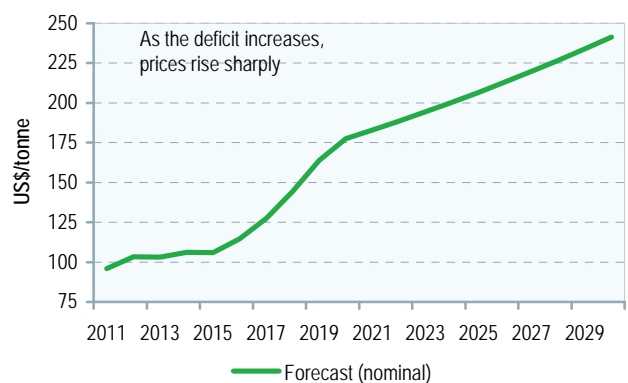
According to our research, the 2008 financial crisis has delayed some 33mt of supply from new coal mines. This suggests a global deficit as large as 30mt by 2018 (see Chart 19), which will in turn put upward pressure on coal prices (Chart 20). Supply from Australia and Indonesia (the largest exporters) is growing at around 4% y/y, but there are downside risks to supply going forward. Australia, and others, will need to invest heavily in railway and port infrastructure to sustain the necessary supply to satisfy Asian demand. We expect freight rates for coal to stay low or range-bound in the next three to five years due to market oversupply and high scheduled delivery levels for vessels. Port congestion will have a significant influence on freight rates, especially given the increase in the volume of coal traded, and this will ultimately push up coal prices.

Chart 19: Massive coal deficit expected by 2018



Sources: Bloomberg, Standard Chartered Research

Chart 20: Coal price forecast



Source: Standard Chartered Research

With increased demand in Asia and infrastructure under-investment, we expect coal prices to trend up to USD 200/mt by 2024 and over USD 240/mt by 2030

Coal price forecast – huge deficit beyond 2015 to drive prices higher

We forecast that coal supply and demand will be balanced in the next few years, but will tighten beyond 2015. Coal prices should then respond and rise with substantial supply deficits, and fall only when the balance loosens. Beyond 2020, we predict an improvement in infrastructure for coal transportation, and expect supply to respond, limiting dramatic price increases. In the same decade, Australia's port/rail infrastructure development and Indonesia's consumption trends (export supply may

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fall as domestic consumption grows) will be critical and would bring uncertainties to supply. Given increased demand in Asia and under-investment in global infrastructure, we expect coal prices to trend up to the USD 200/mt mark by 2024, and to exceed USD 240/mt by 2030. Regions with abundant stocks (including the US, Russia and Australia) could stand to benefit.

Industrial metals

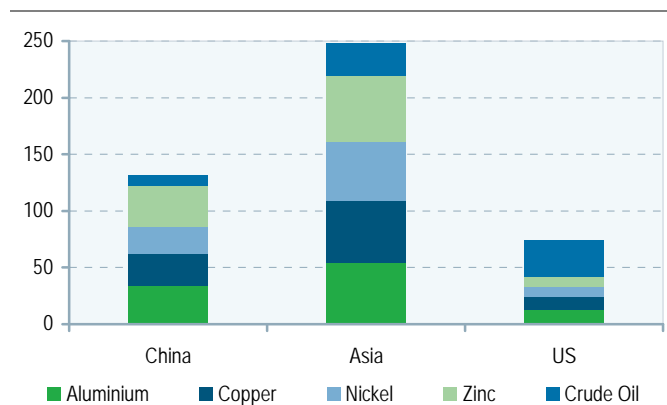
Copper demand – dominated by Asia

Asia's rapid industrialisation has had a profound impact on the industrial metals, resulting in a structural upward shift in both prices and demand. This applies to base metals and platinum group metals. Base metals are heavily leveraged to China (Chart 21), and Asia's economic growth will therefore be far more important to base metals than it would be to crude oil, for example. Copper's reactions to previous super-cycles (with relatively inelastic supply and low inventories) make it an interesting case study. Copper demand is currently robust, and mine supply is struggling to keep up after years of under-investment. The relative positions of the world's largest mine supplier, Chile, and the world's largest consumer, China, highlight a big problem: Chile is expected to add 56 thousand tonnes (kt) to its mine supply this year, while under our reasonably conservative forecasts, China will add 830kt to the demand side of the equation.

Rising copper intensity during the recent rapid industrialisation of India and China compensated for the negative impact of substitution due to high prices

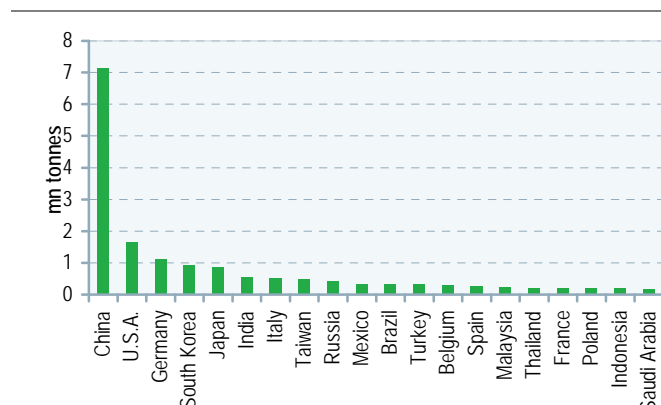
Chart 21: Base metals exposure to Asia

Demand breakdown for 2008, %



Source: IEA, CRU

Chart 22: Largest consumers of copper, 2009



Source: Bloomberg

We also look at copper intensity to analyse demand and forecast ahead to 2030. Our copper demand growth forecast is based on global GDP growth and copper's intensity of use (essentially copper demand per unit of GDP). We expect intensity to be high when manufacturing plays a dominant role in driving GDP growth and low when services dominate. Copper's intensity also tends to be higher when prices are low, and vice-versa. During the most recent period of rapid industrialisation in India and China, rising intensity compensated for the negative impact of substitution due to higher copper prices. Our assumption is that the recession temporarily halted the upward trend in intensity, and that the upward trend will resume during our forecast period.

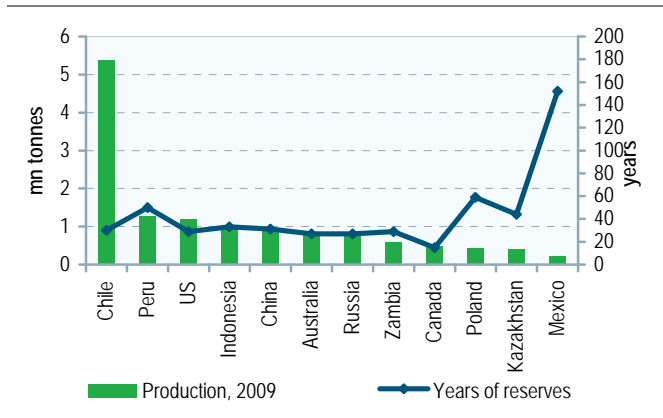
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Copper supply – dominated by Latin America

Copper supply has been tight in the past few years due to declining ore grades at major mines, labour disputes and regional or political unrest in a number of countries. These factors will continue to impact supply growth. Moreover, the 2008 financial crisis impacted project development.

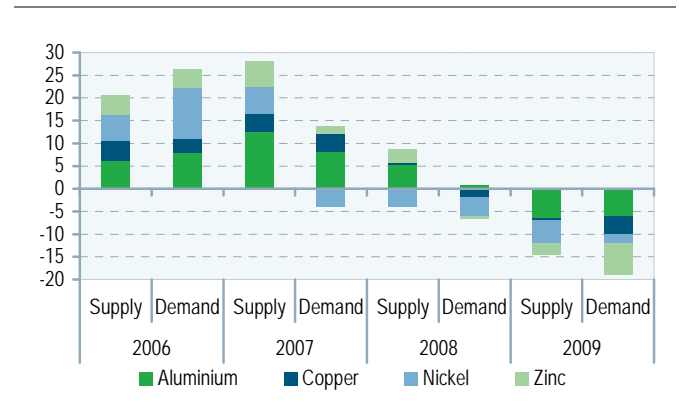
Chart 23: Chile and Peru dominate production

Copper production and reserves



Sources: WBMS, USGS

Chart 24: 2007 period illustrates copper's inelastic supply



Sources: CRU, Standard Chartered Research

The latest financial crisis set back mine project development; labour disputes, declining grades and political unrest are also constraining supply

We forecast a dramatic deficit in copper by 2013; prices are expected to increase to almost USD 12,000/t in 2014 and just over USD 15,000/t by 2027

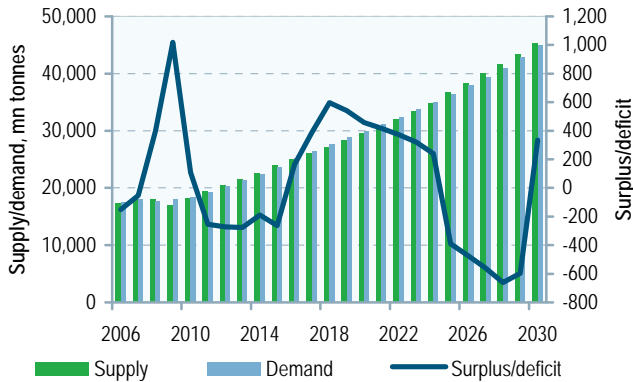
We estimate that the global financial crisis delayed around 3.5mt of new supply. Copper production is dominated by Latin America, and Chile in particular (Chart 23). Mexico has comfortable reserves and has potential to step up production, assuming further reserve development. Supply growth could also come from Africa, China and Mongolia. However, the pace of growth needs to pick up, and the industry will have to continue to contend with obstacles usually associated with discovering and developing new projects fairly quickly given the length of time it takes to complete projects. Falling head grades at major mines in Chile and other places, and continued industrial strife, remain a difficult stumbling block for the industry.

Copper price forecast – under-investment to cause medium-term spike

Over our forecast period, we expect supply to struggle to keep up with demand, which will keep inventories at low levels. Given the drastic under-investment in mines brought about by the 2008 financial crisis, we expect a dramatic deficit by 2013 (Chart 25). However, our review of copper projects that are coming through the pipeline shows that supply growth is insufficient to dampen copper prices. Rising operating costs are another potential supportive factor for copper prices, and miners need to earn satisfactory returns in order to create incentives to bring new projects on-stream. Based on our observation of 80 new global projects, we estimate that the copper price needs to be at least USD 6,239/t to incentivise their development, assuming an internal rate of return (IRR) of 15%. If the miners require an IRR of 20% on new projects, the incentive price rises to USD 7,165/t, according to our estimate. In the medium term, we forecast that copper prices will rise to just under USD 12,000/t in 2014 and just over USD 15,000/t by 2027 (Chart 26). Clearly, Asia loses in the current super-cycle, whereas Latin America benefits.

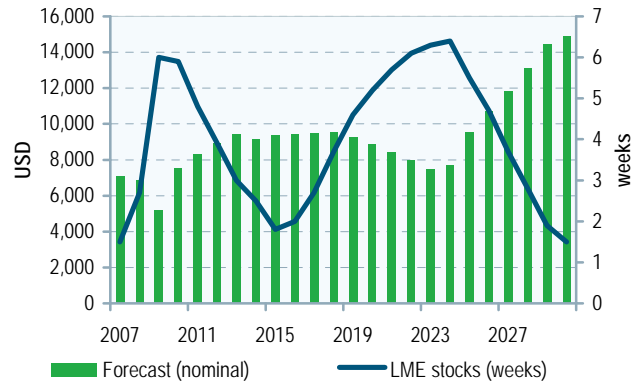
7. Commodities

Chart 25: Copper deficit expected by 2013



Sources: Bloomberg, Standard Chartered Research

Chart 26: Copper price and LME stocks forecast



Source: Bloomberg and Standard Chartered Research

Box 1: China's stranglehold on rare earths – a super-cycle beneficiary

China is the dominant producer in the rare earths market, producing 97% of global supply. Rare earth oxides (REO) are a critical component in the automotive, electronics, environmental and petrochemical sectors. Important end-use markets include applications such as mobile phones, hybrid cars, catalysts and superconductors. Europe, Japan and the US are in a vulnerable position in a super-cycle. It seems likely that production restarts will be encouraged outside China, diluting the country's dominance over time. However, China will probably maintain its leading position in the industry for the foreseeable future. This year, export quota reductions by China have boosted prices of many rare earths.

Agriculture

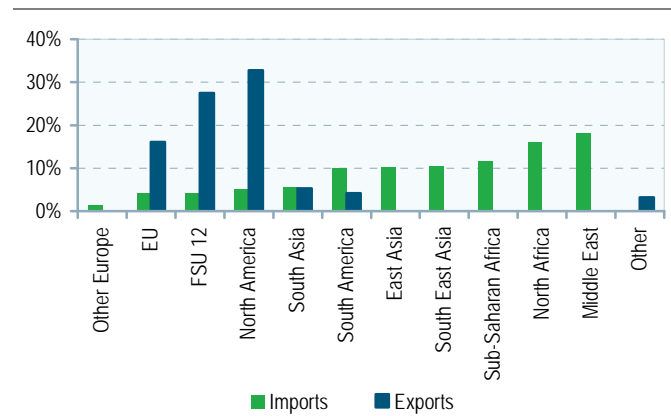
Wheat and cotton – regional resource differences

While wheat output is distributed quite evenly globally, cotton is highly concentrated in South Asia

Wheat output is evenly distributed across regions. Regional shares of global output are as follows: the EU (20%), East Asia (17.1%), former Soviet Union countries (16.7%), South Asia (16.35%) and North America (13.4%). North America comprises 33% of global exports (mainly the US – Chart 27). Sub-Saharan Africa is the second-largest importer (11.7% of global imports) because of its low productivity. Cotton output is dominated by South Asia (particularly India), accounting for 44.2% of global acreage and 32.6% of global output. East Asia accounts for 38% of global cotton imports (despite high acreage and output) because mill use in China accounts for around 50% of global cotton output. North America accounts for just 10.3% of harvested area and 12.5% of global output and is the largest exporter of cotton.

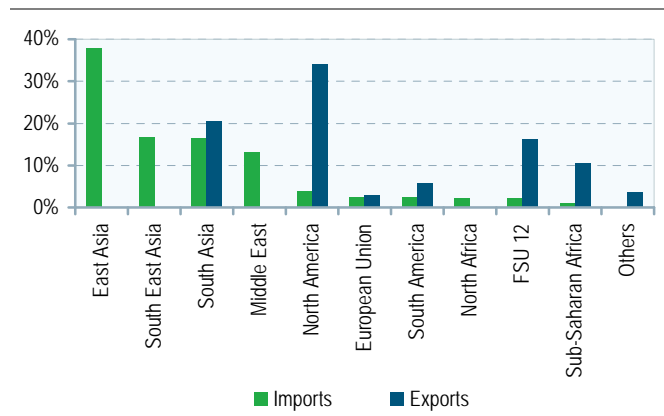
7. Commodities

Chart 27: World wheat importers/exporters by region
Market share, 2009/10 season



Sources: USDA, Standard Chartered Research

Chart 28: World cotton importers/exporters by region
Market share



Sources: USDA, Standard Chartered Research

Agricultural demand – population and/or income growth will be the driver

Population rather than income growth will be the main driver of wheat demand in the super-cycle because China has already achieved a per-capita calorie intake comparable with OECD countries. However, higher global economic growth until 2030 will contribute significantly to demand, helping to underpin prices for all agricultural products over the long term.

Table 1: FAO projections on agricultural commodities

	1979-1989	1989-1999	1999-2015F	2015-2030F
Change in global demand for agricultural products	2.1%	2.0%	1.6%	1.4%
Change in global output of agricultural products	2.1%	2.0%	1.6%	1.3%
Calorie intake (Kcal/calorie/day), global	2,552	2,803	2,940	3,050
Calorie intake (Kcal/calorie/day), OECD	3,206	3,380	3,440	3,500
Calorie intake (Kcal/calorie/day), East Asia	2,559	2,921	3,060	3,190

Source: UN FAO

Demand for agricultural commodities will continue to grow over the current super-cycle, but at a slower pace. This is due to the anticipated slowdown in world population growth to an average of 1% per annum to 2030 from 1.7% over the past 30 years. According to FAO projections, demand for agricultural products is expected to slow (Table 1). The slowdown will be led by China, where over the next three decades, aggregate food consumption is expected to grow at only 25% of the rate seen in the past three decades, while the population will grow at one-third of the past rate.

Wheat and cotton consumption is set to rise substantially by 2030

Although per-capita wheat use in developing countries (such as Egypt, a significant consumer of wheat) is rising, per-capita consumption of wheat globally has dropped over the last decade, from 94.2kg in 2001 to 92.3kg in 2010. Increased output and use of alternative feed grains like soybeans and corn have reduced the use of wheat in feed; around 20% of wheat output is used for feed. Still, over the coming years, wheat consumption in absolute terms is expected to grow from 640mt in 2010 to

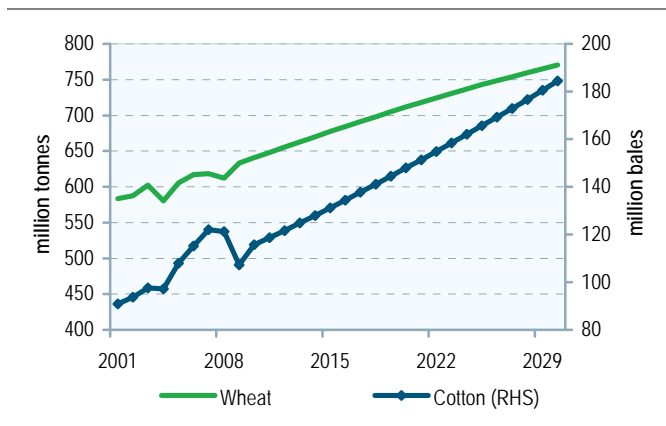


7. Commodities

770mt in 2030 (Chart 29), assuming growth in per-capita consumption remains constant at 2010 levels (at 1.2%). Unlike wheat, demand for cotton is more correlated to economic cycles and income as measured by GDP (Chart 30) as well as population growth. Per-capita demand for cotton rose to 8.8 pounds in 2007 from 7 pounds in 2001.

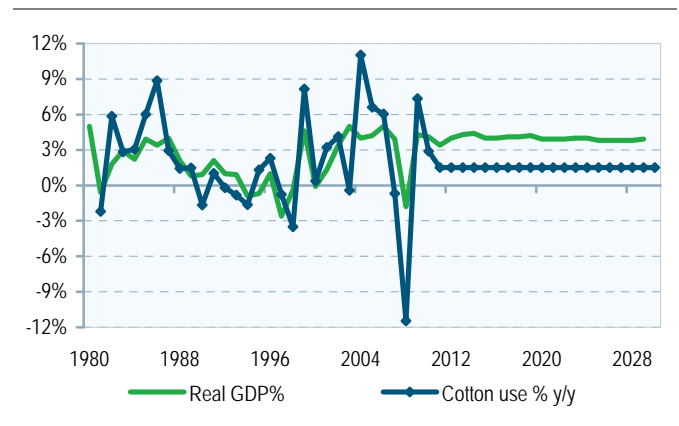
Assuming per-capita demand growth of 1.5% p.a. going forward, cotton consumption should increase to 184mn bales in 2030 from 115mn bales in 2010.

Chart 29: Projected global use of cotton and wheat



Sources: USDA, Standard Chartered Research

Chart 30: Cotton use is closely linked to real GDP growth



Sources: USDA, Standard Chartered Research

Wheat supply could meet demand thanks to yield increases, but the outlook for cotton is less optimistic

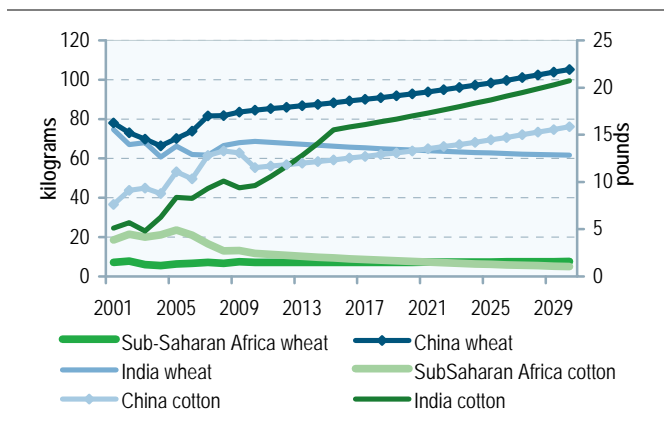
Agricultural supply

According to FAO projections, production of wheat is likely to meet expected demand over the period to 2030 – even without major advances in biotechnology, which could boost productivity further, particularly in areas with special difficulties. For example, China is now generally a small net exporter of cereal, after being a net importer between 1977 and 1997. Similarly, despite concerns about food insecurity in the 1960s, India is now a net exporter of grains on account of the ‘green revolution’, even after doubling its population and increasing its per-capita grain use. The FAO predicts that yield growth will not need to be as rapid as in the past – for example, for wheat yields, an annual rise of only 1.2% is needed over the next 30 years in order to keep up with demand. While this does not take into account additional yields through the use of genetic modification (GM), it also does not incorporate potential supply shocks from erratic global weather events. For cotton, the outlook for output is less optimistic. Even given our projections of annual yield growth of 1.46% and annual per-capita consumption growth of 1.42%, the supply deficit will widen from 13mn bales in 2010 to 47mn bales by 2030 due to significant mill use by China. Per-capita output is expected to vary by commodity and region, however (Chart 31).



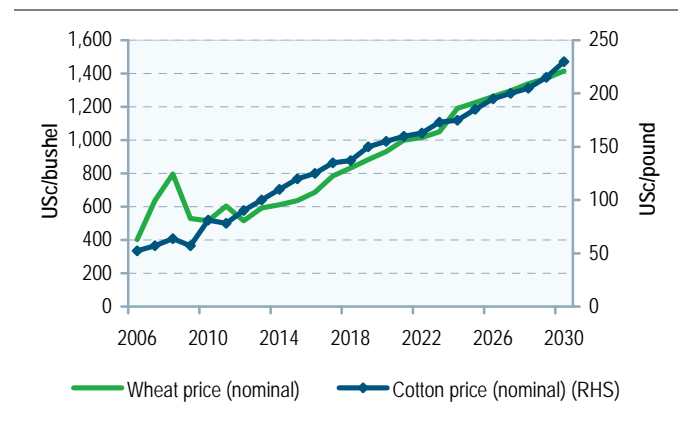
7. Commodities

Chart 31: Per-capita wheat and cotton output projections



Source: Standard Chartered Research

Chart 32: Price forecasts for wheat and cotton



Source: Standard Chartered Research

Our forecast for commodities during the super-cycle is bullish, but the magnitude and timing of price moves will vary across the commodity complex

Price forecasts – cotton gains to outpace wheat in percentage terms

We forecast generally increasing price trends for wheat and cotton (Chart 32), even accounting for moderately higher wheat stocks (with the possible use of GM) and deficit cotton balances (China already uses GM for cotton). Prices for these commodities will increase due to higher input costs (particularly higher energy prices), use of marginal land and the adoption of biotechnology in large emerging economies. In the case of wheat, the shift in surpluses and trade from West to East will generate additional costs as importers move away from established trading lines. It will take time for the East to benefit from the economies of scale enjoyed in established trade corridors. In the case of cotton, higher prices would narrow the discount between cotton and synthetic fibres and make the latter more competitive, thereby reducing the share of cotton in fibre consumption globally. The battle for acreage will further boost prices, as a significant price attraction will be needed to bring more land into food production. Oil prices are projected to move steadily higher, which will keep input costs elevated and push prices higher. While global inflation will filter through to commodity prices, they will always be volatile and will remain vulnerable to supply (weather) shocks. We forecast that prices will trend upwards to 1,416 US\$/bushel for wheat and 230 US\$/pound for cotton. The percentage increase from today's price will be greater for cotton than for wheat.

Conclusions

The characteristics of individual commodities clearly influence the supply, demand and timing and magnitude of their price paths during super-cycles. This one is no different, except for one key factor: the unprecedented number of people achieving middle-class status, combined with the huge scale and rapid rate of urbanisation. This will have significant implications for commodity demand because urbanisation and the move into the middle class is a very commodity-intensive process. Our findings here are bullish for the commodity complex as a whole, but the speed, magnitude and timing of price moves will vary across commodities.

We illustrate that while reductions in oil intensity are a significant variable affecting demand, the supply of oil at a higher cost during the super-cycle will lead to an upward trend in oil prices. In the case of coal, intensity is likely to fall less given the dominance of China's demand. Under-investment in coal mines will bring large

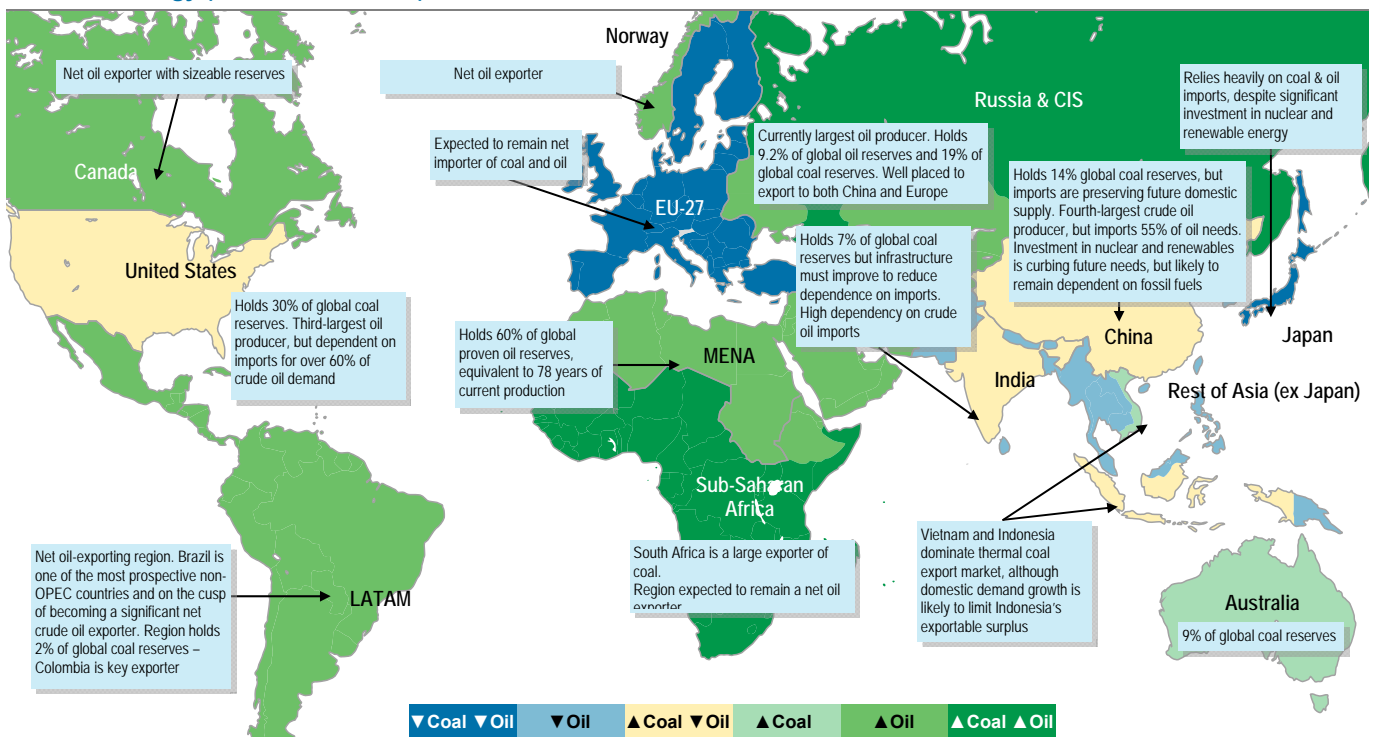


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spikes in prices followed by declines within the generally upward market trend until 2030. Like coal, copper's intensity is less likely to fluctuate as much as oil's, and under-investment in copper mines will also cause price spikes in prices. Yet the timing of these spikes, which will be caused by supply deficits, will be different. Lastly, we find that population growth will be the key driver of wheat demand, whereas both population and income growth will drive cotton. In each case, prices will increase due to land constraints, higher freight and energy costs, the adoption of biotechnology in large emerging economies and an increasing reliance on frontier land. The battle for acreage will push up prices further, as a significant price attraction will be needed to bring more land into food production. Cotton prices will increase more than wheat prices in percentage terms, according to our forecasts. Clearly, with rising prices and a pull on frontier resources, there will be clear (and not-so-clear) winners as well as losers in the current super-cycle (see following maps).

Winners and losers in the super-cycle

Chart 33: Energy (crude oil and coal)

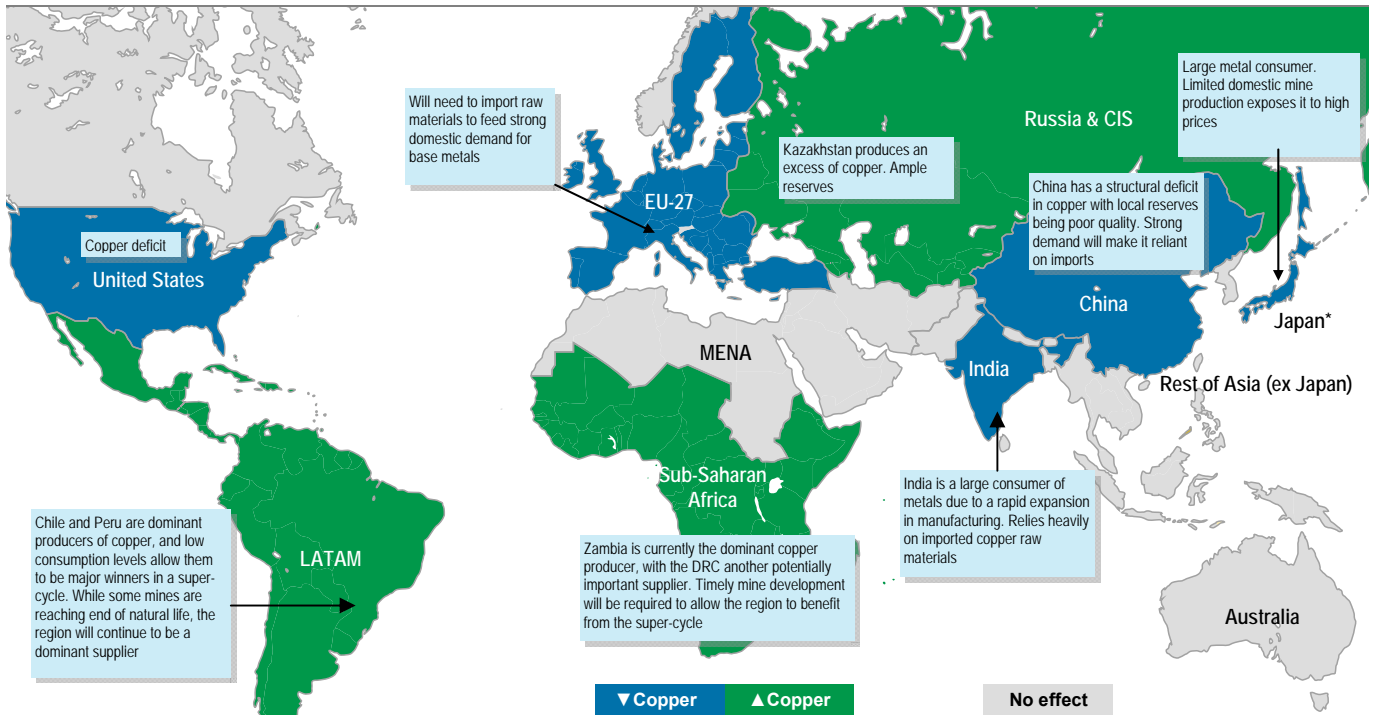


Source: Standard Chartered Research



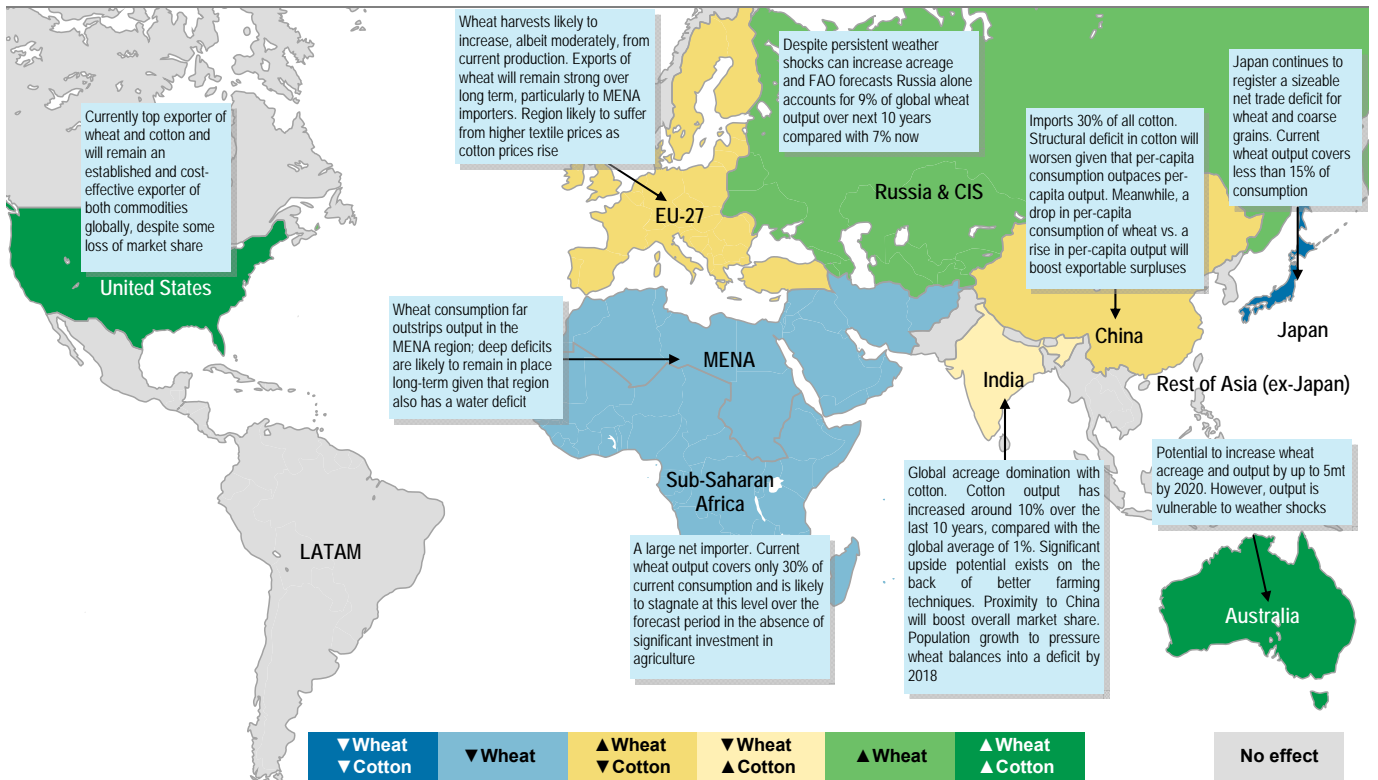
7. Commodities

Chart 34: Metals (copper)



Source: Standard Chartered Research

Chart 35: Agriculture (wheat and cotton)



Source: Standard Chartered Research



8. Climate change and resources

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- **Climate change will exacerbate pressure on food, energy and water resources**
- **Policy needs to address resources issues if super-cycle growth potential is to be realised**
- **Solutions lie in increased efficiency and technology, presenting investment opportunities**

Growing pains and opportunities

A growing economy and population require, at the most basic level, adequate supplies of food, energy and water. The rapid growth envisaged during the current super-cycle will put increasing pressure on the environment to provide sufficient quantities and adequate quality of these resources. Climate change – whether man-made or otherwise – is exacerbating the problem both directly, through changing conditions, and indirectly, by creating an uncertain environment for investment decisions.

Solving the resources issue requires balancing the food-energy-water nexus

The resources are also inextricably inter-related. Solving the resources issue requires balancing the food-energy-water nexus. For food, the key issues are availability and affordability, particularly for developing countries. In the ‘Commodities’ chapter of this report, we highlight upward pressure on grains prices. For energy, there is the additional challenge of de-carbonising the energy mix and addressing energy security concerns. Increased investment in bio-fuels is the most direct link between food and energy – bio-fuel investment raises concerns about land resources, and higher energy costs feed through the supply chain into food production. For water, the issue is one of management and regional disparities rather than global availability. Water scarcity is already a critical issue in many regions, and will be exacerbated by the climate variability that is becoming increasingly evident. Food and energy production can be water-intensive processes and have a significant impact on water availability in particular regions.

In this chapter, we look at the impact of climate change and the wider challenges in meeting the food, energy and water needs arising from projected growth. While the chapter on commodities highlighted the potential upside for energy, metals and food commodity prices, here we examine the potential solutions and policy outcomes of the wider resources challenge, and the opportunities they present.

Climate change – mitigation and adaptation

There is now broad scientific consensus and widespread popular acceptance that the climate is changing, and that measures need to be taken to adapt to new conditions and mitigate the impact that economic activity is having on the environment.

Climate change is already a reality

According to the UN’s Intergovernmental Panel on Climate Change (IPCC), the earth’s surface warmed up by about 0.74°C over the previous century (Chart 1). In its latest Assessment Report, the IPCC stated that warming is “unequivocal” and that greenhouse gas emissions caused by human activity are “very likely” responsible for

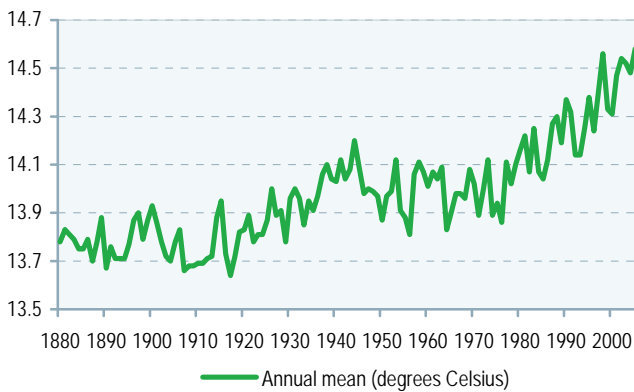


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most of the increase in global average temperatures since the mid-20th century. The report found that greenhouse gas emissions increased by 70% between 1970 and 2004, and carbon dioxide (CO₂) – the largest source of greenhouse gas emissions – increased by about 80% over the same period (Chart 2). The IPCC predicts that, if greenhouse gas emissions continue to increase at the current rate, we could see a temperature rise of 2°C to 4.5°C by 2100.

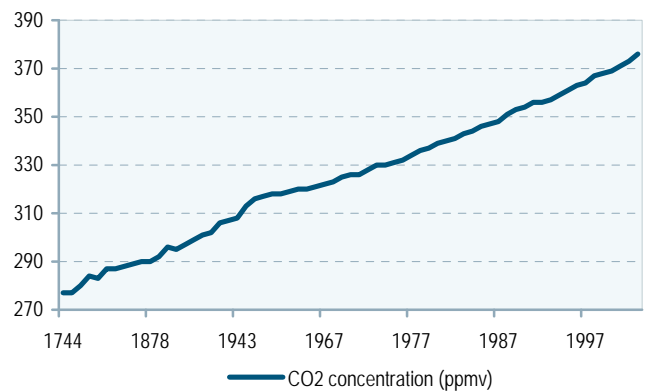
Climate variability is also changing, creating challenges across the food, energy and water sectors. Responses to climate variability are broadly focused on mitigation and adaptation, and will come at a cost. The impact of climate change will vary greatly across regions and is likely to be disproportionately felt by the poor.

Chart 1: Rising global temperatures



Source: Earth Watch

Chart 2: CO₂ emissions



Source: Earth Watch

We expect upward pressure on food prices to continue

Food – availability and affordability

The cost of feeding the world

While food prices are lower now than in mid-2008 (Charts 3 and 4), they remain at historically high levels for both cyclical and structural reasons. Grain harvests had been relatively poor for several years before the 2008-09 financial crisis, mostly due to adverse weather conditions, which led to a tightening of stock levels. The situation was made worse by an acceleration in demand from the bio-fuel sector, which boosted demand for agricultural commodities such as corn, sugar and edible oils. Higher feed costs then fed through to the livestock sector.

Prices are now rising again and have more than doubled from their lows in mid-2002. In our view, this marks the resumption of a longer-term trend of rising prices, driven by the increasing cost of agricultural production to meet the inexorable rise in demand for food commodities.

Meeting future demand

We expect food demand to continue to grow, albeit at a slower rate than in the last couple of decades. The composition of that demand is also changing because of rising incomes and urbanisation. If the world population reaches 9.1bn by 2050, this will require a 70% increase in food production from 2005-07 levels, including a 900 million tonne (mt) (43%) increase in cereal production and a 200mt (74%) increase in

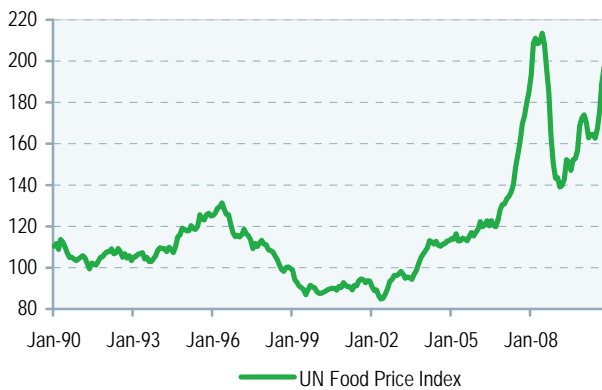


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meat production. These UN projections include a continued increase in 'average daily calorie availability', improving food availability to the poor.

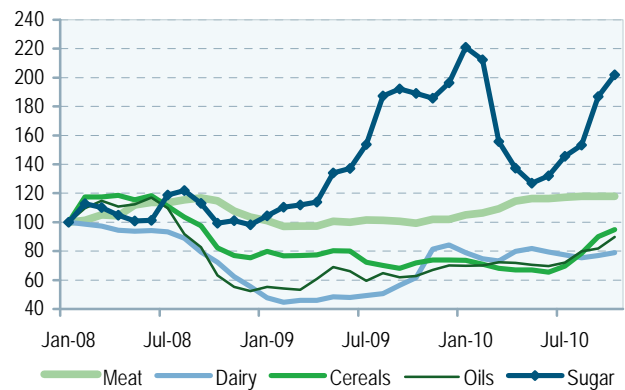
Rapid rates of urbanisation are expected to continue to significantly alter consumers' diets and to boost food demand. In 2000, China's household surveys showed that per-capita red meat consumption in urban areas was 40% higher than in rural areas. Per-capita fish consumption in urban areas was three times higher, and egg and poultry consumption was more than two-and-a-half times higher than in rural areas. Urban per-capita grain consumption was only one-third the rural average. Since diets rich in meat require feedgrains and meals, they use more cereal than diets based on direct cereal consumption. By 2030, 60% of the global population is expected to be urban – 5bn people compared to 3.4bn now – which will boost consumption of meat, fruit, vegetables and processed food products.

Chart 3: Food prices are on the rise



Source: UN FAO

Chart 4: Breakdown of UN Food Price Index by food type



Sources: UN FAO, Standard Chartered Research

Agricultural output will need to rise. In simple terms, this can be achieved by either increasing the acreage planted or improving yields. While in theory there is sufficient land available for an expansion of arable acreage, competing land uses will likely bid up rents and thus commodity prices. The available land is also unevenly distributed, and is mainly concentrated in Latin America and Sub-Saharan Africa (Chart 5). The UN assumes a substantial increase in yields (+77%) by 2050, based on the same rate of increase seen since 1961. This may be achievable, particularly with increased use of fertilisers (potash, nitrates and phosphates) and the development of agricultural biotechnology and genetic modification techniques. However, it will require significant investment in the agricultural sector, adding to upward pressure on costs and prices.

Water scarcity and climate change

The more far-reaching issues of water scarcity and climate change may even begin to affect existing production levels, let alone expansion plans. Agriculture is highly water-intensive, but in many areas of the world – particularly Asia, Africa and the Middle East – water is an extremely limited resource. Pollution, aquifer depletion and climate variability are adding to the problem. The good news is that the world has sufficient water to meet agricultural and all other needs. But resolving water scarcity will require investment and a flexible approach to the use and distribution of water, especially for agriculture, and particularly where food security is concerned.

Water availability is key to fulfilling agricultural potential



8. Climate change and resources

The weather continues to be the most important determinant of global agricultural output. Historical weather patterns are already changing. Most climate models predict more rainfall in the northern and southern latitudes and less in the sub-tropics, and greater risks of droughts and floods. Extreme weather events are also predicted to increase substantially, and long-standing weather patterns (such as monsoons) may change. All of these factors will affect food production – some positively, many negatively – as weather patterns become less stable. We will have to adapt to the new ‘abnormal’ weather conditions, which will come at a cost.

Agricultural prices will be increasingly linked to fuel prices

Bio-fuels – intensifying the link with energy prices

Bio-fuels have become a significant driver of demand for agricultural commodities such as corn, sugar and palm oil. While there is little possibility that bio-fuels will solve the global energy problem – and extensive debate persists over their economic and environmental benefits – we believe that the drive towards energy security will continue to ensure a policy-driven expansion of the sector.

Bio-fuels expansion has two implications. First – barring the rapid development and commercialisation of bio-fuels using non-food feedstocks – it will mean increased competition for arable land. This will put upward pressure on food costs and prices. Second, prices for agricultural products, particularly for bio-fuel feedstocks, will likely become more correlated with energy prices and risk being subject to a further source of volatility. The impact of speculation on commodity markets is a hotly debated issue that we will not attempt to resolve here, but extended regulation is unlikely to deter this investment. Thus, agricultural markets will continue to see substantial flows and be increasingly affected by macro sentiment and trends.

Asia is a significant driver of both demand and supply

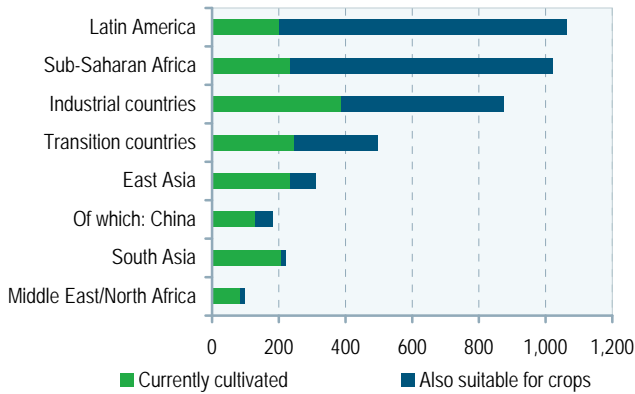
Asia is expected to dominate dynamics of global food balance

Asia is increasingly taking a leading role in driving global balances of resources, including food. We expect food demand to continue to grow on the back of population and economic growth, albeit at a slower rate than in the last couple of decades. The composition of demand is changing with rising incomes and urbanisation, among a wide variety of regional issues. According to UN estimates, Asia’s urban population is likely to rise to 53% from 42% currently, bringing an extra 618mn people to Asia’s cities. Rising per-capita incomes will lead to increased consumption of diets that are higher in protein and meat, requiring more grain production. Asia is set to dominate global demand for feedgrains until 2050. As limits to self-sufficiency loom, we see a further risk of protectionist measures (e.g., export bans) and heightened security concerns for importers. Therefore, the need for further agricultural investment is more pressing than ever.

Because Asia is also the world’s largest supplier of food, its food supply growth will be critical for the global food balance. Currently, little spare land is available (Chart 5), mainly due to competition with other land uses (such as urbanisation and bio-fuels development), and production is already intensive. Improved crop yields are needed to increase production, which requires significant investment. According to the UN’s Food and Agriculture Organization (FAO), about USD 9.7trn needs to be invested globally by 2050 (USD 5.5trn in Asia) to feed the world’s human population (Chart 6). In Asia alone, USD 120bn is needed every year but current investment stands at only USD 80bn, creating an annual shortfall of USD 40bn that will lead to a tight balance for the region for decades to come.

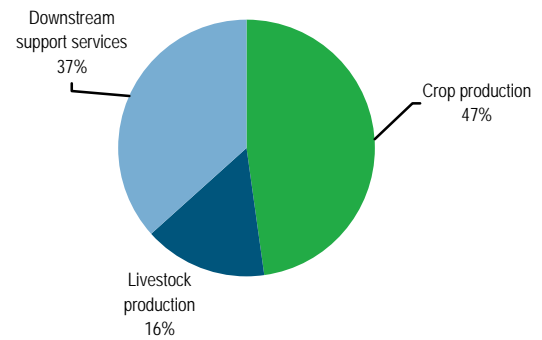
8. Climate change and resources

Chart 5: Sources of growth in crop production to 2050 (%)



Source: FAO (2009)

Chart 6: Investment required in agricultural sector to 2050



Source: FAO (2009)

Implications – higher prices, regional variability, affordability

Taking account of climate change and water scarcity issues, maintaining a global balance of food supply and demand has become increasingly challenging. We believe that:

- 'Feeding the world' is achievable at a global level, but at a cost which will inevitably mean higher food prices.
- Regional variations in food availability will widen, leading to more cross-border investment in the agricultural sector, the risk of protectionist policies, and heightened food security concerns for net food importers.
- At a local level, food affordability will become a key focus of fiscal and trade policy in developing countries. While higher prices have positive implications for farm incomes and investment incentives, they will hinder the drive to improve food security for the poor.

A key consequence is that overseas investment in agricultural land will rise, particularly in Africa, where land (Chart 5) and – contrary to popular opinion – water (Chart 14) are generally less scarce than in the Middle East or North and East Asia.

Energy – the new mix

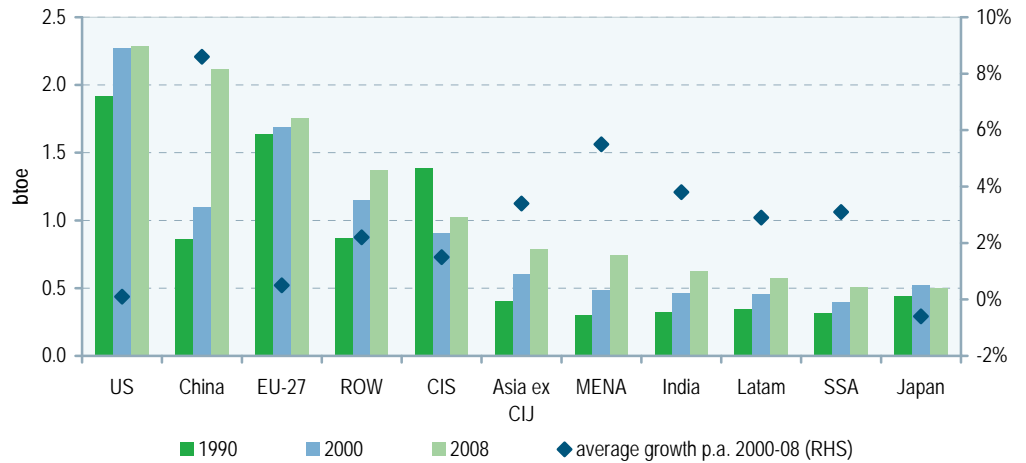
The twin objectives of meeting demand and de-carbonising

The challenge for the energy sector is to meet the energy needs of economic growth, while de-carbonising the energy mix to limit the climate impact. Energy accounts for a substantial proportion of global carbon emissions. The UN IPCC estimates that CO₂ emissions from the use of fossil fuels account for 57% of global greenhouse gas emissions related to human activity. The energy sector is consequently a key focus of climate change policy. Energy security issues reinforce the trend towards developing cleaner energy sources, as they are less geographically concentrated.



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Chart 7: Total primary energy demand by region



Sources: IEA, Standard Chartered Research

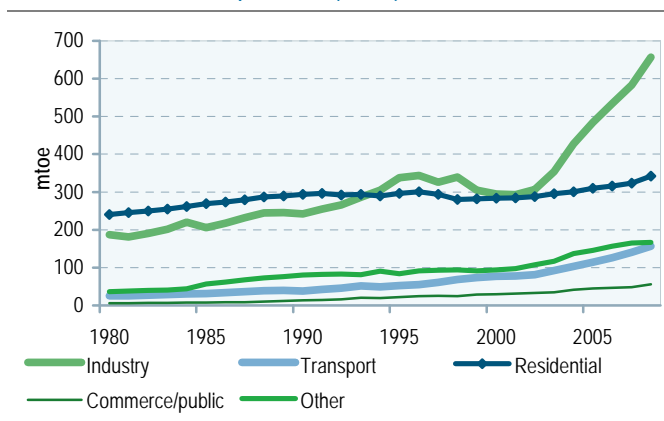
China dominates energy demand growth, driven predominately by industrial growth

As Chart 7 shows, while energy demand has risen across all regions in the 2000s, China showed by far the sharpest increase, accounting for 46% of the increase in global primary energy demand (PED) since 2000. China's growth has averaged 8.6% p.a. over the period, compared with 1.6% in the rest of the world. The next largest consumer is the Middle East and North Africa (MENA) region, with 5.5% growth, followed by India, with 3.8%.

China's overall energy needs are driven by industrial-sector growth (Chart 8), almost singlehandedly increasing the proportion of coal in the global energy mix to 27% from 23% a decade ago (Chart 9). Globally, the use of coal and associated products has grown by 4% p.a. on average over the last 10 years, compared with 1.4 % for oil and 3.1% for gas. The use of solar and wind power has grown at an impressive 21.5% p.a., but they still comprise just 0.3% of the energy mix.

Chart 8: China – energy consumption by sector

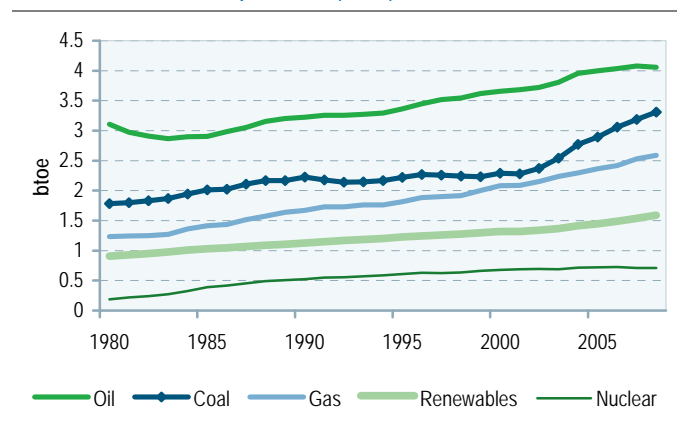
Million tonnes of oil equivalent (mtoe)



Source: UN FAO

Chart 9: Global – primary energy supply by product

Billion tonnes of oil equivalent (btoe)



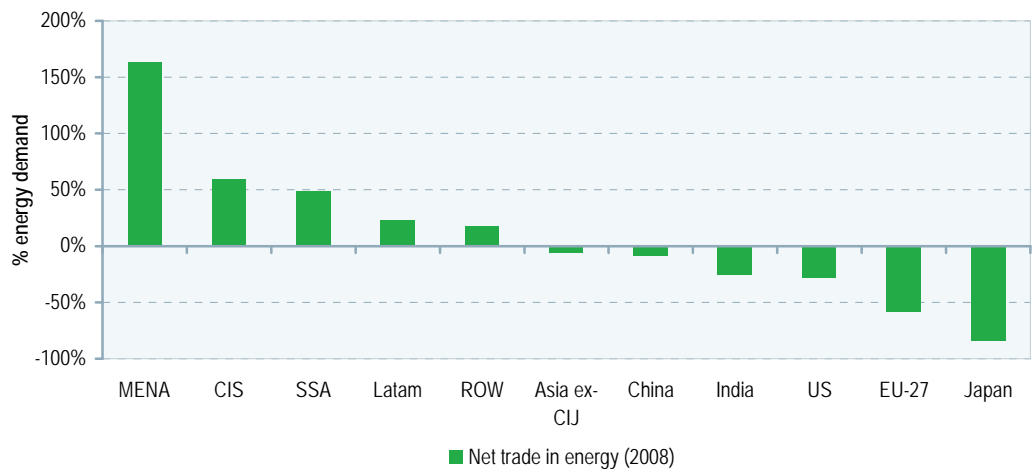
Sources: UN FAO, Standard Chartered Research



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Chart 10 shows the relative dependence of each region on energy trade. Japan, Europe and the US are particularly vulnerable, as they import 25-85% of their energy needs. India is also exposed, while China and the rest of Asia are less vulnerable.

Chart 10: Energy trade by region as percentage of total energy demand



Sources: IEA, Standard Chartered Research

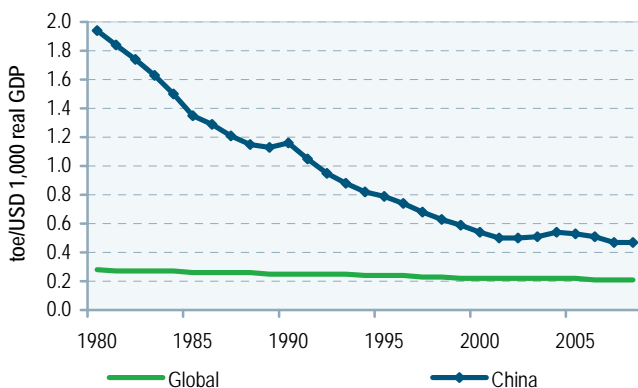
Economic growth will drive energy needs

Projecting energy needs

The energy intensity of growth (or the energy required to produce USD 1,000 of real GDP) has been steadily falling due to improvements in efficiency, and there is scope for further declines. Globally, energy intensity fell by an average of 1.1% p.a. between 1988 and 2008. It has decelerated to 0.8% p.a. in the last 10 years as demand from China, in particular, has surged, and the rate of decline in energy intensity in China has slowed (Chart 11).

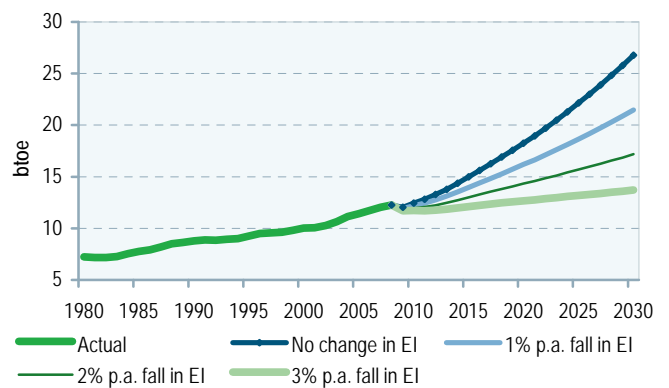
Assuming energy intensity continues to fall by 1% p.a. – to a global average of 0.17 tonnes of oil equivalent (toe) per USD 1,000 GDP by 2030 – our macroeconomic growth forecasts suggest that global energy needs will increase by 75% over the next 20 years, compared with a 40% rise over the last two decades. A 2% reduction in energy intensity would limit demand to 17 million tonnes of oil equivalent (mtoe) (a 40% increase), and a 3% reduction to 14mtoe (a 12% increase) – see Chart 12.

Chart 11: Energy intensity (EI) of growth



Sources: IEA, Standard Chartered Research

Chart 12: Projected energy demand



Sources: IEA, Standard Chartered Research



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The energy sector needs to be transformed to meet carbon reduction targets

Where will the growth come from? Renewables are expected to make an increasing contribution, but fossil fuels will need to continue to meet the bulk of demand, with important implications for climate change projections.

In its '450' (low-carbon) scenario for energy markets to 2030, the International Energy Agency (IEA) estimates that energy demand needs to be restricted to 14.6mtoe p.a. if the atmospheric concentration of greenhouse gases is to be stabilised at 450 parts per million (ppm) of CO₂ equivalent (Chart 13). That level would limit the probability of a temperature rise in excess of 2°C to 50%, and would involve co-ordinated international policy action. This is a mere 19% increase in demand over 2008 levels. Meeting the energy needs of our growth projections (which are substantially higher than those of the IEA) would require global energy intensity of GDP to fall by 2.75% p.a. to 0.11toe/USD 1,000 GDP. This is the level currently seen in the EU and does not seem feasible in the context of rapid urbanisation, industrialisation and vehicle ownership growth in the developing world.

Alternatively, higher energy usage would be possible if there was an even more significant shift to low- or non-carbon energy sources, further reducing the emissions intensity of the energy supply. The IEA's low-carbon scenario projections already show supply from the renewable and nuclear sectors doubling by 2030, to account for 23% and 10% of the energy mix, respectively, compared with 13% and 6% today. However, limiting fossil fuel usage to 9.8mtoe (as in the IEA low-carbon scenario) and meeting our 17.2btoe energy demand forecast (which already requires doubling the rate of decline in energy intensity) would require nuclear and renewables to meet a further 7mtoe – a quadrupling of current levels.

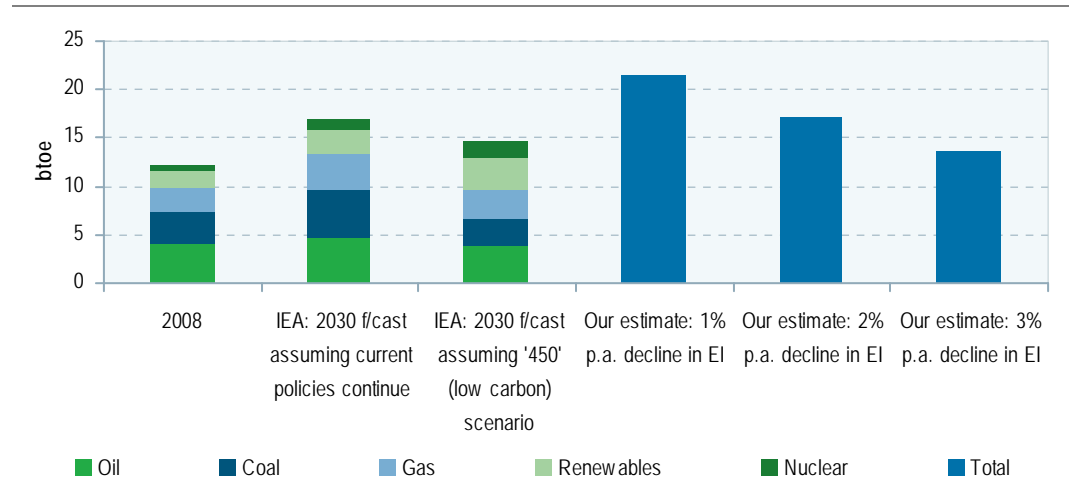
Natural gas potentially has a significant role to play. The commercialisation of shale gas resources has swelled natural gas reserves in the US, and could make a significant contribution elsewhere. The power sector has already seen a significant shift into natural gas, driven by high oil prices, energy security objectives and (to some extent in Europe) carbon costs. According to the European Environment Agency (EEA), natural gas typically has around 40% less carbon content than coal, and 25% less than oil. Moreover, the EEA estimates that the combined cycle gas technology most often used in new gas power plants can achieve 55-60% efficiency compared with the 35-40% efficiency of a traditional coal-fired plant, resulting in even lower emissions per unit of power.

To some extent, natural gas is also proving a solution in the road transport sector. Natural gas and compressed gas vehicle technology is well established, but uptake has been limited by the absence of fuel distribution infrastructure and the challenge of accommodating large volumes of fuel in vehicles. Electric cars face similar infrastructure barriers in the near term, but again, the technology is becoming more established.



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Chart 13: Projected energy demand



Sources: IEA, Standard Chartered Research

Transformation of the energy sector provides a key investment opportunity

Opportunities

Achieving targets on this scale will require a transformation of the energy sector, driven by both price and policy. This presents an enormous investment opportunity. The key areas of investment will include:

- De-carbonisation of the power sector, including a switch to natural gas, investment in renewables, nuclear and carbon capture and storage
- Bio-fuels production
- Transport – improving energy efficiency and developing hybrid/electric technology
- Industry – developing more energy-efficient technologies, particularly for steel, cement and glass
- Buildings – improving energy efficiency and developing renewables technology

China's energy mix – key to the outlook

The evolution of China's energy mix is key to the outlook. According to the IEA, China became the largest energy user in 2009, surpassing the US. China disputes the IEA's figures, but in essence, the two economies consume similar amounts of energy. On a per-capita basis, however, energy use in China is just 1.5toe, compared to 7.5toe in the US. This suggests significant upside potential. However, China is unlikely to follow the same path as the US.

China's next Five Year Plan should set out new energy intensity reduction targets and explain how its CO2 emissions reduction target will be achieved

China's authorities are currently formulating the next Five Year Plan (FYP) for 2011-15, in which the energy sector and emissions targets will play a key part. The broad outlines were released in late October, and highlight the increasing constraints of resources and the environment. The previous FYP had a firm and ambitious target to reduce the energy intensity of GDP by 20% by the end of 2010. While there is some debate over whether China will meet the specific target, the reduction to date has been significant, and a further target is expected to be included in the new plan. In 2009, China also announced a target to reduce CO2 emissions per unit of GDP by 40-45% by 2020 from 2005 levels. The final detailed FYP for 2011-15, which will be



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released in March 2011, should provide more information on how the carbon emission target is to be achieved, in combination with further reductions in energy intensity. We expect China to broadly concentrate on the following areas:

- Increasing the share of non-fossil fuels in the energy mix by developing renewable and nuclear energy; China aims to triple nuclear output to 6% and renewables to 15% of the total primary energy mix by 2020
- Within the fossil fuel sector, continuing to expand the use of natural gas
- Updating the industrial stock to increase efficiency and reduce pollution and emissions
- Improving household energy efficiency

China is the premier destination for renewable energy investment

China has emerged as the primary destination for renewable energy investment, attracting USD 33.7bn in 2009, almost double the USD 17bn of the US, the next highest recipient (according to Bloomberg New Energy Finance). Of China's total, USD 27.2bn (81%) was in wind energy projects, effectively doubling China's wind generation capacity to 26 gigawatts (GW), a similar level to Germany and second only to the US, which has 35GW. China's 30GW target for 2020 looks easily attainable, and is likely to be increased in the forthcoming plan. This success underlines the role government policy and commitment can play in shifting the energy mix towards non-fossil sources.

China's expansion of the nuclear sector is also impressive. According to the World Nuclear Association, China has 12 nuclear reactors in operation, 24 nuclear reactors under construction and another 40 lined up to begin construction. Nuclear capacity is on track to increase in line with government targets to 80GW by 2020 and 200GW by 2030. The China National Nuclear Corporation (CNNC) alone plans to invest USD 120bn in power plants by 2020, according to reports in the *China Daily*.

The scale of China's energy needs will keep fossil fuels in demand and support investment in emissions abatement

While wind and nuclear power are success stories, the rate of growth in China's power sector is staggering. China's total generating capacity has risen by an average of 86GW annually (more than South Korea's or the UK's total generation capacity) over the past five years. It topped 900GW in September 2010, following the inauguration of the second phase of the Ling'ao Nuclear Power Plant in Guangdong Province in the same month. Even assuming aggressive targets to reduce energy intensity by 2% p.a., China's overall energy needs will rise by more than 150% by 2030, based on our forecasts. The sheer scale of China's energy needs will keep fossil fuels in demand and encourage investment in emissions abatement technologies, particularly carbon capture and storage.

Water – access and quality

We have enough water to support the world's population and its growth, but water is not always available when and where people need it, or of sufficient quality. The amount of freshwater available for human consumption is estimated at 8 to 11mn cubic kilometres, or 0.5% of the world's total water (Shiklomanov, 1993). Of this, 97% is stored in underground aquifers, and the rest can be found in natural lakes, rivers, manmade storage facilities and rainfall. Renewable freshwater – as opposed to non-renewable aquifers – comprises the total amount of surface and underground freshwater available to a country that is generated either within or from outside its



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borders at a given point in time. In 2008, renewable freshwater globally was on average 27 times greater than the amount withdrawn for human use.

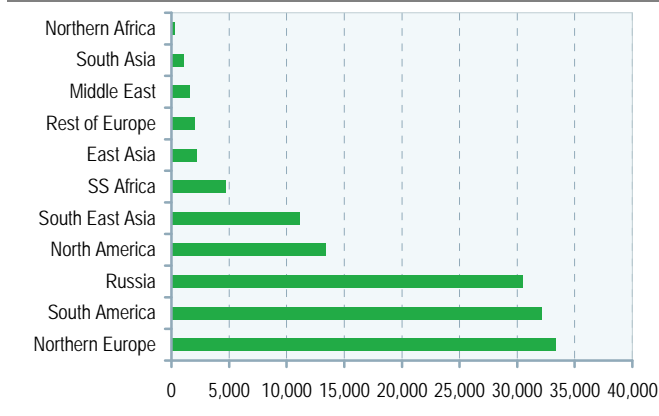
Identification of water-stressed regions

Currently, one-fifth of the world's population, or more than 1.2bn people, live in areas of physical water scarcity (where there is not enough water to meet all demand) or economic water scarcity (where human or financial resources are insufficient to provide adequate water resources). The FAO has defined 1,700 cubic metres as the critical level below which countries begin to experience periodic or regular water stress, and 1,000 cubic metres as the level below which water scarcity begins to affect economic and human development. Charts 14 and 15 highlight the regions which experience acute water scarcity, due to unavailability or lack of access.

Water resources are not evenly distributed

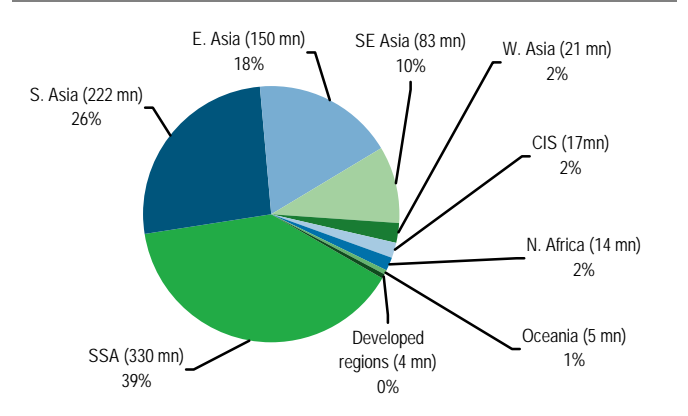
Access to fresh water is a local issue. The physical distribution of water is uneven across countries and regions. About 60% of the world's freshwater supply is available in only nine countries: Brazil, Russia, China, Canada, Indonesia, the US, India, Colombia and the Democratic Republic of Congo. Furthermore, local variations within countries can be significant, with parts of many large countries – such as the US, India and China – under water stress. For example, China's abundant freshwater is located in the southern part of the country. This creates periodic flooding along the Yangtze River in the south. Some studies (Probe, 2008 and Population Reports, September 1998) conclude that in northern areas such as Beijing and the Hai river basin, one-third of the wells, rivers and basins have dried up and groundwater levels have been falling by two metres every year.

Chart 14: Per-capita availability of fresh water varies across regions (000' cubic metres)



Sources: Aquastat, Standard Chartered Research

Chart 15: Population without adequate access to clean water



Sources: UNICEF, World Health Organization

Access to water in poor areas can be more about lack of infrastructure than scarcity

Meanwhile, about 12% of the world's population living in the poorest or most undeveloped areas suffer economic water scarcity. Lack of funding or poor policy planning and implementation has hindered the development of the infrastructure needed to allow access to clean water. The Millennium Development Goals, which were adopted by world leaders in 2000, identify Sub-Saharan Africa and Asia as the most critical regions (see Chart 15), and aim to cut in half the number of people affected by the year 2015.



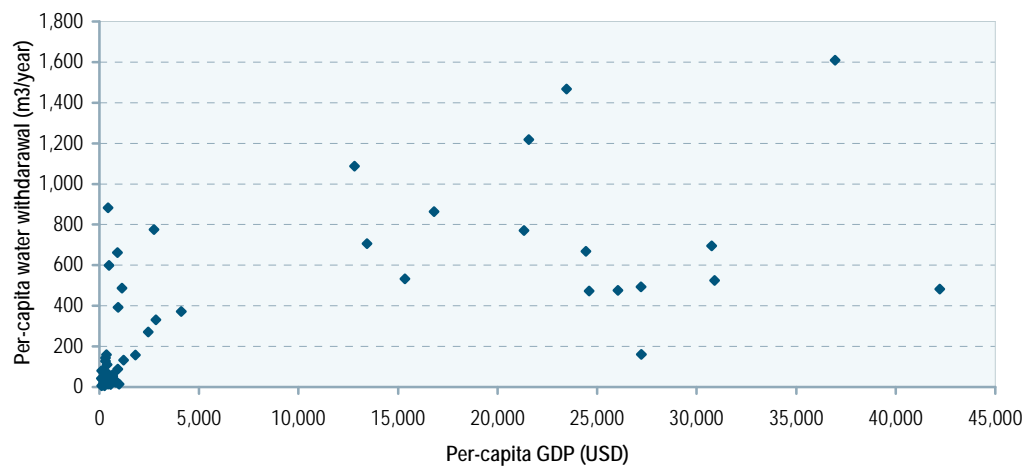
8. Climate change and resources

Demand drivers – Population growth, urbanisation and income

What makes water issues so pressing is that growing demand from changing consumption patterns and population growth will be most rapid in the least developed countries, whose economic and physical resources are already under stress. The UN, in its third World Water Development Report, warns that 90% of the 3bn people to be added to the world's population in 2050 will live in developing countries. Population dynamics, especially growth and urbanisation, put pressure on water resources via increased demands and pollution. Furthermore, growth is likely to be concentrated in and surrounding city centres that are already under water stress.

Lifestyle and consumption choices are another important demand driver. As shown in Chart 16, increased water use is associated with higher incomes. As living standards rise, consumption patterns change. Meat and processed food production require higher water inputs compared with grains. As such, agriculture will require higher amounts of water, and any shortfall may need to be met by trading partners.

Chart 16: Relationship between per-capita water use and per-capita GDP





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growth, as we have already discussed, so adequate water must be available to support growth in energy production. Industry also requires water, with mining being one of the heaviest users. As much of the energy requirements of Asia and other parts of the developing world will come from coal, adequate supply of water for mining will be necessary to support growth.

Climate change to amplify variability and scarcity for some

Climate change is already increasing the variability of water supply throughout the world. For example, periodic flooding is now more common in South East Asia and South Asia. Rising sea levels are threatening the livelihoods of millions of farmers and fishermen in the lowlands of Vietnam's fertile Mekong Delta. According to a 2007 study by the IPCC, for every one-metre increase in sea level, 15,000-20,000 cubic km of land in Vietnam will be flooded. This poses a clear threat to Vietnam's economic and food sufficiency goals.

Climate change is already making water availability less predictable, and is likely to exacerbate scarcity in some regions

Evapotranspiration – water in the water cycle that evaporates and then falls as rain – may be peaking, which would eventually lead to lower levels of rainfall globally, on top of the redistribution issues that we have discussed above. This is because a warmer atmosphere can hold more water before rainfall occurs. Lower levels of evapotranspiration would increase pressure to maximise the use of each drop of rain, and would lead to even more investment in irrigation, crop science and water infrastructure.

Opportunities (technology, treatment and trade) and risks

A combination of demand drivers will drive pressure on water resources in the next two decades. Population growth and increased per-capita use resulting from business expansion and increasing affluence will increase water requirements, especially in areas with the lowest natural resources (urban areas) or financial resources (poor countries). Climate change is likely to exacerbate the problem by increasing the variability of supply and, for some, reducing availability.

The solutions to water scarcity involve a mix of the following:

- Improving efficiency – through investment and technological development
- Water treatment – cleaning/desalination
- Agricultural trade – this is effectively trade in virtual water, as water in the exporting country is used to produce food for the importing country

Solutions will involve policy and political changes as well. Herein lie the biggest risks. Governments will have to tackle issues of water allocation, food security and international cooperation to ensure that water scarcity does not inhibit global growth. The local and international politics involved are not easy. However, failure to solve the problems could have severe consequences. Take the example of Yemen – water scarcity has made economic development more difficult, and providing adequate water could be a deciding factor in whether the state fails or not. This would have consequences for its neighbours and beyond.

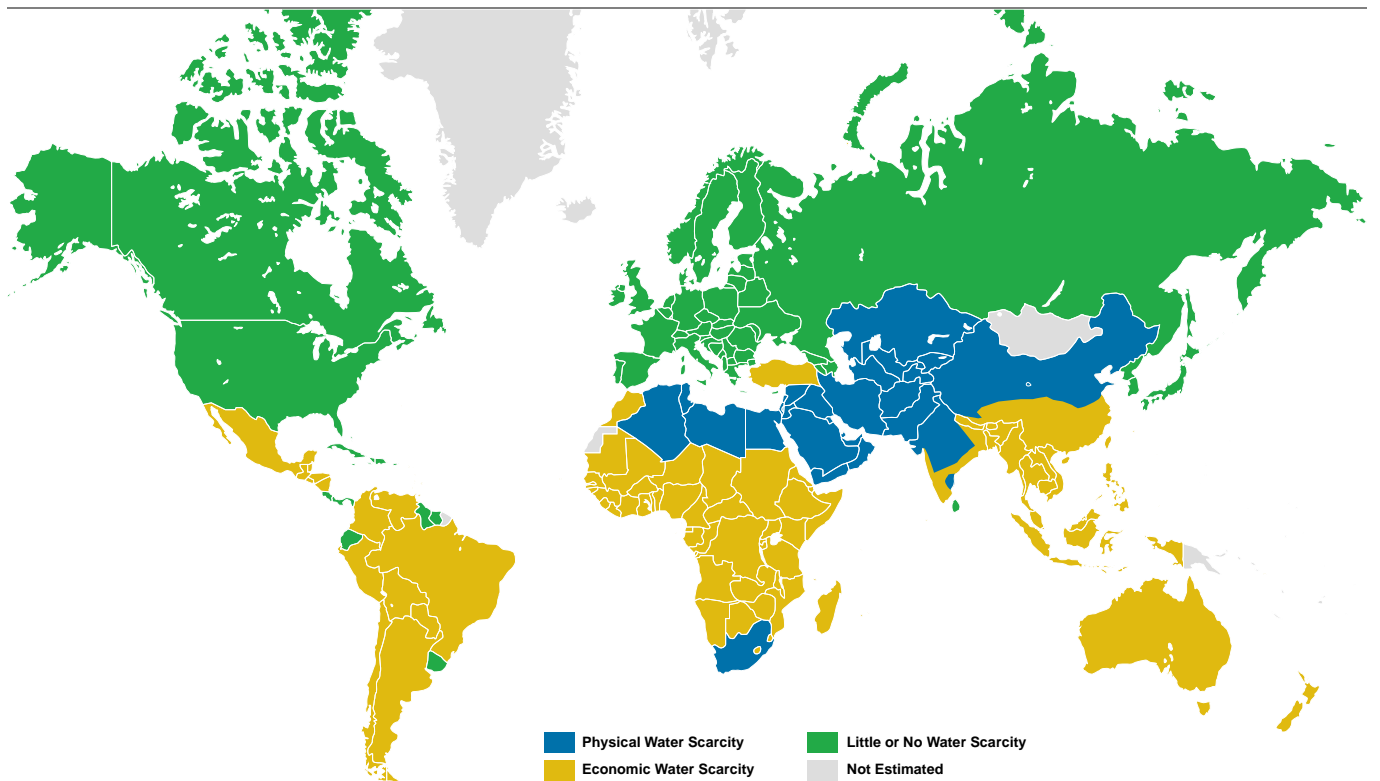


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Next 20 years will be transformational for the food, energy and water sectors

Balancing the use of food, energy and water resources in the context of climate variability and rapid economic growth will be a challenging task, but the transformation required across all three sectors presents a significant investment opportunity. Progress is already being made, most notably in China's energy sector, where state-led targets and support are outweighing uncertainty about global climate change policy and potential carbon costs. We expect the super-cycle to amplify resources constraints and precipitate investment in these sectors.

Chart 17: Water scarcity



Source: IWMI



9. Financial market development

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Asian debt and foreign exchange markets are set to grow strongly, with Asian financial centres becoming much more important

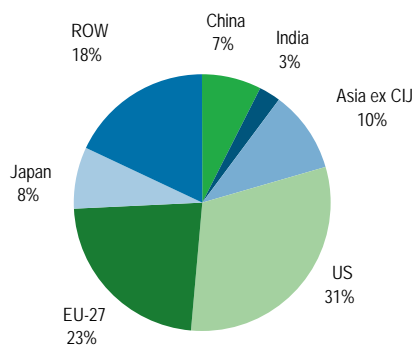
EM financial markets to grow strongly

In this chapter, we examine the likely sizes of the equity, debt and foreign exchange markets in key Asian and emerging markets over the next two decades. Our analysis suggests that absolute per-capita income levels have a relatively large bearing on the development of the financial markets. The higher a country's per-capita income, the more sophisticated and developed its financial markets are likely to be. However, the policy backdrop also has a bearing on market development, and we discuss this factor in more detail below. By 2030, we expect Asian equity markets to represent almost 50% of world market capitalisation and Asian domestic bond markets to be bigger than the US bond markets. We also expect Asian currencies, particularly the Chinese yuan (CNY), to be very actively traded and significant reserve currencies. Asian financial centres will grow rapidly as the region's financial markets grow.

The growth trajectory is determined by a number of factors, including the savings rate – both domestic and external. Asia has a clear advantage in this regard, but other regions are catching up. Another key factor is the movement of savings from bank deposits to collective investments including pensions, life insurance and mutual funds as wealth levels increase. Shifting demographics also drive investment. At the risk of over-simplification, this means a shift towards fixed income investments as populations age and the dependency ratio increases, whereas a young population with increasing wealth would probably channel more into equities – a feature that could differentiate growth in the Indian and Chinese equity and debt markets.

Chart 1: Global equity-market capitalisation, 2009

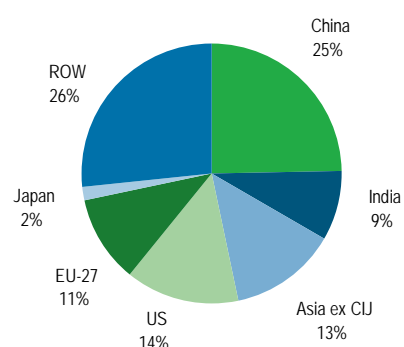
USD trn, % of USD 45.4trn total



Source: Standard Chartered Research

Chart 2: Global equity-market capitalisation, 2030

USD trn, % of USD 322.1trn total



Source: Standard Chartered Research

CAGRs of more than 15% are possible for China, India and South Africa equity-market capitalisations between 2010 and 2030

- Based on our analysis, we expect equity-market capitalisation for Asia ex-Japan to rise from USD 7.4trn currently to around USD 151trn by 2030. China's market capitalisation, projected at USD 79trn, will account for more than half of that. We expect the equity markets of India, South Africa,



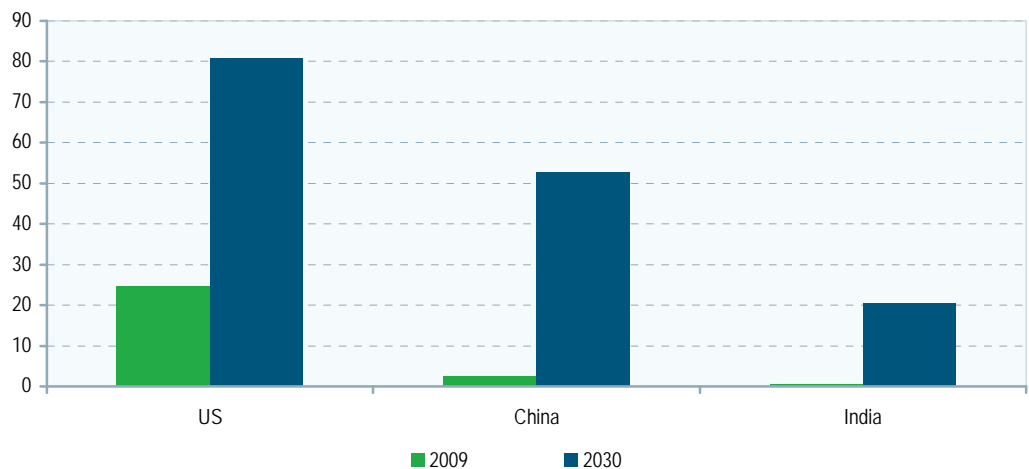
9. Financial market development

Indonesia, China and Brazil to expand at a compound annual growth rate (CAGR) of around 15% over the next two decades.

- We expect the Asia ex-Japan domestic debt securities market to grow rapidly, and to be in the order of USD 90trn by 2030. China (USD 52trn) will continue to be the country with the biggest share. The domestic debt securities markets of Africa and the Middle East will also see similar growth.

Chart 3: Domestic bond market comparisons, 2009-30

USD trn



Source: Standard Chartered Research

Shanghai, Mumbai and other financial centres in large developing economies will challenge Hong Kong and Singapore

- Asia ex-Japan's international debt securities market is expected to grow to around USD 5.2trn by 2030. South Korea, India, China and Indonesia will be the biggest segments of this market, with a combined share of 70%.
- China (USD 6.2trn), Brazil (USD 2.5trn) and India (USD 1.9trn) are set to become the big three non-G10 FX markets by 2030. The numbers in brackets represent expected daily turnover in 2030.
- With the Asian financial markets – in particular those of China and India – growing substantially, we expect Asian financial centres such as Hong Kong and Singapore to emerge as even bigger hubs for regional and global products. We also expect other locations, such as Shanghai, Mumbai and Dubai, to become bigger financial centres for regional products.

As highlighted above, we expect the financial markets of Asia, the Middle East and Africa to become more sophisticated – resulting in further development of the pension and life insurance markets as well as the consumer finance space. We will cover these subjects in separate research notes as a follow-up to this report.

Equity markets

We see market capitalisation as the best overall measure of the development of equity markets. There are alternative metrics, and some are free of market capitalisation's most egregious shortcoming – it is not normalised for valuation multiples, so comparisons across countries and over time suffer from incomparability. Nonetheless, we believe that it is the best single measure over a broad time horizon



9. Financial market development

– it is simple and readily available across countries, and it best captures the proportion of total national wealth committed to equity ownership.

Table 1 below shows equity-market capitalisation for the world and for selected significant economies during several recent years; the annual growth rate of their market capitalisation; and market capitalisation relative to GDP.

Table 1: Equity-market capitalisation to 2009

Market	Market capitalisation, USD bn				CAGR* 2003-09	Market capitalisation as % of GDP			
	2003	2005	2007	2009		2003	2005	2007	2009
World	30,498	40,921	59,764	45,438	7%	82%	90%	108%	79%
United States	13,508	15,708	17,663	13,740	0%	121%	124%	126%	97%
United Kingdom	2,375	3,053	4,047	2,990	4%	128%	134%	145%	136%
Japan	3,158	4,950	4,546	3,467	2%	75%	109%	104%	68%
Key developed markets total	19,042	23,711	26,256	20,197	1%	110%	122%	124%	94%
China	513	402	4,459	3,303	36%	31%	18%	128%	66%
India	280	546	1,815	1,301	29%	47%	67%	158%	105%
Indonesia	55	81	205	212	25%	23%	28%	47%	41%
South Korea	324	695	1,103	822	17%	53%	82%	105%	103%
Taiwan	413	515	701	733	10%	135%	145%	182%	205%
Hong Kong	715	1,055	2,654	2,305	22%	451%	593%	1282%	1104%
Singapore	169	246	498	448	18%	182%	203%	298%	275%
Selected Asian markets total	2,468	3,540	11,435	9,125	24%	68%	73%	166%	110%
Brazil	216	460	1,399	1,341	36%	39%	52%	105%	91%
Russia	198	545	996	471	15%	46%	71%	77%	38%
South Africa	168	318	456	400	16%	40%	51%	56%	45%
Selected non-Asian EM total	582	1,323	2,851	2,211	25%	41%	58%	83%	61%

* Compound annual growth rate; Sources: Bloomberg, IMF, Standard Chartered Research

Significantly, the 7% annual increase in global market capitalisation is almost entirely due to rapid increases across a broad variety of developing markets, in contrast with the virtual absence of growth across developed economies. To a large extent, this reflects vertiginous equity-market declines from mid-2007 to early 2009. However, we believe that the uniformly stark differences between developed and developing economies also point to a more structural reality – that developing economies' growth and market deepening will continue to drive superior growth in equity-market capitalisation over the next few decades.

Structural growth drivers of equity-market capitalisation

From a supply-side perspective, we think that continuing growth in market capitalisation will be driven by several powerful structural forces. The first and broadest is simply the need of corporates in developing economies for capital to fund growth. This is naturally a function of broad economic growth. It is compounded by the tendency of economies to become more capital-intensive as they develop, and to focus more of their resources on activities with high economies of scale. Throughout the developing world, this has manifested itself as a shift from light manufacturing (e.g., textiles and other activities suitable for family-financed SMEs) towards petrochemicals, technology and other activities more naturally undertaken by large corporates. Moreover, these businesses evolve over time from primarily domestic operators into globally competitive players. As they do so, their capital needs increase apace.



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Other structural changes contribute to this growth. Economic development is usually driven by rapid growth in financial systems and institutions and an increase in corporate and consumer debt financing. This requires a massive increase in the capital of banks and other financial institutions that typically require public market financing.

Economic reform, privatisation and financial innovation will all contribute to the growth of equity markets in Asia

Development often moves in tandem with economic reform, including the privatisation of state-owned enterprises. An initial public offering (IPO) is in most countries the dominant vehicle for privatisation of financial services, energy, telecommunications, infrastructure and other sectors dominated by large enterprises. While this process is already underway across much of the developing world, state-owned enterprises in many countries remain government-controlled entities with small public floats. The process of true privatisation will require many more years of secondary offerings.

The investor base, too, will continue to accommodate this hunger for equity capital. As economies develop, investors tend to become more sophisticated and yield-oriented. As they do, they tend to shift household financial assets from bank deposits into a broader variety of longer-dated and higher-yielding instruments – initially direct investments in real estate, equities and insurance, and over time, into a broader range of mutual funds, structured financial products, pension plans and other professionally managed financial assets. As they get wealthier, an increasing proportion of household wealth is allocated to direct and indirect ownership of public market equities.

Increasing capital requirements and a structural shift to savings will drive growth in EM equity markets

Finally, market development and innovation tend to spur the creation of increasingly varied investment vehicles tailored to specific investor needs; this process contributes to the range of equity products and structures. Probably the most prominent of these is a broad class of equity vehicles structured as investment trusts, which are designed essentially to provide investors with stable yields from specific assets. This includes real estate investment trusts (REITs), a relatively new asset class that has mushroomed over the past five years, particularly in Singapore and Hong Kong.

The trust concept can also be broadened to include business trusts (first established under Singapore law in 2006), which offer tax-efficient ways to deliver high dividend yields; and infrastructure trusts. The Asian Development Bank has estimated that Asia requires USD 300bn worth of infrastructure investment per year. This has historically been undertaken by governments or by infrastructure development companies. However, the capital commitments and gestation periods of large infrastructure projects often exceed the balance-sheet capacity of infrastructure development firms, leaving them highly dependent on short-tenor bank financing that may not be suited for long development cycles. Infrastructure trusts and infrastructure funds have emerged to provide a more efficient capital-market solution for this need.

Estimating future equity-market size

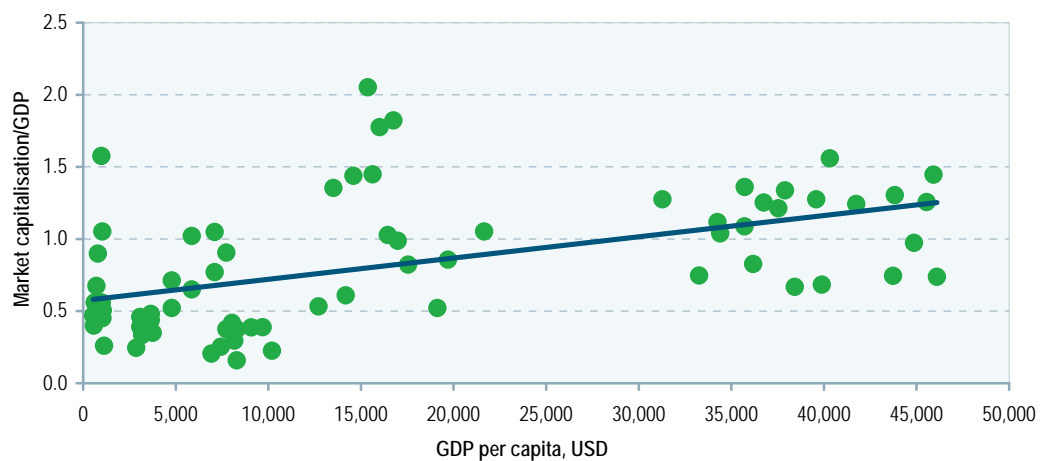
To model the relationship between economic development and the value of public equity capital, we correlate market capitalisation as a percentage of GDP against per-capita GDP across several economies for each of the years from 2003 (the earliest year for which Bloomberg provides country aggregate market capitalisation) to 2009. We include the US, the UK, Japan and several of the most significant



9. Financial market development

developing economies shown in the Table 1 above. We exclude Hong Kong and Singapore, financial centre city-states where equity-market capitalisations are distorted by their status as listing centres for corporates from adjacent countries (particularly Hong Kong's status as a venue for large-cap listings from China). The correlation is shown in Chart 4 below.

Chart 4: Selected countries – equity-market capitalisation as a % of GDP, and per-capita GDP in USD



Sources: Bloomberg, IMF, Standard Chartered Research

We have assumed a natural log rather than a linear relationship between economic development and equity-market deepening. That is, at some point, incremental economic development starts to generate a diminishing impact for incremental deepening of equity markets relative to GDP.

This general approach, combined with Standard Chartered Bank's forecasts for macroeconomic aggregates over the 2010-30 period, suggests the following equity-market growth trajectories over the next 20 years:

Table 2: Equity-market capitalisation 2030

	GDP (USD)		GDP/capita		Mkt. cap. % of GDP		Equity mkt. cap.		CAGR
	2009	2030	2009	2030	2010	2030	2010	2030	2010-30
Asia ex-Japan	9,480	128,825	7,667	88,450	82%	117%	9,089	151,134	15%
Asia ex-CIJ	3,258	25,063	2,931	17,809	112%	169%	4,084	42,466	12%
China	4,985	73,467	3,704	50,235	71%	109%	4,195	79,876	16%
India	1,237	30,295	1,033	20,406	53%	95%	810	28,792	20%
South Africa	885	16,279	1,049	12,447	51%	88%	516	14,249	18%
United States	14,119	38,199	44,871	103,246	108%	120%	15,899	45,711	5%
Japan	5,069	8,445	39,886	71,920	107%	116%	6,068	9,796	3%
Rest of world	33,250	125,899			78%	88%	26,023	112,030	8%
World	57,734	308,285	8,454	37,213	83%	104%	51,526	322,084	10%

Source: Standard Chartered Research



9. Financial market development

Which financial centres will be the new centres for equity trading?

We believe that the dynamic of equity-market development over the next few decades will continue to fuel the creation of regional financial centres across the developing world. While the majority of mid-cap companies will continue to list only in their home countries, some will choose overseas listings – usually in search of greater liquidity than is readily available at home. In the past, many firms chose to list in New York or other traditional financial centres. However, in recent years, these companies have increasingly chosen to list on regional exchanges (in Asia, almost entirely Hong Kong and Singapore).

The next few decades will see continuing intense competition among countries and cities for positions as regional financial-services hubs. In Asia, the incumbents are clearly Hong Kong and Singapore, both endowed with strong regulatory and governance infrastructure, a critical mass of intermediaries, and other capabilities. Though their incumbency is strong, Shanghai, Mumbai and other financial centres in large developing economies will clearly challenge this hegemony as their domestic market development provides a platform for them to develop international capabilities.

Domestic and international debt markets

Growth in the debt markets is linked to economic growth

Our analysis suggests that the Asian debt markets – both domestic and international securities – will experience a similar growth rate over the next couple of decades to the one seen in the last decade. We looked at data for a number of developed and developing countries from 1989 to 2009. Much as with equity markets, we found a very strong relationship between growth in per-capita income and growth in the size of the debt markets (as a proportion of the economy). As we discussed above, this makes sense from an intuitive standpoint. As an economy grows, one would expect the financial markets to develop and grow – and in doing so, capture a greater share of the domestic savings pool. However, one could expect the growth trajectories of international debt and domestic debt to be very different, and they are likely to be a product of their underlying economic fundamentals.

Key assumptions for estimating debt-market growth

Some of the developed-country models provide good insights into the likely trajectories for countries in Asia, Africa and the Middle East. Our analysis suggests that, although all countries exhibit growth in their domestic debt markets as they develop, countries with high savings rates (Japan, Germany) tend to have slower growth in their domestic debt. Countries with lower savings rates (the US, UK) tend to have higher growth rate trajectories for their domestic debt. The other key determinant of the pace of growth in the domestic debt market is the starting size of the domestic debt; Japan and the US had higher absolute debt ratios in 1989 than the UK and Germany. In general terms, all of the Asian countries which are part of this exercise have relatively high savings rates. In our view, this should imply that the growth rate of their domestic debt (as a percentage of GDP) will be lower than their Western peers. Moreover, given that the starting size of domestic debt (as a percentage of GDP) for the Asian countries is comparatively low, we think Germany – which has a relatively low level of debt and a high savings rate – is the most appropriate 'role model' for most Asian countries.

As Asia's per-capita income grows, so will its international debt

Asia's local-currency debt markets will grow much more quickly than international debt markets as local financial markets develop and savings pools deepen



9. Financial market development

On the international debt securities front, we also expect steady growth rates for Asian international debt markets, but we expect these growth rates to be muted relative to growth in domestic debt. As local domestic debt markets in Asia deepen and increasingly offer a full range of maturities, we expect local corporates to increasingly turn to them rather than the international debt markets. In the past, the big attraction of the international securities markets from an issuer perspective was size and term; now, the domestic debt markets increasingly offer both of these advantages. Domestic debt markets are also increasingly receiving very strong support from international investors. Two-thirds of every dollar allocated to Asia and other emerging markets in 2010 has been allocated to local-currency debt.

That said, as the region's per-capita income grows, so will its international debt. On the international securities front, we found Japan, which ran current account surpluses for the most of this period – and enjoyed a high savings rate – to be the most appropriate 'role model' for most Asian countries. With a few exceptions (such as India), Asian economies generate current account surpluses. Given that the international debt securities markets of the Middle East and Africa are coming off a lower base, we expect their growth rate to be much higher relative to Asian markets.

The domestic debt securities markets of South Korea, Malaysia and Thailand are starting from a relatively high base – and have the potential to explode if they grow at roughly the same pace as Japan did over the past two decades. We expect the authorities to take corrective measures to rein in domestic debt – and for these countries' debt markets to grow at a much more measured pace. The additional rationale here is that Asian governments are generally more conscious now of their fiscal balances. Having witnessed how weak fiscal positions constrained many Western economies in the recent downturn, we believe that Asian economies will not let their fiscal positions weaken or their domestic debt/GDP ratios grow too rapidly.

Size forecasts for Asian debt markets

Based on the above analysis, we expect the size of non-Japan Asia's domestic debt to increase to USD 90trn by 2030. Despite this increase, debt would still represent only around 75% of regional GDP in 2030. China (USD 52trn) will continue to have the biggest share in the region, followed by India (USD 20trn). Relative to GDP, South Korea (182%) will have the highest indebtedness, followed by Malaysia (133%) and Thailand (96%).

International securities debt is expected to grow to around USD 5.2trn by 2030. This figure will represent just under 4% of regional GDP in 2030, according to our projections. South Korea, India, China and Indonesia will be the biggest segments of the region's international debt market, with a combined share of 70%. Although the numbers will likely grow in nominal terms, they look very manageable relative to GDP, with only four of the nine countries having ratios in excess of 20%.

Asian local-currency debt markets could increase to USD 90trn by 2030; Asia's international debt markets may grow to USD 5.2trn by 2030



9. Financial market development

Table 3: Asian debt market size forecasts

Market	International debt				Domestic debt			
	Debt as a % of GDP		Nom. debt (USD bn)		Debt as a % of GDP		Nom. debt (USD bn)	
	2009	2030	2009	2030	2009	2030	2009	2030
Developed Asia (ex-Japan)	34	41	132	742	55	79	216	1,445
Hong Kong	38	46	78	377	48	67	100	547
Singapore	29	36	54	365	63	89	116	898
Emerging Asia (ex-Japan)	4	4	331	4,415	58	73	4,770	89,678
China	1	1	47	856	52	72	2,565	52,878
India	3	4	43	1,278	49	68	603	20,656
Indonesia	6	7	32	679	18	34	98	3,182
Philippines	23	28	36	338	34	64	55	788
Malaysia	18	22	34	282	95	133	183	1,731
South Korea	16	19	130	903	130	182	1,085	8,566
Thailand	3	4	9	80	69	96	180	1,877

Source: Standard Chartered Research

Liberalisation, increasing trade and deepening capital markets will drive the rapid growth of EM foreign exchange markets

Global FX turnover tripled between 2001 and 2010

Global FX markets

In this section, we provide estimates of the likely size of the market for trading non-G10 currencies through 2030. To analyse likely growth over this timeframe, we use growth in trading volumes of G10 currencies during the 2000s and consider GDP growth in key emerging economies and growth in major trade corridors. However, turnover in FX markets is complicated by the various exchange controls in place, and we expect increasing FX liberalisation over the next 20 years. The preliminary results of the Bank for International Settlements' (BIS') 2010 Triennial Central Bank Survey show that average daily turnover in global FX markets was USD 3.98trn in April 2010 – a 221% increase since 2001, a period when nominal global GDP almost doubled and world trade increased 2.5 times.

While the BIS survey provides each G10 currency's percentage share of average daily turnover versus all other currencies, it does not break down the absolute turnover of individual currencies against other currencies. To obtain 2010 estimates for this, we multiply the percentage share of the turnover of individual G10 currencies by the total turnover of USD 3.98trn. Based on this calculation, in Table 4, we show our estimates of the 2001-10 growth rates in the average daily turnover of individual G10 currencies against all other currencies.

During this period, the fastest-growing G10 currencies have been the Australian dollar (AUD) and the New Zealand dollar (NZD). This likely reflects (1) the sharp rise in both countries' trade during the 2000s, (2) the low base of the currencies' average daily turnover in 2001, and (3) the fact that the AUD has become a minor reserve currency during the 2000s.

Table 4: Foreign exchange turnover by currency, G10 currencies

Estimated growth rate from 2001-10 in specified currency against all other currencies

	USD	EUR	JPY	GBP	AUD	CHF	CAD	SEK	NZD	NOK
% 2001-2010	219	252	184	231	509	259	304	191	847	192

Source: Standard Chartered Research



9. Financial market development

The development of non-G10 FX volumes in the 2000s

According to the preliminary results of the BIS 2010 Triennial Central Bank Survey, non-G10 currencies are comprised of the following two groups:

1. The currencies of high-income, non-G10 economies: Hong Kong dollar (HKD), Korean won (KRW), Singapore dollar, (SGD), Taiwan dollar (TWD), Polish zloty (PLN), Hungarian forint (HUF) and Czech koruna (CZK).
2. The currencies of emerging market (EM) economies: Mexican peso (MXN), Indian rupee (INR), Russian rouble (RUB), Turkish lira (TRY), South African rand (ZAR), Brazilian real (BRL), CNY, Thai baht (THB), Philippine peso (PHP) and Indonesian rupiah (IDR).

The survey results include each currency's percentage share of the total average daily turnover of non-G10 currencies. They also include the daily average turnover for key currency pairs, including USD-HKD, USD-KRW, USD-INR, USD-CNY, USD-BRL and USD-ZAR. However, a breakdown of absolute average daily turnover for individual currencies versus all other currencies is not provided. To arrive at an estimate of the 2010 turnover of the HKD, KRW, INR, CNY, BRL and ZAR, we assume that the ratios of turnover versus the USD to turnover versus all other currencies were the same in 2010 as in 2007. Table 5 shows our estimates.

Table 5: Foreign exchange turnover by currency (non-G10 currencies)

Specified currency against all other currencies, daily average, USD mn

Currency	2001	2004	2007	2010*
BRL	5,239	4,344	11,112	57,782
CNY	95	1,742	14,631	50,395
CZK	2,234	2,813	6,851	
HKD	27,381	33,180	85,632	142,720
HUF	197	3,625	8,665	
INR	2,840	6,066	21,130	44,746
IDR	552	2,051	3,286	
KRW	9,757	21,151	34,047	78,989
MXN	10,086	20,151	39,218	–
PHP	502	765	3,451	–
PLN	6,325	7,031	24,231	
RUB	4,282	12,208	24,811	
ZAR	11,327	13,656	28,523	78,989
SGD	12,886	17,010	37,663	–
TWD	3,167	7,261	11,648	–
THB	1,859	3,492	6,378	–
TRY	433	1,991	4,691	–

*Our estimates, Sources: BIS Triennial Central Bank Survey in April 2010 – preliminary global results, Standard Chartered Research

Table 6 shows our estimates of the growth rates in the turnover of non-G10 currencies against all other currencies. For the HKD, KRW, INR, CNY, BRL and ZAR, we calculate the growth rates from 2001 to 2010. For the other non-G10 currencies, we calculate the growth rates from 2001 to 2007.



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Table 6: FX turnover by currency (EM currencies)

Estimated growth rates in specified currency against all other currencies

	BRL	CNY	INR	IDR	MXN	PHP	RUB	ZAR	THB	TRY
% 2001-2007	-	-	-	495	289	587	479	-	243	983
% 2001-2010*	1,002	52,947	1,459	-	-	-	-	763	-	-

*Our estimates, Source: Standard Chartered Research

Table 7: FX turnover by currency (high-income non-G10 currencies)

Estimated growth rates in specified currency against all other currencies

	CZK	HKD	HUF	KRW	PLN	SGD	TWD
% 2001-2007	207	-	4,298	-	283	192	268
% 2001-2010*	-	421	-	710	-	-	-

* Our estimates, Source: Standard Chartered Research

We make the following observations:

- With the exception of the THB and MXN, the currencies of EM economies have experienced phenomenal growth in turnover.
- With the exception of the HUF and KRW, the currencies of high-income non-G10 currencies have experienced more moderate turnover growth rates

Estimates of non-G10 FX volumes in 2020 and 2030

In this section, we provide estimates for the expansion of non-G10 volumes over the period through 2030. We make the following assumptions:

The CNY is likely to be the fastest-growing currency market on the back of increased trade, internationalisation of the currency and the growth of the CNY as a reserve currency

INR and BRL foreign exchange markets will also grow fast

- The CNY will be the fastest-growing currency in terms of average daily turnover, mirroring the early and middle phases of G10 currency development. This assumption is based on the following factors: (1) China is the world's largest trading nation, and we estimate that the Chinese economy will be nearly double the size of the US economy by 2030; and (2) China is currently taking rapid steps to internationalise the CNY, which implies that the CNY will be a major reserve currency by 2030, alongside the EUR and USD. Specifically, we assume that during the period from 2010-20, the CNY's average growth rate will be similar to the 2007-10 period. During the 2020-30 period, the CNY could grow at an average rate similar to the fastest-growing G10 currency of the 2001-10 period, the NZD.
- Other large EM currencies, such as the INR and BRL, should also grow fast, although not as fast as the CNY. This is based on the fact that India and Brazil will be among the world's largest economies in 2030, and that the INR and BRL should be minor reserve currencies by then. We assume that the growth rate of the BRL and INR from 2010-20 will be similar to the growth rate of the NZD from 2001-10. During the 2020-30 period, we assume that the growth rates of the BRL and INR will be similar to the growth rate of the AUD from 2001-10. We note that as of 2010, average daily turnover in both the INR and BRL is close to average daily turnover in the AUD in 2001. We assume that the IDR, PHP and TRY will experience similar growth rates from 2010-30 as the AUD experienced from 2001-10. Note that absolute turnover levels in the IDR, PHP and TRY are relatively low in 2010, which should provide room for a sharp pick-up in growth in the coming decades.



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- From 2010-20, the MXN, ZAR, RUB and THB are likely to experience similar growth rates as the AUD experienced from 2001-10. This is based on the fact that the average turnover of the MXN, ZAR and RUB has already reached a relatively high level, and that Thailand is a middle-income economy which is unlikely to experience very high GDP growth rates. From 2020-30, we assume that the MXN, ZAR, RUB and THB will grow at the same rate as the average of G10 currencies from 2001 to 2010.
- Over the 2010-30 period, the currencies of high-income, non-G10 currencies such as the SGD and HKD will experience growth rates similar to the average of G10 currencies from 2001-10.

Table 8: Estimates of FX turnover by currency (EM currencies)

Specified currency against all other currencies, daily average, USD mn

Currency	2020	2030
BRL	489,414	2,491,115
CNY	732,077	6,200,695
CZK	32,126	102,483
HKD	454,991	1,450,512
HUF	40,633	129,619
INR	378,999	1,929,103
IDR	56,778	480,911
KRW	251,975	803,800
MXN	343,346	1,094,587
PHP	59,629	505,058
PLN	113,626	362,468
RUB	217,215	692,481
ZAR	402,054	1,281,748
SGD	176,613	563,396
TWD	54,621	174,241
THB	55,838	178,011
TRY	81,055	686,535

Source: Standard Chartered Research

In Table 9, we compare our estimates of the average turnover of key non-G10 currencies to the average turnover of the USD, JPY and EUR in the 2000s as a percentage of GDP. From this perspective, we note that our estimates for emerging currencies with relatively low GDP per capita – such as the CNY, INR and IDR – appear conservative compared to the current size of the USD, JPY and EUR. However, we estimate that non-G10 currencies with higher per-capita GDP – such as the KRW, BRL and RUB – will achieve substantially higher average daily turnover as a percentage of GDP by 2030.



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Table 9: Estimates of daily FX turnover by currency (% of GDP)

Specified currency against all other currencies, daily average

	2001	2010	2020 [^]	2030 [^]
USD	9.7	22.9	-	-
JPY	15.4	13.3	-	-
EUR*	5.2	9.2	-	-
CNY	0.0	0.9	3.0	8.4
INR	0.6	2.9	4.0	6.4
KRW	1.9	7.6	9.5	17.1
IDR	0.3	0.8**	1.8	5.2
BRL	0.9	2.8	9.7	20.4
RUB	1.4	1.9**	6.2	12.2

[^] Our estimates, * GDP is for EU-27, ** Based on 2007 data, Source: Standard Chartered Research

Hong Kong and Singapore should increase their importance as FX trading centres during the super-cycle; Mumbai and Shanghai will also grow in importance

Which will be the next big FX centres?

As of 2010, the world's biggest financial centre is the UK (37% of global foreign exchange market turnover), followed by the US (18%), Japan (6%), Singapore (5%), Switzerland (5%) and Hong Kong (5%). Over the coming 20 years, we expect Asian financial centres such as Hong Kong and Singapore to grow substantially given the sharp rise in intra-regional trade and financial-market deepening in the region. However, China and India will also naturally emerge as large financial centres given financial liberalisation and rapid growth in the FX markets of the CNY and the INR.

FX conclusions

In conclusion, our analysis shows that China will likely become the biggest non-G10 FX market by 2030, followed by Brazil, India and South Africa. By contrast, more of the mature 'emerging markets', such as Singapore and South Korea, may see a deceleration in growth from 2020-30, in a similar pattern to the slowdown in G10 currency growth rates in the 2000s versus the 1990s. Hong Kong should continue to see strong growth initially, but the picture will become increasingly complicated by the development of the CNH market and an eventual re-pegging of the HKD to the CNY. The currencies of other Asian countries, such as Indonesia and Thailand, should see a sharp pick-up from now through 2030 as their economies expand and convertibility restrictions are relaxed, but will likely remain small, regional players.

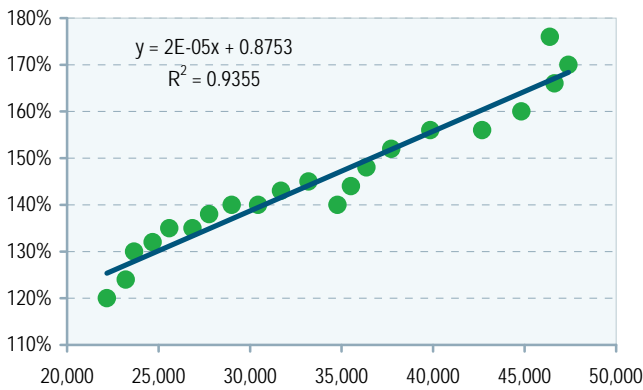


9. Financial market development

Appendix

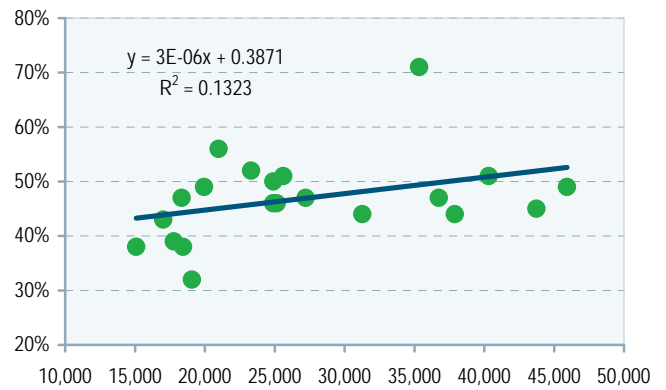
Domestic debt securities versus per-capita GDP

Chart 1: Low savings countries – US



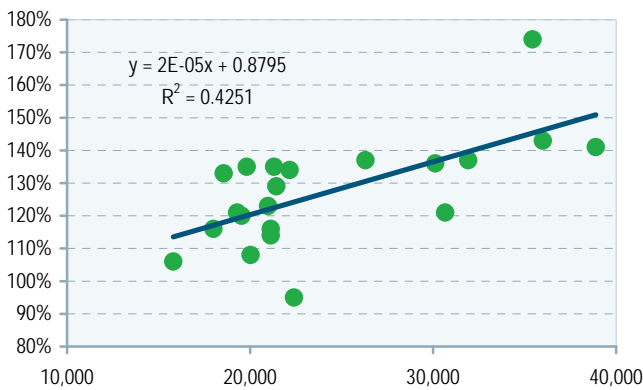
Source: Standard Chartered Research

Chart 2: Low savings countries – UK



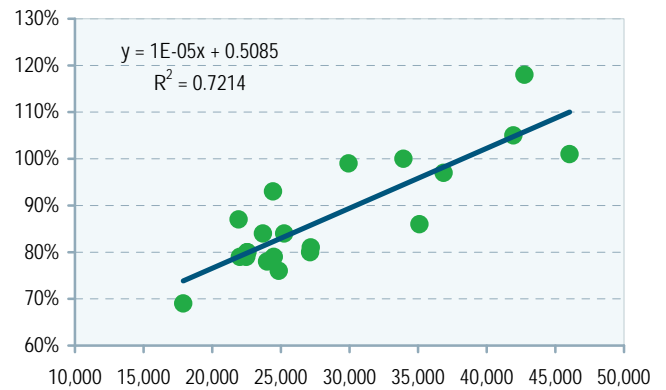
Source: Standard Chartered Research

Chart 3: Moderate savings countries – Italy



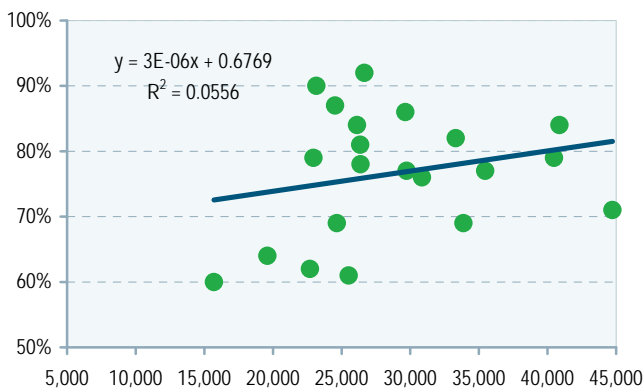
Source: Standard Chartered Research

Chart 4: Moderate savings countries – France



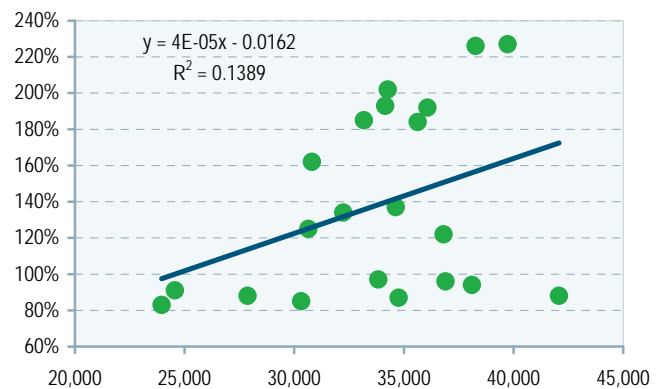
Source: Standard Chartered Research

Chart 5: High savings countries – Germany



Source: Standard Chartered Research

Chart 6: High savings countries – Japan



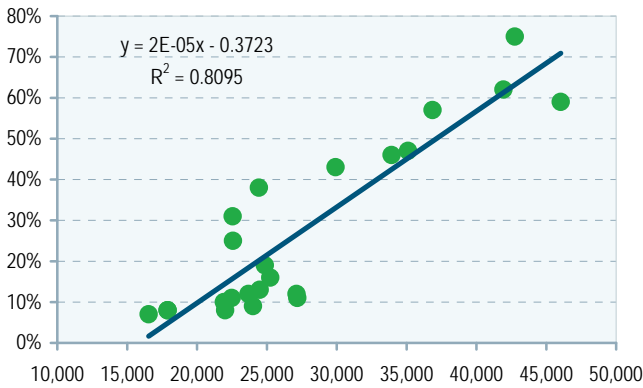
Source: Standard Chartered Research



9. Financial market development

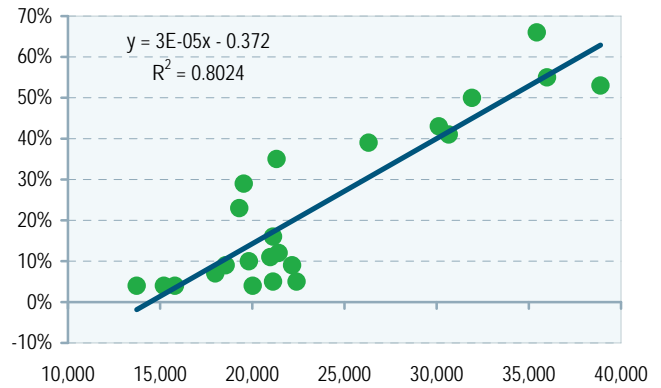
International debt securities versus per-capita GDP

Chart 7: Current account deficit countries – France



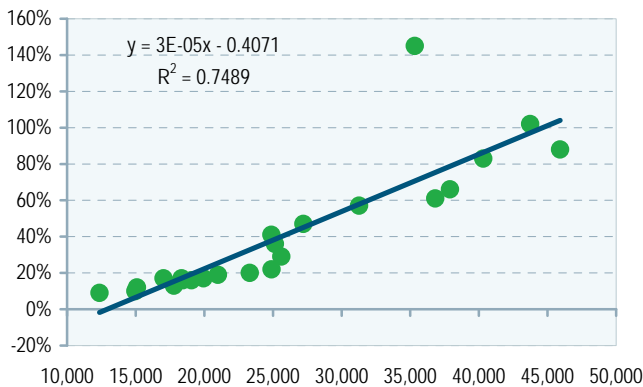
Source: Standard Chartered Research

Chart 8: Current account deficit countries – Italy



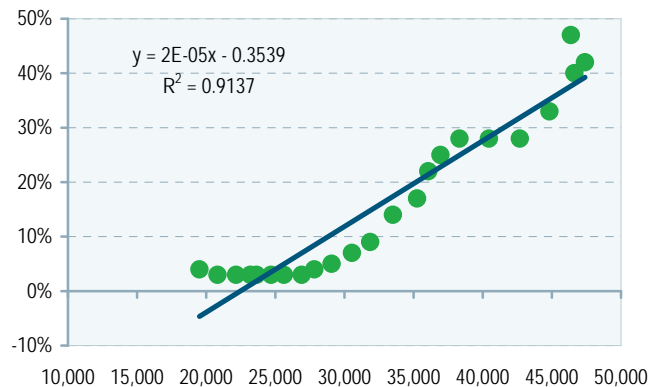
Source: Standard Chartered Research

Chart 9: Current account deficit countries – UK



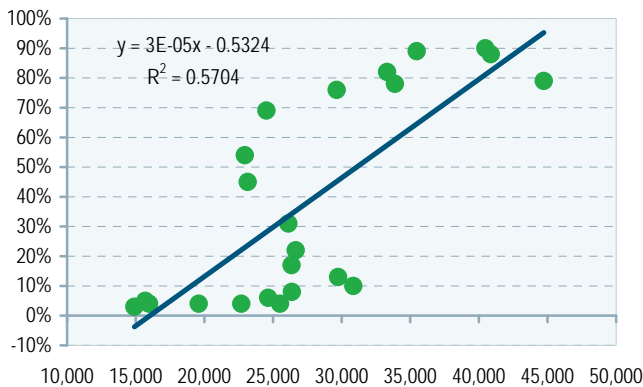
Source: Standard Chartered Research

Chart 10: Current account deficit countries – US



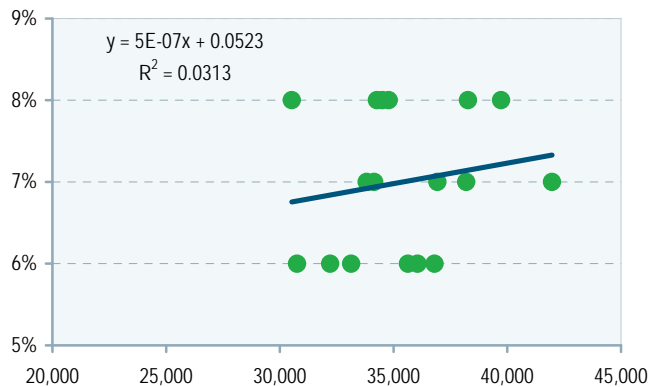
Source: Standard Chartered Research

Chart 11: Current account surplus countries – Germany



Source: Standard Chartered Research

Chart 12: Current account surplus countries – Japan

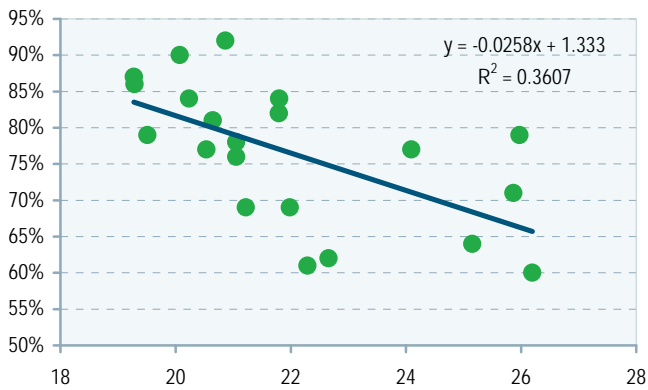


Source: Standard Chartered Research



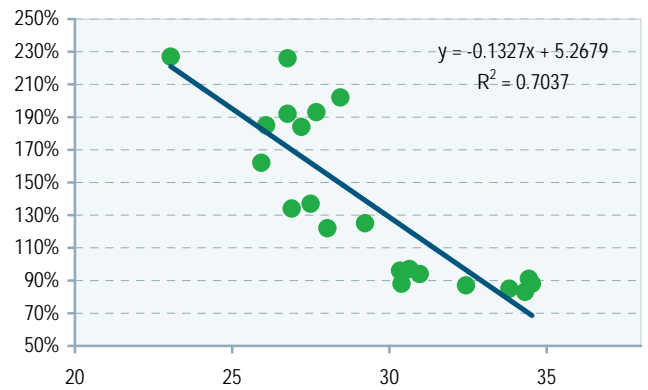
9. Financial market development

Chart 13: Savings versus domestic debt – Germany



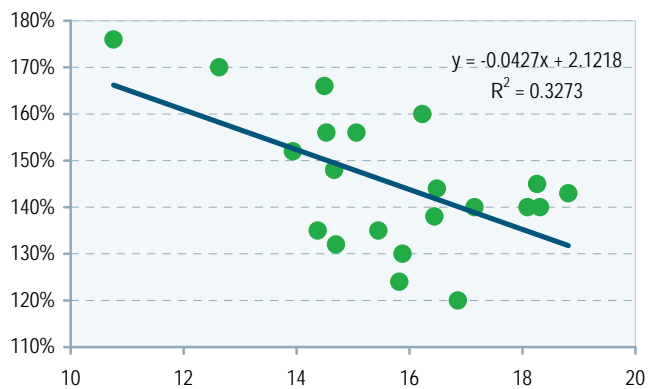
Source: Standard Chartered Research

Chart 14: Savings versus domestic debt – Japan



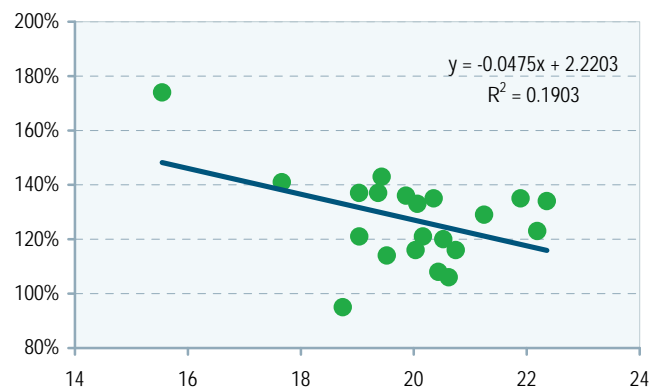
Source: Standard Chartered Research

Chart 15: Savings versus domestic debt – US



Source: Standard Chartered Research

Chart 16: Savings versus domestic debt – Italy



Source: Standard Chartered Research

10. Risks

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- **Avoiding a China hard landing is crucial; household incomes need to be higher**
- **The US is different to Japan; we forecast only a lost half-decade**
- **The greatest policy risk to the super-cycle is protectionism**

Overview – China and the US are key

We argue in this report that rapid growth in emerging markets is creating a new world super-cycle. Yet there are uncertainties and risks in both developed and emerging countries that could result in a different outcome. The two greatest economic risks are that China suffers a hard landing at some point and that the developed West takes a very long time to recover fully from the financial crisis. In simple terms, if China performs like Thailand did between 1997 and 2005, or if the US and Europe perform like Japan in the 1990s, the super-cycle is in trouble. There are also risks of major policy mistakes; a retreat to protectionism is potentially the most damaging, given the leading role that trade is likely to continue to play in driving the super-cycle. There are also substantial environmental risks given huge and increasing demand for energy from a rapidly growing world economy. There are other political, social and military risks, but these are too speculative for this study.

Risk that China goes wrong

We forecast that China's growth will decelerate gradually as the economy matures, to 8% during the 2012-15 period, 7% from 2016-20, 6% from 2021-26, and 5% from 2027-30. This growth, combined with currency appreciation – which should see the Chinese yuan (CNY) approach its purchasing power parity (PPP) level during this period – should be enough for China's nominal GDP to exceed that of the US by 2021. Yet China's government is the first to admit that economic growth is unbalanced and faces considerable risks. Other emerging countries have fallen abruptly off the fast track before, from the Soviet Union and Latin America in the 1970s to the Philippines in the 1980s, to Indonesia and Thailand in the 1990s.

We forecast that China's growth will slow gradually to 5% p.a. over the next 20 years; there will be setbacks, but we do not expect a prolonged slump

Chart 1: GDP growth in Thailand and China

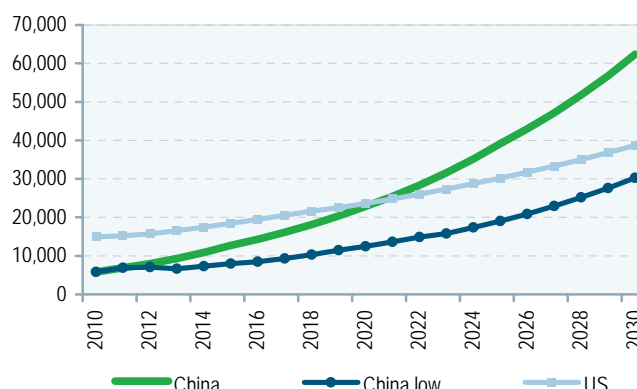
% p.a.



Sources: World Bank, Standard Chartered Research

Chart 2: China risk scenario

Path of China's GDP in USD bn on alternative assumptions



Sources: World Bank, Standard Chartered Research



10. Risks

Thailand grew 9.4% p.a. in the decade to 1995, only to see average growth collapse to 2.9% the following decade (Chart 1). If China were to experience a growth slowdown in line with that seen in Thailand from 1995-2005, its catch-up would stop in its tracks. China's economy would remain near its current level of about 40% of US GDP 10 years from now, instead of overtaking the US (see Chart 2).

How likely is such a serious growth slowdown in China? The underlying problem in Thailand was that huge bubbles in real estate and stocks built up in the early 1990s and began to deflate from 1995 onwards. Thailand's investment rate – which reached over 40% of GDP in 1995-96, similar to current levels in China – slowed down and eventually fell by half during the Asian financial crisis. In contrast to China, in the run-up to the crisis, Thailand ran a current account deficit. China's massive FX reserves and continuing current account surplus rule out a currency crisis, but if investment slowed sharply for some reason, so would growth. Even a 10% decline in investment in China would make it very difficult to achieve any GDP growth at all; the remaining components of GDP, mainly consumption and government spending, would need to grow by nearly 10% just to keep GDP flat.

Investment is the crucial variable

But why should Chinese investment collapse? A large share of investment is by the government and by state-owned companies, financed by state-owned banks. Moreover, the government seems to be able to 'switch on' extra infrastructure investment fairly quickly and easily, as it proved in 2009, in the event of a downturn elsewhere. The bigger question is whether the investment is productive. Unlike Japan in the 1990s, or Dubai's commercial real-estate sector up to 2008, China is not generally building 'bridges to nowhere' or office blocks that will never be occupied. But it still has enormous catching up to do in terms of infrastructure, especially away from the coastal areas. Meanwhile, industrial profitability is still high, and although parts of the real-estate market are bubbling, these bubbles are not widespread. In an environment of double-digit wage increases, double-digit increases in housing prices are not unreasonable. This is especially true given China's demographic profile (and savings behaviour), which means that a generational shift is taking place as young married couples become property owners for the first time.

Nevertheless, there is clearly a risk that the imbalances will mount, especially with US interest rates likely to remain low for some time. Continued strong investment may bring increased overbuilding of China's capacity and a decline in profitability. Bubbles may become more widespread, and bad loans may build up in the banking system. We forecast that the rate of investment growth will slow gradually, and so will GDP growth. But there is always the danger of a sudden drop in confidence and a more convulsive adjustment.

Following a serious downturn, there might be insufficient need, money or confidence for investment and growth to crank up again. The need would be absent because of the huge excess capacity already created. The money would not be there because corporate cash flow would drop and government finances would deteriorate. The confidence would be lacking because of the losses from the downswing and the risk aversion and capital flight that might follow. Hence, as we saw in Thailand, a recession arising from an over-investment crisis could lead to an extended period of much slower growth, rather than a temporary pause.

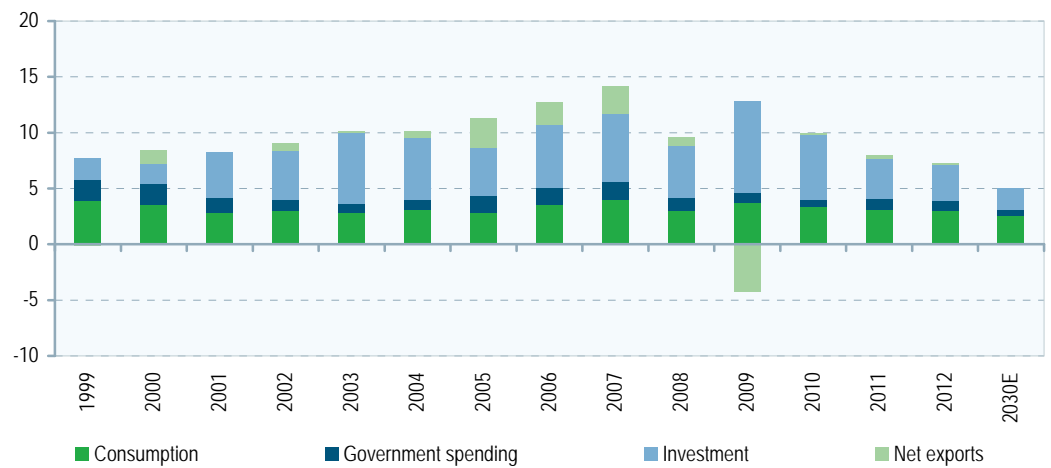
Investment in China remains generally productive and profitable, but if that ever changes, there is the risk of a sharp slowdown



10. Risks

Chart 3: We forecast slower investment and slower GDP growth in China

China: GDP growth, expenditure components, y/y %



Sources: CEIC, Standard Chartered Research

There are even worse possible outcomes than the Thai example. A country can lose not just a few years of development, but a decade or more, as with Russia in the 1970s and 1980s or Japan in the 1990s. But this seems very unlikely for China. Japan slowed only after it had reached developed-country living standards, which is still a long way off for China, while Russia went through a major economic and political realignment after the collapse of old-style central planning. China, by contrast, still has much catch-up potential in terms of income levels, while retaining a long-term strategic approach to economic development.

China needs to actively head off these risks

The key to avoiding the crisis described above is achieving the right combination of reduced savings and investment rates, and increased consumption. In our view, the best way to increase consumer spending is to boost income. For example, opening up the services sector to competition would not only raise growth and efficiency but would also provide more jobs and income. The government could also reduce employee and employer contributions to welfare, which are currently a full 42% of wages, again boosting jobs and income. Another positive measure would be to liberalise interest rates, allowing deposit rates to rise. Finally, government spending on health, education and social security is still very low by the standards of most countries, at just over 10% of GDP. For precautionary savings to fall, state welfare provision has to improve – and become reliable.

Avoiding a major property bubble is already very high on the government's agenda, and measures were introduced in 2010 to limit speculation and manage new supply. There is huge demand for new property of all kinds as the economy develops and incomes rise, but as always with real estate, the lag times involved and the prevalence of leverage and speculation carry risks. An effective property tax could be an important tool, particularly in discouraging speculators from holding empty properties, a major distorting factor in real estate. When the US economy eventually speeds up, higher US interest rates will make it easier for China to raise rates further too, reducing the risk of property bubbles. But that may still be several years away.

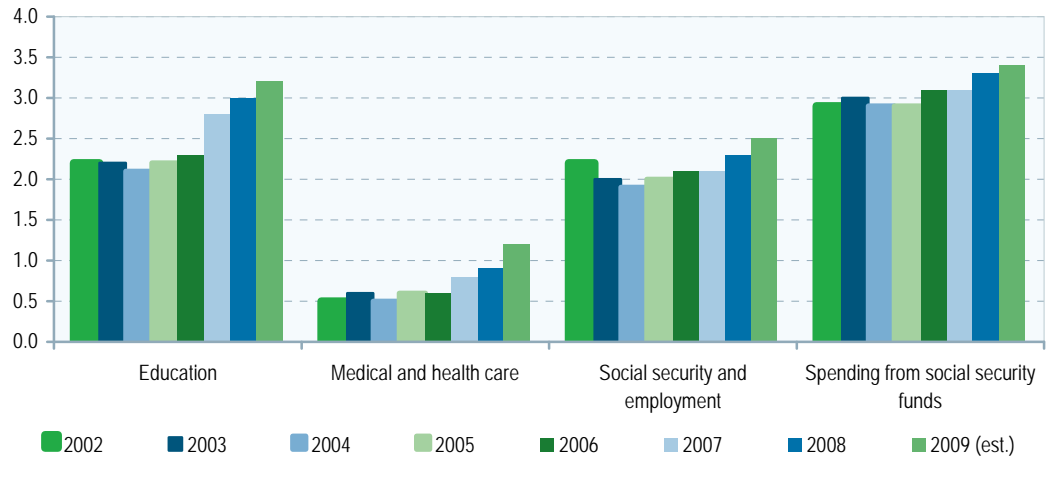
There is an urgent need to increase consumption as a share of GDP, and the best way is by raising incomes



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The super-cycle is not all about China, and it needs the growth of other markets as well. But China is the dominant economy in the growth story and the source of a large part of the flows.

Chart 4: Social spending is very low but gradually rising
China's government social spending, % of GDP



Sources: USTC, ECB, Standard Chartered Research

Risk that the US stagnates like Japan did in the 1990s

While the US resembles Japan in some respects, there are major differences

Exactly why Japan performed so poorly from 1990-2001 is still disputed. Various factors seem to have been at work, including the effects of falling asset prices on spending, a slow monetary policy response, corporates' reluctance to hire and invest as they worked down excessive debt, a delay in addressing problems in the banks, and the failure to reform the economy sufficiently to enable new growth sources to emerge.

The US is in a better position on most of these counts. The US stock market in 2007 was not nearly as inflated as Japan's in 1990, the monetary policy response to the crisis has been rapid and massive, companies mostly have strong balance sheets, and banks are writing off debt and have been recapitalised. However, an area of continuing vulnerability is that household balance sheets may have further to adjust, particularly if housing prices fall further. US housing prices have been artificially held up by the provision of very easy mortgage terms by government-owned Freddie Mac and Fannie Mae (97% loan-to-value ratios, for example), home-buyer tax credits, and pressure to slow the foreclosure rate. Historically, US housing prices have tended to track consumer prices, which could imply a further decline of as much as 20% (see Chart 5). Japanese housing prices took 10 years to get back in line with consumer prices.

Another concern in the US is that private-sector confidence is being held back partly by perceptions that the Obama administration is too keen on new regulations and higher taxes. This may change following the mid-term elections, with the Republicans having gained control of the House of Representatives. More fundamentally, despite a trend of rising regulations and tax rates the US remains a dynamic and flexible economy which is at the forefront of creativity in many industries and has a highly



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developed entrepreneurial spirit. Balance-sheet adjustment takes time, but we expect American capitalism to bounce back.

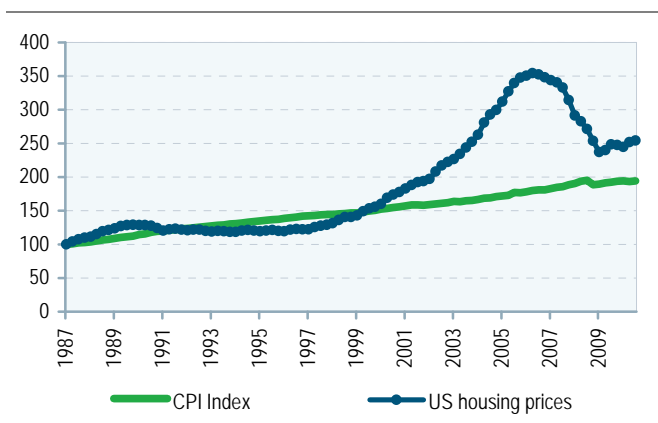
By 2013, the US should have worked through most of the necessary balance-sheet adjustments

A lost half-decade?

Our view is that, while the US may still have another year or two of sluggish growth ahead as the adjustment continues, growth should accelerate before long. In short, while the US may be suffering a lost half-decade, e.g. 2007-12, that should be enough. We do not foresee a lost decade. By 2012, the economy should have gone through the necessary adjustment and be ready for a period of strong growth. Indeed, given robust growth in the emerging world, the US could start to benefit as global demand increases. We estimate trend economic growth at about 2.5% p.a. over the long term. But bringing unemployment back down to 5-6% from the current 9.5-10% range will require several years of above-trend growth, especially given the number of 'discouraged workers' at present, as well as the likelihood that weakened household balance sheets will keep older people working longer. We anticipate that this growth catch-up will occur during 2013-17. Two important drivers are likely to be a recovery in house-building and a rise in car sales from current depressed levels.

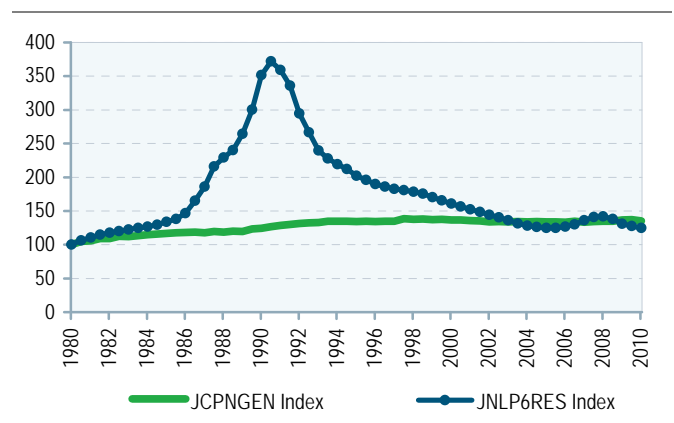
A sluggish recovery or no recovery in the US does not preclude growth in the emerging economies, and others. Indeed low US interest rates impart a considerable stimulus to many countries as we have seen in 2010. However, it would preclude a super-cycle, as overall world growth would not be able to significantly exceed 3%. The US is still too large a proportion of world output, while growth in some countries is still closely linked to US performance.

Chart 5: US housing prices may adjust further



Sources: World Bank, Standard Chartered Research

Chart 6: Japan's housing adjustment took 10 years



Sources: World Bank, Standard Chartered Research

The risk of policy mistakes in the West

The 1870-1913 super-cycle came to an abrupt end because Germany's economic rise could not be accommodated by other European powers, while the US, the emerging superpower, was not yet ready to provide global leadership. Continuing monetary instability after the war with the failure of the gold standard, together with a continuing lack of US leadership (notably the Smoot-Hawley tariffs in 1930), prevented the super-cycle from being re-established.

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The abrupt end of the 1945-73 super-cycle was also linked to war – the Yom Kippur war, but more fundamentally the Vietnam war, which undermined the Bretton Woods system and brought worldwide inflation. Again, policy mistakes in the 1970s allowed inflation to become entrenched, requiring severe adjustments during the 1980s; this prevented fast economic growth from being quickly re-established in the US and Europe. Policy was also poor in many of the large emerging markets, with China and India stifled by regulation, the USSR's central planning system bogged down, and most of Latin America battling high inflation and fragile external balances.

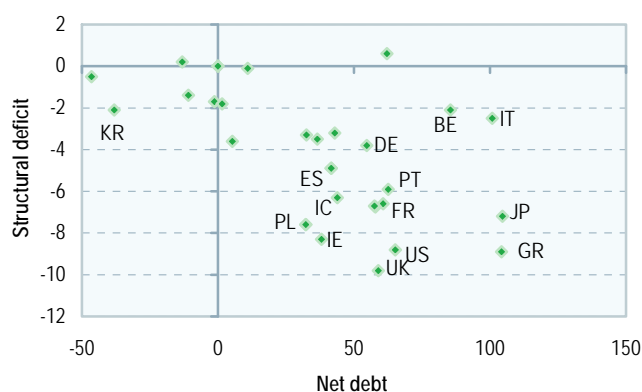
Today, a quick recovery from the Great Recession requires not only avoiding policy mistakes but also actively implementing good policies in the West. The risk of failure has risen because of the stresses of high-budget deficits, high unemployment and ageing populations. Some difficult political decisions will be needed, particularly on spending and tax, but it will also be necessary to hold the line on protectionism and continued immigration. Yet there are also signs, both in the US and Europe, that the widening income distribution attributed to the combination of globalisation and new technologies is resulting in greater political polarisation within the US and Europe.

There are difficult technical decisions to make as well, in particular providing sufficient monetary stimulus in the next year or two, while avoiding inflationary outcomes down the road. The optimal pace of fiscal adjustment is another area of uncertainty, though we have more confidence than some that monetary policy, including quantitative easing, can offset tightening fiscal policy. The charts below illustrate the problem for OECD countries, with the 'usual suspects' – Greece, Iceland, Japan, the US and the UK – figuring prominently.

Western governments must not only avoid major mistakes but also take some tough decisions

Chart 7: Net debt and structural deficits, 2010

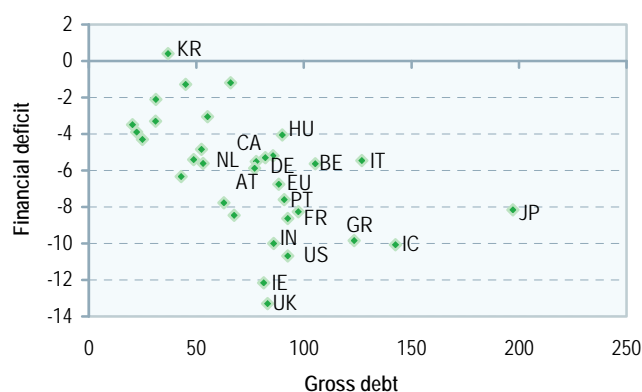
US, Japan and the UK look weak



Sources: OECD, Standard Chartered Research

Chart 8: Gross debt and financial deficits, 2010

Japan and the UK stand out



Sources: OECD, Standard Chartered Research

European growth should hold up even if some countries leave the euro

These issues pose a particular problem for the euro area, where the Club Med countries are struggling, not only with too much debt but also with a lack of competitiveness. The euro is a political project which is running ahead of genuine economic, and particularly fiscal, integration. The aim is to promote integration, but the process carries risks, as we have seen in 2010. One view is that these problems can be managed over time, even if some countries do end up restructuring their debt. Another view is that, unless the Club Med countries can return to a good economic growth path at some point, political pressures will mount and there will be a split in



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the euro area. But even if some countries do split away from the euro, there may not be negative implications for growth. Indeed, overall growth could be stronger, depending on how well the split is managed. On balance, we think the risk to the super-cycle from a derailing of European integration is small.

The greatest policy risk is protectionism

All of these policy issues will be easier to tackle if economic growth is stronger. But protectionism is probably the greatest policy risk to the super-cycle, given the importance of trade in the recent outperformance of the global economy. In the US political system, Congress regularly pushes for protectionist measures, reflecting the interests of unions, companies and constituents. The timing of each push tends to reflect the political timetable, while its strength depends on unemployment and the rate of economic growth. But the rise of China, its large trade and current account surpluses and its control of its exchange rate have created an easy target for protectionist demagoguery on a level not seen since the high tide of Japanese industrial domination in the 1980s. Holding the line against protectionist forces is always left largely to the President. His power to resist depends partly on his popularity and power within the country, and partly on his priorities.

Creeping protectionism reflects high unemployment, but powerful interests favouring globalisation should help governments hold the line

The good news is that while creeping protectionism is a fact of life, a comprehensive breakdown of the trading system, as occurred in the 1930s, still looks very unlikely. Trade institutions such as the World Trade Organisation (WTO) are well entrenched, and membership is a matter of pride in many countries. Every country has too much to gain from trade flows, and with many multinationals producing in various countries, the lobby for free trade is fairly strong. Moreover, as we document in the 'Trade' chapter of this report, there is continuing progress on bilateral and regional trade agreements. More progress is likely in the US in 2011, with the help of a stronger Republican representation in Congress.

The West faces tough decisions on tax and spending

The debate continues over how rapidly governments need to tackle fiscal deficits. The 'Club Med' countries have been forced to adjust rapidly; the UK, Germany and France have voluntarily chosen austerity; but the US and Japan both seem to believe that they have time to take it slowly. Two important factors are in their favour. One is that financing costs have fallen and tenors have extended. For example, even though US debt held by the public is projected to double from 2007 levels by 2012, the net interest cost in dollar terms will be marginally lower. The other factor is that demand for government paper looks likely to remain strong, at least near-term. There is no sign that the appetite of China and other surplus countries for US debt is sated, even though they will continue to diversify their holdings at the margin. Meanwhile, the experience of the 2008-09 crisis has underlined the importance for most investors of holding at least some government paper in their portfolios. Banks will also hold more Treasury paper than before, for liquidity reasons.

The US still has some time before its fiscal situation becomes a major market worry, but perhaps less time than politicians believe

However, fiscal crises can explode very suddenly if confidence is abruptly dented, whether by unwise budget announcements, political events, unexpected costs (e.g. from banking difficulties) or disappointing economic growth. We, like many observers, are nervous that the US appears no closer to grasping the fiscal reality – the Republicans are determined to avoid tax increases and resistant to cuts in most



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spending items, while the Democrats are reluctant to cut any spending items or raise taxes on most people. There may be a window for progress early in 2011, following the midterm elections, though many Washington insiders predict that the best hope is not until after the 2012 presidential elections. If GDP growth remains sluggish until then, budget projections will continue to show rising debt ratios for the decade. To avoid bad outcomes, the US probably needs to see faster growth or serious fiscal consolidation, or both, before too long.

The super-cycle will bring huge environmental challenges, which will be resolved through a combination of pricing, investment and technology

Environmental risks

A major concern for some people is that rapid economic growth will inevitably come up against environmental limits and constraints, and that it will also accelerate global warming. The type of economic growth we envisage, especially the rapid industrialisation and urbanisation of emerging Asia, will inevitably create huge environmental pressures. Concerns are focused on the availability of sufficient resources (especially energy, water and food, but also other commodities), as well as air and water pollution and greenhouse gases. Our view is that these challenges will be met by a combination of pricing, investment and technology.

Pressure on resources normally means higher prices, and we have seen this for many commodities over the last decade as the super-cycle got started. Many commodities were at or near lows in real terms at the end of the 1990s, and as a result, investment in both prospecting and development fell to low levels. When demand rose suddenly, prices responded. There was some relief during the 2009 recession, but the resumption of rapid growth in China and India has pushed prices up again. A key part of our story is that many commodity prices will remain elevated and continue to climb during the super-cycle (with considerable volatility). But this is necessary to attract the necessary investment.

Investment in developing new resources will be an important source of economic growth in many countries, not only in developing mines or extending fields, but also in the infrastructure to bring the output to the world market. But there will also be investment in discovering and using new technologies. Already in recent years, advances in technologies for horizontal drilling and hydraulic fracturing have opened up new natural gas and oil fields. As well as stimulating new supply, higher prices for raw materials encourage users to find alternative materials and technologies.

Development of additional agricultural resources is problematic, as much of the current capacity is already highly productive and potential new capacity is often in areas such as Sub-Saharan Africa, where infrastructure and human and economic capital are in short supply. Agriculture is often a politically sensitive industry too, with both rural votes and food-security factors leading to inefficient agricultural practices. Agriculture is also heavily dependent on sufficient and suitable water resources. However, we believe that ultimately, at a cost, the issues around food can be solved.

Tackling pollution and global warming will bring opportunities

Dealing with pollution is also a matter of investment and technology. Likewise, it does not come without a cost. Given the way GDP is measured, this may have the effect of restraining GDP growth in China and other emerging countries as they gradually improve their environmental records. But we doubt the effect will be large enough to

Environmental measures cost money but also provide opportunities



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seriously dent recorded economic growth rates, and some of the investment and activity in this area will in fact be recorded as growth.

The problem of dealing with greenhouse gases will also be a matter of investment and technology. Governments are committed to limiting emissions, but the measures currently in place are unlikely to be sufficient to meet the targets. Even if they did so, scientific opinion is that the reduction in gases will be insufficient to prevent global warming. Hence, if the models are correct, the world's temperature will rise.

However, global warming is unlikely to cause major environmental or economic problems within the next 20 years. That is part of the problem: it is difficult to get most voters or politicians focused on spending money now to deal with a problem which may not show up for 30-50 years or more. Attempts to limit greenhouse gas emissions at too rapid a pace could impact economic growth, but it remains unlikely that governments will do so. Instead, the emphasis is likely to be increasingly on technology to reduce emissions or mitigate the impact of global warming.

Some of these technologies are already opening up major new industries and promise more, for example in the areas of alternative energies and alternatives to the internal combustion engine. Critics argue that some government subsidies or regulations in these areas are themselves growth-destroying, by raising taxes or energy costs. Defenders argue that government action can change the marginal economics of new technologies, and once they reach critical mass in terms of size, unit costs come down. Time will tell, and the outcome will doubtless differ by technology, with a few resounding successes and a lot of costly failures. In the end, the amounts that governments are investing in these areas are not large enough to derail economic growth.

Some resources are not properly priced at present, which leads to overuse, inadequate investment and bottlenecks. Water is the most prominent example, but energy is significantly under-priced in some countries, particularly energy producers. Road-use pricing may also be an idea whose time has finally come. Pricing of pollution and greenhouse emissions is also likely to help to ensure that these problems are dealt with in the most efficient way.

The super-cycle will help with pollution and global warming long-term

Finally, it needs to be emphasised that the super-cycle itself, while it will add to pressure on resources and increase pollution, also contains the solutions to these problems. For example, wealthier countries have a much better record on pollution, and interest in dealing with global warming is far higher in developed countries. It is easier to spend money in these areas and on mitigating global warming when people do not have to worry about basic survival.

Even more fundamentally, the super-cycle will be important in accelerating the demographic transition that is bringing down birth rates in emerging countries. In the long term, the size of the world's population will be the most important determinant of the environmental health and sustainability of the planet. The UN provides low, medium and high forecasts for the world population in 2050, varying from about 8bn to 10.5bn. The most important determinant of the outcome will be how quickly fertility

Richer countries spend more on controlling pollution; economic growth will also help to bring down birth rates, containing global population growth



10. Risks

rates decline, and economic development is the main influence on this. Wealthier countries have lower fertility rates, although there are other factors involved as well.

This does not apply to China, which already has a low fertility rate due to the one-child policy, and where the UN projects that fertility will rise over the next 40 years. But India's fertility rate, which has been about 2.75 in recent years, could come down faster given the strong growth we expect. Africa, where the fertility rate is still a high 4.6, could decline faster. Faster economic growth will also mean that people live longer as mortality rates decline more rapidly, but in the long run, the world's population should peak at a lower level.

Overall, while the super-cycle will certainly present major environmental challenges, there will be opportunities as well as risks. The opportunities will come in the new technologies and industries that emerge. In our opinion, the risks are not large enough to derail the super-cycle.

Conclusion – risks to super-cycle lower than they seem

The super-cycle does not mean that the business cycle is eliminated, or that crises will be avoided. We have recently lived through the worst downturn in 50 years for many countries, yet our data and forecasts still suggest that a super-cycle started some time ago. The 1870-1913 period also saw major financial crises and recessions, while the post-war super-cycle of 1945-73 saw cycles too, albeit smaller ones. Over the next 20 years there will be further downturns, and probably further turmoil at times. But the two major economic risks – that the US is mired in slow growth for a generation and that there is a collapse in Chinese growth – seem to us to be only modest probabilities. We are also optimistic that government institutions in major countries will avoid the worst policy mistakes.

Moreover, despite the many reasons to worry about the health of the world economy, there are a number of positive points which support our expectations of strong growth. First, low inflation in most countries is likely to reduce the need to control inflation, which wrecked many economies during the 1970s and much of the 1980s. Second, excess capacity and high unemployment in many countries mean there is considerable scope for above-trend growth in the coming years. Third, the necessary rise in commodity prices from the excessively low levels of the 1990s (below marginal costs in many cases) has been achieved and absorbed. We forecast further rises, but the biggest increases are probably over. Finally, despite the pressures from the recent crisis, more and more countries around the world are implementing market-oriented reforms, which point to higher growth rates in the future as incomes rise.

Serious risks exist but are lower than often feared; moreover, the world economy has some under-rated positives



11. Market implications

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- **Markets are not currently priced for the super-cycle**
- **The shape of the world economy will undergo profound changes**
- **Key investable themes include:**
 - **Elevated world growth**
 - **Rapid and massive urbanisation**
 - **Growth of the middle classes**

Focus on the broadest, strongest themes and the most accessible markets

Equities, commodities and real estate are preferred over bonds

Emerging markets are preferred over developed markets

Key themes for investing in the super-cycle

We believe the world is in a new super-cycle, powered by trade and investment and driven by rapid growth in China, India and other emerging countries. This will result in dramatic improvements in the wealth of these nations and of billions of people as they narrow the gap with the living standards of the richest nations. When accompanied by continuing rapid urbanisation, this will result in a world that looks quite different economically from the one in which we live today. Though parts of the story are well recognised, we do not believe that markets have fully factored in either the scale or the scope of the profound changes that will likely take place. Thus, there are still many opportunities left for investors and companies.

In terms of long-term asset allocation, the super-cycle points to a preference for equities, commodities and real estate over fixed income. Strong world growth means that currently low real and nominal interest rates will revert to normal at some point. Very proactive monetary policy by the Federal Reserve, combined with the inflationary threat posed by high US government debt, suggests that US inflation will pick up from current very low levels over time. Moreover, strong world growth points to competition for resources, reduced unemployment rates and further upward pressure on inflation.

The super-cycle also underlines the attraction of emerging-country investments or related investments – for example, companies in developed countries which benefit from the success of emerging countries. These include many international companies with a strong emerging markets (EM) business, especially those that can maintain their technological or brand position as emerging countries catch up. But the super-cycle will also see the emergence of an increasing number of EM-based international companies with global brand recognition.

We have initially identified three key themes that flow from the super-cycle, and have derived specific ideas for currency, commodity and equity investments. We will be exploring further themes and ideas in future publications. The three initial themes are strong growth, massive and rapid urbanisation, and growing middle classes.



11. Market implications

Growth, urbanisation and the growing middle classes provide the backdrop for our strongest conviction trades

Strong growth

In a world of strong growth and rapidly expanding consumption by the vast populations of the emerging markets, inflation will not remain indefinitely subdued, and interest rates and bond yields will not stay low. US bond yields will rise significantly at some point, possibly putting considerable strain on markets, in an echo of 1994. EM bonds may suffer too, though many countries will protect themselves from higher US inflation by appreciating their currencies.

Strong growth in EM domestic economies, combined with the current widespread undervaluation of their currencies, should lead to appreciation versus the US dollar (USD) and other developed-market currencies – especially for the Chinese yuan (CNY), Korean won (KRW), Indian rupee (INR) and Indonesian rupiah (IDR). The USD will be particularly vulnerable as its status as a reserve and trade currency is diminished.

Trade volumes, increasingly denominated in CNY and euros (EUR), will continue to grow more quickly than the underlying economies as the world continues to integrate. This will create opportunities in currencies and for shipping and port infrastructure companies.

Massive and rapid urbanisation

The rapid urbanisation that will take place over the next 20 years will drive demand for many commodities. We believe supply will not be able to react quickly enough to prevent further price increases.

Copper demand, in particular, is highly correlated to the super-cycle and should see physical price rises. Copper producers should perform well. Oil should also rise, but because of the market structure, we recommend looking for alternative ways to participate, including via currencies which are correlated to the oil price.

Energy demand will be driven higher by increasing numbers of city dwellers. Both coal, the primary source of energy in Asia, and renewable energy will benefit. There will also be demand for further environmental services, such as water and waste treatment.

Booming middle classes

The dramatic growth in Asian middle classes, in particular, will drive many trends. There will be a huge change in their financial-service requirements, especially in terms of banking, but also consumer finance and life insurance and pensions. Rapidly rising domestic consumption will provide opportunities for many emerging companies, especially in retail, consumer products and health care.



11. Market implications – growth

- **High world growth means high investment and a higher demand for, and price of, capital; this will put upward pressure on bond yields**
- **Currencies are expected to reflect the changing economic landscape, with strong domestic growth driving key currencies**
- **Trade should continue to grow, with benefits for shipping and ports**

Long-term bull market in bonds should come to an end as the super-cycle gains traction

The 30-year downtrend in rates will soon be over

The starting point from which to look at markets over the next 20 years must be interest rates, which are currently exceptionally low. The world is still emerging from a serious recession and financial crisis, but as these problems are left behind and the super-cycle (which began in 2000) re-asserts itself, low rates are unlikely to persist. Though the US may underperform and inflation may remain subdued for a while longer, and while we may still see US bond yields re-test the lows of 2008, negative real rates in the US and elsewhere will rise and turn positive as investment surges ahead, commodity prices rise, and output gaps close.

Since the 1980s, US long-term interest rates (10Y) have been trending downwards, losing an average of 40bps per year and eventually creating a policy “conundrum”, according to former Federal Reserve Chairman Alan Greenspan. Every monetary policy cycle in the US since the 1980s has resulted in a lower ex-post average real rate over the cycle – a lower ‘natural real rate of interest’, which is the ‘real’ anchor of the yield curve – from more than 4% to 2.5%. The lowest level was achieved in 2008, shortly after the beginning of the financial crisis.

Inflation and real interest rates to enter long-term uptrend during the super-cycle

The recent crisis accentuated this phenomenon, pushing yields even lower from an already-low level because the negative shock to real activity was of such historical proportions. The contraction in world nominal GDP – the relevant measure to enforce deflationary trends – amounted to 4.5%. The deceleration in the world GDP growth rate was a massive 9.5ppt. Indeed, this deflationary shock affecting developed economies in a synchronised manner was the first of its kind, sharply contrasting with the inflationary recessions of the 1970s.

This downward trend in interest rates dates from a few years after the end of the last super-cycle in the mid-1970s. The long period of relatively sluggish world growth from 1973 onwards brought inflation lower and, as memories of the bond-market disappointments of the 1960s and 1970s receded, led to lower real rates. In our view, the cycle has turned, and as world growth re-accelerates following the 2008-09 downturn, both inflation and real interest rates will move into a long-term uptrend.

Until now, bond markets have relentlessly granted increasingly generous financing conditions to the US Treasury, supported by an ever-lower anchoring of the yield curve. This generous financing has been due to foreign public institutions’ strong appetite for US public debt and the unchallenged role of the USD as the leading world currency – both factors which may be in doubt as this super-cycle continues. In our view, the US still has time to fix its problems, but perhaps less time than many in Washington believe. The super-cycle will help the US economy regain a reasonable rate of growth in the coming years, especially with the USD expected to remain weak



11. Market implications – growth

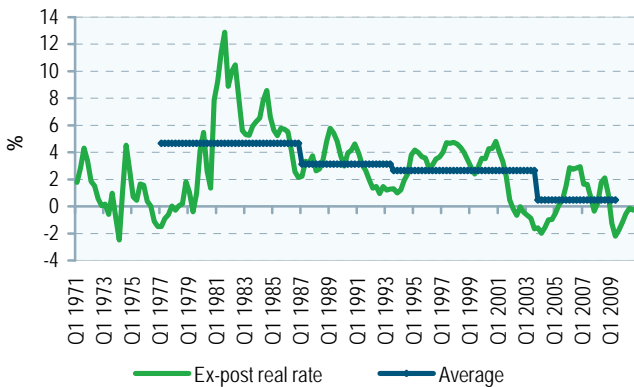
and fall further against many EM currencies. But the US will need to make policy adjustments too.

The US economy needs its policy framework to remain credible so that quantitative easing does not become deficit monetisation in the minds of investors. The US government needs to come up with a realistic plan for long-term deficit reduction before too long. But so far, the Fed's anti-inflation credibility remains more or less unchallenged, and foreign investors are not demanding an extra premium to hold assets in a potentially depreciating currency.

USD bonds are not a good long-term bet for investors, but opportunities still exist to lock in attractive funding rates for borrowers

The markets will not be indefinitely generous to the US economy. Signs of doubt in the Fed's inflation credibility have already emerged, with some upward drift in forward inflation rates. Of course, for borrowers, low interest rates are a boon for now. However, when rates start to reverse, interest in fixed income instruments will also likely wane, possibly as governments in the West continue to need to borrow. Corporate borrowers may be the biggest losers. With all the opportunities and challenges of the super-cycle, remaining fully funded is likely to be a prudent course for corporations.

Chart 1: The fall in ex-post real rates



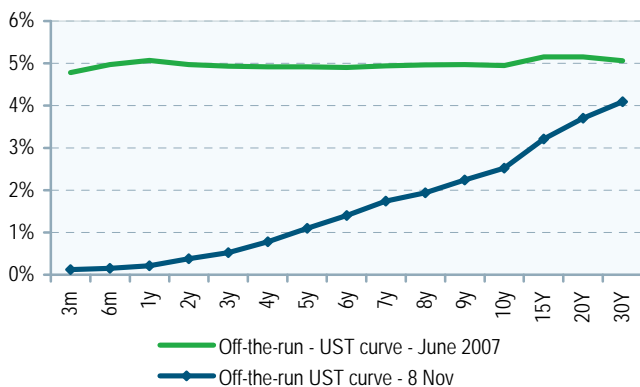
Sources: Bloomberg, Standard Chartered Research

Chart 2: 10Y UST yields on a downward trend since 1980s



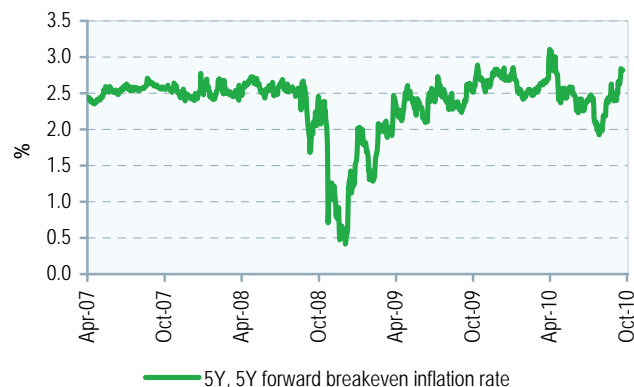
Sources: Bloomberg, Standard Chartered Research

Chart 3: US yield curve to shift up eventually
08-Nov-10 curve vs. 01-June-07 curve



Sources: Bloomberg, Standard Chartered Research

Chart 4: Credibility challenge? 5Y, 5Y fwd inflation



Sources: Bloomberg, Standard Chartered Research



11. Market implications – growth

Strong domestic-demand currencies in Asia to outperform

As we have discussed, the role of the USD is likely to wane over the super-cycle. Given the challenges around reflation of the US economy and a lower growth trajectory, we believe the USD is in a choppy multi-decade downtrend. However, while the USD may not be far from fair value versus several key G10 currencies such as the EUR and the Japanese yen (JPY), several EM currencies, especially in Asia ex-Japan (AXJ), are substantially undervalued. Hence, over the coming 20 years, we expect substantial appreciation in key AXJ currencies, in line with our view that economic and financial power will gradually shift from West to East.

The USD is set to depreciate over time; the CNY will be the prime beneficiary as economic growth and its increasing role as a reserve currency boost its attractiveness

We forecast that the CNY will be the best-performing EM currency through 2030. This is supported by China's large external surpluses, solid international investment position, high productivity growth and our expectation of relatively low CPI inflation throughout the period. In addition, we believe that the CNY will be a major reserve currency by 2030. This may provide long-term support for the CNY, as it has done for the EUR since its creation in 1999.

We also expect the KRW, INR and IDR to appreciate substantially versus the USD, especially over the coming 5-10 years. During that period, we forecast that the KRW will be among the best-performing Asian currencies, as it is now among the most undervalued currencies in the region. However, given the maturity of the Korean economy, KRW appreciation is likely to slow sharply starting in the middle of the decade. Our expectation of long-term INR and IDR appreciation is supported by our projection that India and Indonesia will be the fastest-growing major EM economies through 2030. This should be accompanied by rapid productivity growth.

Buy CNY

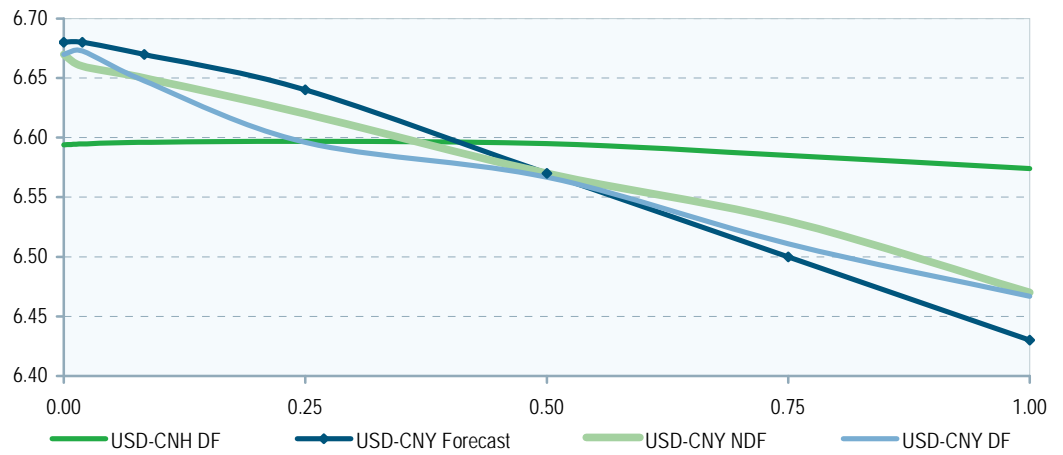
We recommend that investors gain access to the CNY through the CNH currency – the CNY deliverable in Hong Kong, as it is currently still impossible to hold balances in CNY. We recommend selling USD-CNH 1Y deliverable forwards (DFs) outright and rolling the position at expiry. Chart 5 shows the USD-CNH DF curve (mid), the USD-CNY non-deliverable forward (NDF), the USD-CNY DF and our USD-CNY forecasts.



11. Market implications – growth

Chart 5: USD-CNH DF, USD-CNY DF, USD-CNY NDF and our USD-CNY forecasts

Investors should sell USD-CNH 1Y DF outright



Sources: Bloomberg, Reuters, Standard Chartered Research

Sell JPY against KRW

We forecast that JPY-KRW will move sharply lower in the coming years, reaching 8.57 by 2015. This compares with its current level of around 13.50 and its average level over the last 10 years of 10.23. According to OECD PPP, the JPY is currently about 93% overvalued versus the KRW. In coming years, the JPY should weaken broadly on poor growth prospects and continuing loose monetary policy. While US inflation and interest rates are expected to move up in due course, deflation seems ingrained in Japan, and the yen is likely to resume its pre-eminent role in the carry trade eventually. We recommend that investors sell 1Y JPY-KRW NDF outright and roll the position at expiry, as liquidity beyond the 1Y tenor is relatively poor. As interest rates in Japan are also unlikely to move much higher over the medium term, funding in JPY may be attractive.

Chart 6: JPY-KRW and OECD JPY-KRW PPP

JPY-KRW is substantially overvalued



Sources: Bloomberg, Reuters, Standard Chartered Research



11. Market implications – growth

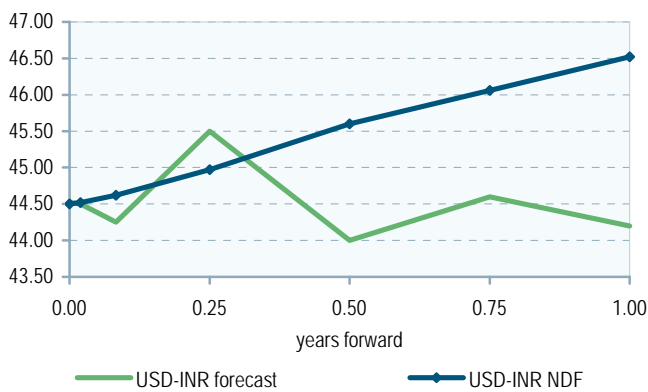
Buy INR and IDR

The INR may be one of the big beneficiaries of the stronger growth expected in India, as portfolio inflows are likely to be large – especially when India’s economy starts to grow faster than China’s, as we forecast it will. The IDR should also benefit from Indonesia’s strong domestic growth through the super-cycle.

We forecast that both USD-INR and USD-IDR will move sharply lower in the coming years, reaching 37.00 and 7,600 by 2015, respectively. We believe the best way to execute this view is to sell USD-INR and USD-IDR 1Y NDFs and roll the positions at expiry, as liquidity beyond the 1Y tenor is relatively poor.

Chart 7: USD-INR NDF and our USD-INR forecasts

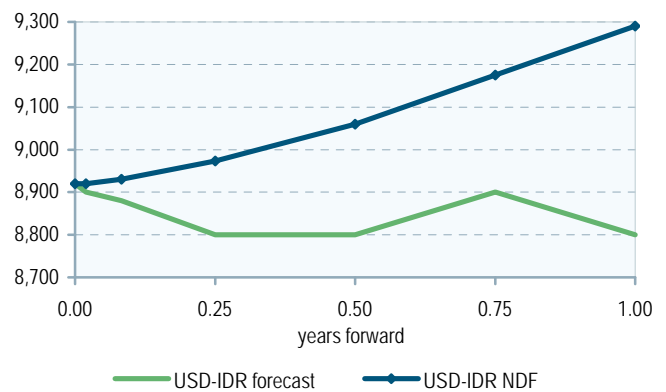
USD-INR should undershoot USD-INR NDF



Sources: Bloomberg, Standard Chartered Research

Chart 8: USD-IDR NDF and our USD-IDR forecasts

USD-IDR should undershoot USD-IDR NDF



Sources: Bloomberg, Standard Chartered Research

Trade will grow more quickly than GDP, and this should benefit both shipping and port infrastructure over time

Riding the wave in global trade

Container trade benefits from global outsourcing

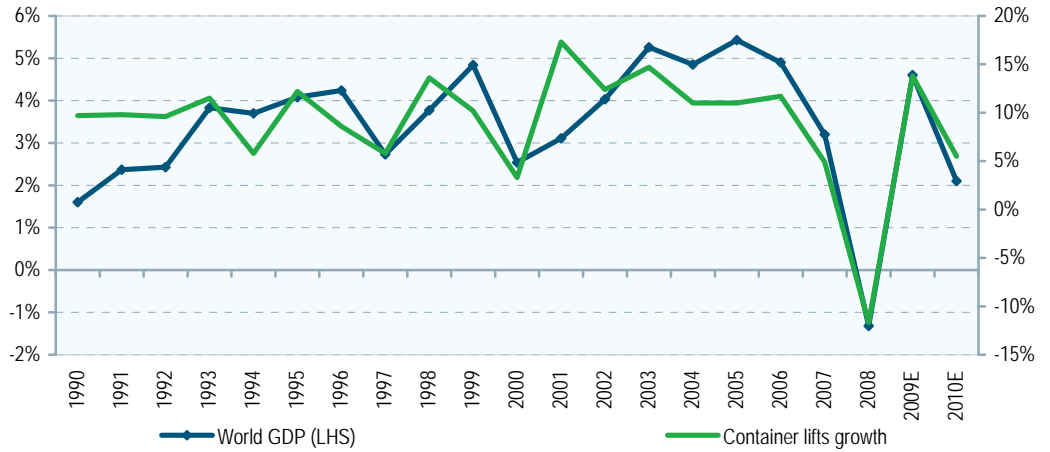
Growth in trade is a key element in the super-cycle. As most international trade will still go by sea in the next 20 years, while domestic transport costs should favour rail, shipping, rail and port infrastructure will be much in demand throughout the super-cycle. We saw that after China entered the WTO in 2001, the US accelerated its manufacturing business investments in Asian countries, particularly in China. The Europeans augmented their outsourcing in Asia from 2006 after the euro strengthened. Globalisation and the rise of China, the world’s new ‘workshop of the world’, have resulted in a strong boom in trade. Growth in trade outperformed GDP growth throughout the 2000-2008 period, even more so in global container trade. From 2001-08, container lifts increased at a CAGR of 12%, versus a CAGR of 5% for the previous five years.

We expect further strength in container trade, supported by robust demand from fast-growing emerging markets: China is likely to continue to dominate world trade flows, and its commodity and energy needs, along with those of India, will boost demand for bulk trade and energy carriers. New demand from other emerging markets will also benefit both. Trans-shipment hubs are also likely to see higher throughput.



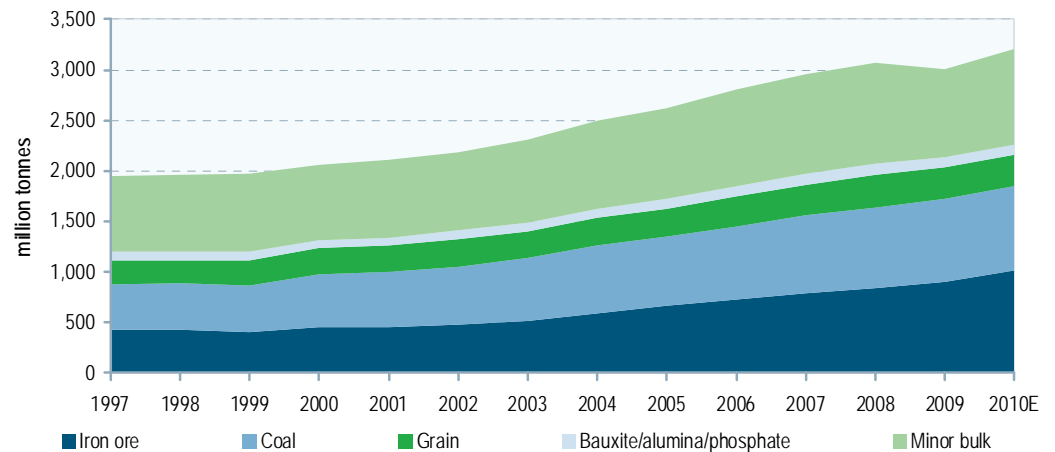
11. Market implications – growth

Chart 9: Global container trade growth



Sources: Drewry, Clarksons, Standard Chartered Research

Chart 10: Global dry bulk trade



Sources: Drewry, Clarksons, Standard Chartered Research

We believe trade growth will continue to outpace GDP growth, and port infrastructure will continue to be in demand. On key routes where there are capacity constraints and where adding new capacity may be a challenge (e.g. Africa), incumbents should do well. Though cyclical, the shipping industry should also have periods when its participants enjoy significant pricing power.

11. Market implications – urbanisation

- Massive and rapid urbanisation will create enormous demand for commodities
- Copper, coal and oil should all rise in price as demand exceeds cheap supply
- Environmental and energy security concerns will drive REEF investment

Grab the resource horns

Commodity prices are set to move higher during the super-cycle, with copper benefiting the most from high growth

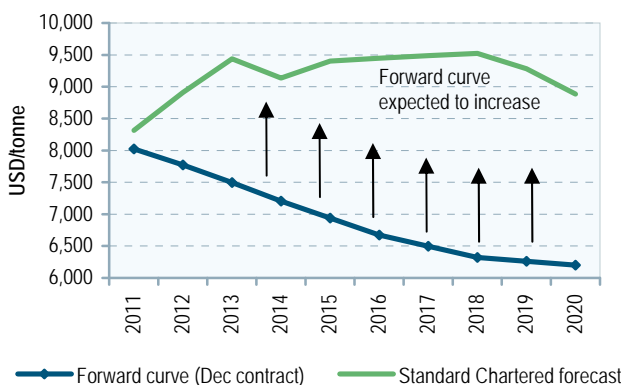
The rapid and massive urbanisation that we are likely to witness will drive an unprecedented increase in people living in cities over the next 20 years. The biggest impact will be on the consumption of commodities – everything from copper and steel for buildings and electricity supply, to increased car use, more consumer durables and higher demand for utilities.

- We prefer commodities which have robust fundamentals and are intensively consumed by emerging economies, such as copper, gold, iron ore, coal and oil.
- We prefer companies with good exposure to the above commodities, as well as near-term production growth and high yields on their investments.
- We see significant potential equities re-rating on higher long-term commodity prices.

Copper

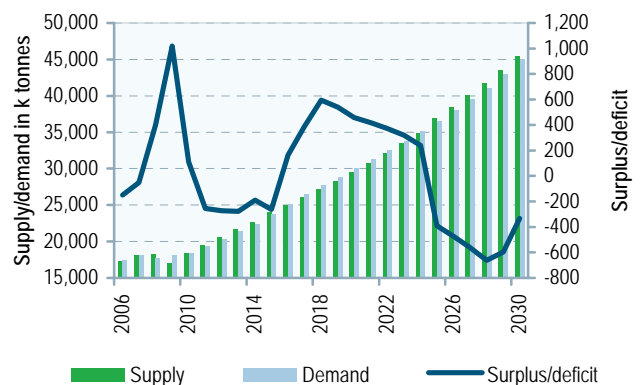
For either investors or hedgers, there is a strong incentive to buy copper in the medium term. The copper forward curve is currently in backwardation, which means that prices for future delivery are below current prices. However, we expect prices to increase in future, and we therefore recommend buying copper forward outright. We do not recommend physical copper ETFs, as they will not benefit from lower forward prices. Trade idea: Long Dec 2013 LME Copper.

Chart 11: Copper backwardation vs. copper forecast



Sources: Bloomberg, Standard Chartered Research

Chart 12: Copper volumes set to increase substantially



Sources: CRU, Standard Chartered Research

Equity re-rating on higher long-term prices

We expect a significant re-rating of resource equities as investors start to believe in the super-cycle, leading to higher and more sustainable long-term prices, which will then be modelled into equity valuations. For example, markets currently price in a



11. Market implications – urbanisation

USD 2.50/lb long-term copper price for copper equities on average. We believe that copper prices will not fall below the incentive price of USD 2.83/lb (on a sustainable basis), which is required by copper projects to generate a 15% IRR. If the long-term price increases from USD 2.50/lb to USD 2.8/lb (a 13% increase), we will see much larger increases in companies' operating profits. Indeed, if spot prices remain where they are now, we could see a more than 50% increase in today's fair value for some copper mining companies in Asia.

Attractive commodities + Near-term production growth + High yield

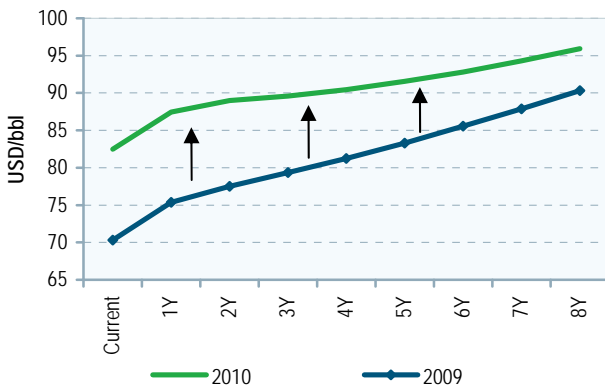
When looking at investing in equities, we favour companies focused on commodities with good fundamentals (such as copper, gold, iron ore, coal and oil) that also enjoy near-term production growth. Given our likely trajectory for copper prices, we are attracted to copper mining companies (or more diversified miners) that boast significant near-term production growth from new projects which were not suspended during the financial crisis and have been in continuous development throughout the cycle. Additional value will accrue to companies whose projects have payback periods of less than five years; this could be even shorter if spot prices go higher. Diversified miners should increase too.

Oil

We now turn to oil, where increased urbanisation should lead directly to higher demand, as should the related growth in the middle classes and increased trade-related transport. Despite increased fuel efficiency, we are bullish on oil. We forecast that crude oil prices will need to rise to ensure adequate supply to meet the future demand implied by our GDP forecasts, even after accounting for greater efficiency and substitution for other fuels. One obvious drawback of reflecting the bullish view via futures markets (ETFs, etc.) is that returns do not reflect spot crude returns given the steep contango witnessed in oil futures – i.e., future prices are much higher than current prices. Even in an environment of rising prices, this contango can still prevail, limiting returns (Chart 13). Indeed, crude oil markets have been in contango for most of the time since 2005. Moreover, physical spot/storage plays are not simple due to storage issues.

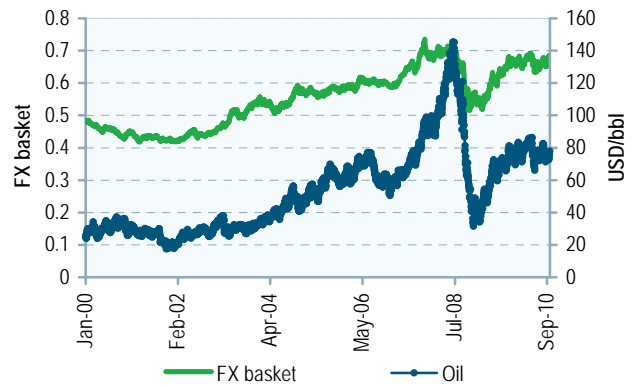
Oil prices should move higher, and correlated currencies offer an efficient way to get exposure

Chart 13: Contango still exists with rising prices



Sources: Bloomberg, Standard Chartered Research

Chart 14: Oil spot price vs. weighted basket of FX



Sources: Bloomberg, Standard Chartered Research



11. Market implications – urbanisation

We recommend reflecting the bullish view using a creative ‘synthetic crude strategy’. This strategy invests in a basket of liquid foreign currencies – Norwegian krone (NOK), Canadian dollar (CAD) and Australian dollar (AUD) – that are highly correlated with oil prices to replicate the movement of spot crude (see Chart 14). The advantage is that the performance of the synthetic crude position will be driven by the positive carry on the currencies, avoiding the contango/negative roll-down of going long futures.

Coal

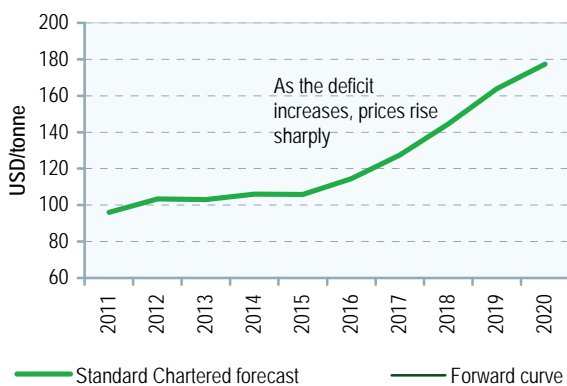
Coal will be the main source of energy for Asia’s growth; Chinese and Indonesian coal-mining companies offer attractive opportunities

Coal will be a major source of the energy required for Asia’s urbanisation. Thus, strong Asian demand growth and supply constraints will drive prices. The 2008 financial crisis has delayed some 33 million tonnes (mt) of supply from new coal mines. This sets the stage for a future global deficit as large as 30mt by 2018, which will lead to massive upward pressure on coal prices.

The fact that the thermal market is facing heavily constrained supply is positive for coal companies that can increase production fast, particularly those that already own the necessary infrastructure to support their growth plans. Chinese coal companies offer some of the best opportunities to leverage off this super-cycle in energy demand.

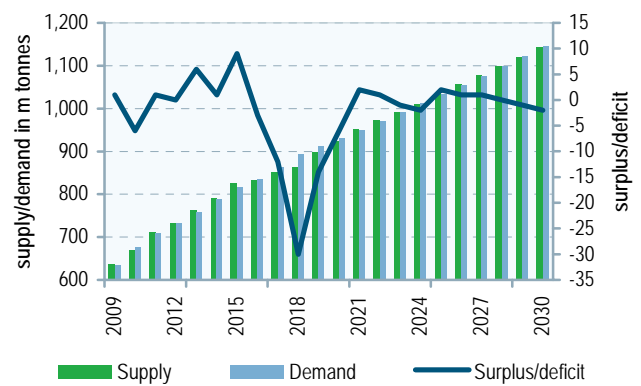
Elsewhere, Indonesia is currently the largest thermal coal exporter in the world, so Indonesian coal companies will benefit from a tight coal market, particularly at a time when the market’s demand for low-ranked coals is increasing rapidly. Many Indonesian coal companies are guiding for aggressive production growth, but infrastructure constraints mean that those with the infrastructure and with track records of fast expansion are likely to be better positioned to deliver on growth over the next one to three years.

Chart 15: Coal forecast vs. forward curve



Sources: Bloomberg, Standard Chartered Research

Chart 16: Massive deficit expected in medium term



Source: Standard Chartered Research



11. Market implications – urbanisation

Environmental challenges and rising oil and coal prices will offer significant growth opportunities to renewable energy-related companies

Wind, water and waste sectors should do well as Asia tackles climate and pollution issues

REEF

Renewable energy and environmental finance – recovering momentum

As urbanisation continues, emerging markets must address both the environmental challenges of their rapidly growing cities and, for many, energy security in a world of rising fossil fuel prices. They must be seen to address these issues in the eyes of a growing and increasingly vocal middle class. As a result, we believe the investor profile of the Renewable Energy and Environmental Finance (REEF) sector must also rise materially, underlining our bullish sector call. Renewable energy and environmental stocks in Asia have underperformed the regional and market indices in 2010 due to unclear support from political treaties for post-2012 development and concerns about over-capacity. Contrary to this recent trend, we highlight that the existing investment pipeline falls substantially short of what is required to effectively address the pressing issues surrounding carbon emissions and pollution. The super-cycle themes of rising commodity prices and more sustainable economic growth prospects are strongly supportive of improving economics and a re-invigorated focus on environmental and renewable energy issues.

- Future policies clarifying the development of REEF post-2012 and thermal coal prices heading back to USD 150/t are likely to trigger rising consensus forecasts across the sector.
- If China meets its stated 15% 'non-fossil' energy use target by 2020, 834 million tonnes oil equivalent (mtoe) would be required from clean energy sources. We expect wind capacity to reach 350GW by 2020 (2009: 26GW), substantially higher than the 150–200GW currently expected by the market.
- The environmental sector in Asia has been overshadowed by renewable energy, yet social issues of health and sustainability are becoming more important. We believe this will drive a much larger, more diverse, and therefore richer, equity investor opportunity in the sector.
- **Sub-sector 1 – China wind:** We see wind farms outperforming wind turbine generator (WTG) suppliers due to their 30-45% capacity growth in 2011–13 (WTG: 20–25%), lower equipment costs (WTG suffers from overcapacity), leverage on grid connection improvements, and economies of scale.
- **Sub-sector 2 – China water:** This sector is supported by rising capacity and tariffs. We believe waste-water treatment is a volume-growth story, while tap water supply is dependent on privatisation. The outlook for desalination is brighter as water shortages escalate and diversion costs rise sharply.
- **Sub-sector 3 – China solid waste:** This industry is still in its infancy and is currently overlooked by investors. Well-positioned players should benefit from our estimated 17% CAGR for waste-to-energy (WTE) capacity for the 2010-15 period. Due to lighter competition, the sector's historical 13-15% IRRs look attractive to us.



11. Market implications – middle classes

- Bank stocks in developing economies and developed Asia will benefit from rise of middle classes
- We expect continued credit deepening and rapid growth in fee income
- Best performers will likely be in niche credit, corporate risk management and transaction services, and household wealth management
- Consumer goods and services in Asia will also benefit from the rapid rise in incomes

Asian banks are best placed to capitalise on the phenomenal rise in the middle classes

Asian banks – invest in an attractive long-term outlook

The super-cycle should see a spectacular rise in the number of people in the middle classes in emerging markets. We believe that about 3bn people will enter the middle classes in the next 20 years, the vast majority in Asia. The banking sector is one sector likely to benefit from the super-cycle, and in particular from the rise of the middle classes. Developing-country (particularly Asian) bank equities as a group are materially and positively geared to the super-cycle in three broad areas: credit products, services and funding.

Across the developing world, bank credit volume growth prospects are highly leveraged to domestic macroeconomic growth. In addition, though, because overall leverage rises as economies develop, credit growth will exceed broad macroeconomic growth across most Asian and emerging economies for many years to come.

The same deepening process applies to fee-generating services. As Asian corporates become larger, more international and more complex, they will come to rely on financial services less for credit (as the capital markets will continue to grow apace, offering fee income opportunities to displace the asset-heavy loan-centric model). Instead, they will increasingly employ financial institutions for transaction processing, risk management, capital markets and strategic advisory services.

In the household sector, as economies develop, financial assets shift from simple cash and deposit products toward more complex, longer-duration financial vehicles that often require high-value professional management. Asia, in particular, is already a substantial wealth market across the retail, medium net-worth and private banking segments. Structural trends offer medium- to long-term super-normal growth opportunities in these product segments as the middle classes expand. Evolution of household balance sheets also has deep implications for banks' funding models. In Asia, deposits have historically been like air – freely available and valued almost as free goods.

High-quality deposit franchises will increasingly contribute to bank profitability

This has been a result of high household savings rates and rudimentary asset management mixes. Increasingly, though, this model will become strained by declining household savings (as consumer societies develop), increasing use of consumer credit and the shift away from deposits toward longer-duration and higher-yield investments. As this occurs – and it is already happening – high-quality deposit franchises will increasingly contribute to bank profitability and command a premium from equity investors. The life insurance industry will also be a huge beneficiary.



11. Market implications – middle classes

At a country asset allocation level, we favour banks in developing economies that are still at a nascent stage but rapidly progressing along the path outlined above.

- We suspect that Indonesia, with a much lower level of credit/GDP, has significantly higher medium-term credit growth prospects than China. India has superior loan growth prospects, particularly driven by the gradual substitution of loans for government bonds as the private sector increasingly drives economic development.
- Developing economies also vary widely in degree of deposit tightness – for example, Korean banks' deposit scarcity is nearly on a par with that in the US, while China's banks remain deposit-rich. Other developing-country systems must prepare for this eventuality.
- These economies also frequently offer extremely attractive net interest margins and superb profitability – historically a reward for high credit risk, which has been maintained as many of these economies have deleveraged and de-risked. While these margins are seductive, they are susceptible to downside risk. We encourage long-term investors to seek businesses whose profitability is sustainable (through fee income and cost structure improvements) as margins compress.

Long-term client relationships and good product capabilities should overcome margin compression and drive gains in market share

We strongly prefer institutions that are well positioned against these structural trends and which have relatively sophisticated capabilities to deliver the services that will increasingly offer growth, profitability, and durability of customer franchise. These capabilities come in many forms:

- Mortgages in countries with low home ownership, rising household wealth and nascent urbanisation (e.g., India)
- SME and micro business lending (Indonesia, India)
- Household consumption lending via credit cards (China) or unsecured loans
- High-quality household liabilities franchises offering stable funding and wealth management fee income potential (Hong Kong, Singapore and Indonesia)
- Corporate treasury and risk management services to serve increasingly sophisticated, internationally networked corporate clients

While some of these capabilities are strongly linked to technology and know-how, the most durable among them (for example, deposit franchise) ultimately rest on long-term client relationships. While we advise public-market equity investors on investments with time horizons considerably shorter than a super-cycle, we are nonetheless heavily influenced by these structural drivers of long-term growth, profitability and competitive differentiation.



11. Market implications – middle classes

Asian and other EM consumers are spending much more and moving upmarket

EM consumers – driving emerging company valuations

The Asian consumer is already driving up demand for products from lamb to Lamborghinis. With incomes per head growing in Asia and other emerging markets, this powerful retail force will only get stronger. A positive economic climate, with strong growth, is also generally a great environment for smaller, emerging companies. Combining these themes, among the Asian emerging companies, we have a structural preference for the consumer sector. In particular, we favour consumer companies with market-leading positions, as such companies tend to outperform stock-market indices over the longer term.

The super-cycle thesis supports this investment strategy. On top of well-established secular trends such as rising disposable incomes, urbanisation and demographics, the super-cycle creates new wealth in resource-rich nations and accelerates the transition of emerging nations and regions from being largely dependent on exports to being more balanced in their exposure to internally generated growth. This translates into rapid growth in consumer spending across much of the emerging world, opens up new markets for products and services, and creates tremendous opportunities for market-leading consumer companies, as well as for newcomers that tailor their products to local needs.

In South Asia we like food processing, especially where companies can leverage branding and market leadership. For example, the market for instant coffee and ingredients is growing strongly, driven by rising incomes and demographics, but also as new coffee-drinking markets such as China open up. We see similar circumstances in the ASEAN beer market. This sector is characterised by a few players with dominant market share and control of the most popular brands. Beer demand is expected to rise at a CAGR of 6% in 2010-12 in Thailand and the Philippines.

In North Asia, we are bullish on motor sales. In China, we forecast 25% passenger car sales growth in 2010, followed by a 15% CAGR in 2011-15 and 10% in 2016-25. Motor dealership networks in China are well placed to benefit. We are also already seeing China become the biggest market for many luxury brands, from clothes to claret to cars. But within the emerging markets, domestic luxury brands will also develop, and the leading existing retailers should perform well.

There will be growing demand for private health care as household incomes rise

Finally, health care is another sector we favour, as it is a direct beneficiary of super-cycle-fuelled economic growth. In particular, the Singapore private health-care sector is benefiting from rising domestic demand for private health care and from medical tourism, starting with resource-rich Indonesia. 76% of hospital admissions in Singapore are to government-restructured hospitals that are stretched to capacity. As domestic household incomes continue to grow, there will be growing demand for private health care. But the strongest driver may be medical tourism, as foreign patient volumes are highly correlated with economic growth.



11. Market implications – final thoughts

- The super-cycle will provide outstanding medium- and long-term investment opportunities
- The business cycle still exists, and markets will be volatile
- Asia dominates the opportunities for now, but Africa, MENA and Latin America have great potential

The trend is your friend

We have explored the powerful super-cycle forces that will drive growth and reshape economic activity over the next two decades and beyond.

Markets are likely to be volatile, but overall trends should hold

We have identified some of the best, and most accessible, markets to benefit from our view of the world, and the broadest and strongest themes. The future path of markets will be far from smooth, and we are likely to see many setbacks and cycles throughout this period. Markets are likely to be volatile, but we believe the overall trends will hold.

Timing is another key consideration for these ideas. We have not focused on the very short-term opportunities, as they rely less on fundamentals and more on flows and market timing. Instead, we have looked for medium- and long-term trades that should benefit strongly from the trends and changes we have identified.

Opportunities abound in Asia today, but look to Africa and MENA in the future

We have by no means exhausted the possibilities for analysis of markets in this piece, and will be following up on many of the themes we discuss. In particular, we have focused on some of the more liquid and developed markets, mostly within Asia, for these initial thoughts. As markets in Africa and MENA develop, we would expect to find just as many attractive opportunities in these regions, as well as in Latin America and even the developed markets, where there is exposure to the emerging markets-driven super-cycle.

The rapid changes we have seen so far are just the beginning. We believe that the super-cycle will provide an enormous range of interesting opportunities across all asset classes as profound changes play out across the emerging markets space, and as these economies, and the companies within them, come to dominate the global economy.



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