



Overview

The world is experiencing an unprecedented change in the global economy that is also underpinned by a similarly historic social and demographic change. After two centuries of complete hegemony of the Western economies, structural changes in China, India and other emerging economies are projecting them to potentially become the largest economies in the not so distant future. The major phenomenon that characterizes this change is the emergence of a new middle class in the developing world. This middle class, helped by globalization and the immediate access to information, is eager to improve its standard of living and reach the level that the developed world has enjoyed for decades. This new middle class can therefore be described as a powerful newcomer joining the already existing consumer age.

Globally this consumption is not necessarily that of excess or overindulgence. Rather it may be considered a movement of economic progressivism. Lending part to this trend is the fact that global population is growing at a blistering pace and will continue to do so for years to come.

In 1999 the world population lofted above the six billion mark. To put this growing and changing world into perspective, it was only about 200 years ago that the global population passed the one billion mark. According to the U.S. Census Bureau it only took another 118 years for the global population to double, reaching two billion in 1922. It then took 37 years to reach three billion, 15 years to reach four billion, 13 years to reach five billion and only 12 years to reach six billion. Today we are already past the half-way mark to the next billion.

This massively increasing population has contributed to an increase in consumption in virtually all goods and services, and in turn has contributed to the robust economies we are seeing today that are seemingly necessary in order to maintain the status quo. Not surprisingly, GDP in the U.S. has increased ten-fold since 1972, China has seen a ten-fold increase since 1978 and the U.K. has seen its GDP increase ten-fold since 1976.

The American and developed world middle class, which has covered its basic needs, dedicates its expanded income to leisure, travel, health care and housing improvements. In contrast, when an Asian, Russian or Brazilian family enters middle class status, they strive to improve their very poor standard of living by acquiring or moving into a house that has indoor plumbing, electricity, running water and basic appliances. As they cover their basic needs they move into a second stage, which involves purchasing a car, air conditioning, TV sets and other comfort items that we already take for granted.

Now with 6.5 billion potential consumers living in an era in which considerable industrial and technological advances are demanding more resources than ever, it is not surprising why global demand for commodities has increased. In this high-tech world natural resources are zealously sought after in order to maintain, support and develop this growing population. Because of this, resources of all types are soaring in value as their availability and economics are continually being challenged. Simply put, supply has not been able to keep up with demand.

This is the first economic cycle in two centuries in which the marginal unit of global demand comes from China and India. The macroeconomics reflects a story in which commodities have and will play a large

part now and in the future. The natural effect of this global socio-economic change constitutes the basis of the secular bull market in natural resources that started in 2000 and may last, using previous cycles' duration as reference, 15 to 20 years.

1 - Background

In order to better understand the characteristics of the current bull market in natural resources it is worth briefly examining what caused the previous bull and bear markets and their consequences for natural resource producers and investors.

The previous secular bull market in natural resources ended in 1980 and lasted over 25 years. What caused this bull market was a concatenation of several global factors on the demand side including the baby boom generation in the US, the development of Japan, Korea and Taiwan and the inflationary explosion in the US in the 1970's. On the supply side, the factors contributing to the cycle included the restriction on resources by the former Soviet Union, the lack of mining development in Africa and South America and the Middle East oil crises. The combined effect of increased demand and supply not being able to cope caused one of the major price appreciation moves in natural resources in many years.

But during the 1970's the end of the bull market slowly began to brew. The baby boom had ended, Japan, Korea and Taiwan reached a natural plateau in their commodity thirst, the Fed confronted inflation in the US successfully via a very tight monetary policy. The result was a global growth slowdown which certainly implied a deceleration of demand for natural resources. On the supply side, all the major oil discoveries of the 1960's hit the market almost at once, resulting in an excess of oil supply. On the metals side, in the latter part of the 1970's and despite a slower demand growth, the mining industry, which was awash in capital and easy access to financing due to the fact that commodities were seen by bankers as if they would never fall again, continued to expand its capacity. The final nail in the coffin was the end of the Cold War in 1989. This event not only caused a major non-cyclical commodity consumer to disappear but also triggered the liquidation of massive stocks of metals, soft commodities and oil as the new post-Soviet countries were in desperate need to finance their economies.

The result of such a confluence of negative events was a bear market that lasted 20 years. When demand subsides for a prolonged period, prices need to fall until supply is destroyed by means of closures of all marginal producers with high costs of production and also by reducing or postponing expansions. The oil and mining industries entered a very long period of falling prices that decimated their cash and earnings generation. Projects were undertaken only when there was a desperate need to replace depleted mines. Access to capital became negligible for a simple reason: bankers and shareholders were not willing to finance expansion projects when future prices for commodities were lower than the spot price. And the industry was also hurting itself by contributing to the backwardation in the futures market because of their constantly increasing hedge books. Negativity became an issue that needed to be dealt with by commodity producers on a daily basis, as excess inventories needed to be unwound. The industry entered

into survival mode. There were a few rallies for metals followed by resounding busts in those two decades. That only contributed to settle the idea that, from then on, every boom would be short lived and was not worth expanding production.

Periods like this also bring some collateral damage that lasts even longer than the actual bear market. These secondary effects include the slow but steady perception that pursuing careers in the mining industry is not worthy, which causes a brutal reduction in the number of graduates in geology, mining engineering, and everything related to the sector. Another negative effect was that as companies needed to keep production costs down, they did not pay the necessary attention to environmental issues, especially in emerging markets, gaining a negative reputation and endangering future developments.

In terms of equity markets, the result of the bear market in commodities meant that the weighting of natural resource stocks in the S&P Index imploded from 35% in 1980, to less than 5% twenty one years later.

2 - The New Secular Bull Market in Natural Resources

2.1 - Demand

After such a tremendous bear market, for metals and oil to surge it would certainly take another confluence of very strong global structural events that would generate a sustainable increase in demand for natural resources.

This surge in demand has been created by the synchronized effect of the following events:

- China and India's sustained growth and their new middle classes converging with developed world consumption patterns,
- Other Emerging Countries following the same path,
- Resumption of growth in the developed world, this time including Japan

Studies reveal that there are five distinct stages in the economic development of a country when it goes from “developing” to “developed”. Each stage is characterized by a dramatic increase in consumption of particular commodities. The beginning of new stages is based on the country achieving a certain level of GDP per capita, which triggers internal consumer demand for different types of goods and hence, natural resources. Changes begin at roughly 5-year intervals and each stage takes about 20 years to complete, with stages overlapping. The following chart shows the basic characteristics in terms of type of natural resources involved in these stages.

Figure 1

Development stage	Years							
	5-10	11-15	16-20	21-25	25-30	31-35	36-40	41-45
I - Infrastructure	Cement (from 100 kg/p/y to 500 - 1,000 kg/p/y), crushed stone, sand							
II - Light Manufacturing	Copper (from 1 kg/p/y to 10 kg/p/y)							
III - Heavy Manufacturing		Aluminum (from 1 kg/p/y to 10 - 30 kg/p/y), iron ore, steel						
IV - Consumer Goods			Nickel, fuels					
V - Service Economy				All of the above plus platinum, gold, diamonds				

Source: City of London Investment Management

2.1.1- The Players

2.1.1.1 - China

After being the largest economy in the world for more than eighteen centuries, China gave up its leadership position when the Western world, mainly the UK, Europe and then the US, adopted free market principles, especially after the Industrial Revolution. China, instead, slowly underwent a self economic destruction that culminated with Mao Tse-Tung and his creation of the Great Leap Forward, the founding of communes and the Cultural Revolution in 1969.

But Deng Xiaoping took over power of the Chinese Communist Party, launched his Open Door Policy in 1978 and installed the revolutionary “market socialism”, a mix of old socialist and free market principles that produced a fundamental change in the Chinese economy by allowing increased freedom to the population. China put the conditions in place to transform imported raw materials and cheap labor into cheap exports, which in turn boosted domestic wealth creation and savings. The result was an astonishing rate of economic growth. China's GDP has been growing at rates of more than 9% a year for more than 20 years.

Despite such powerful growth, China remained under the radar of Western experts. This happened in part because China was not part of the OECD and until the beginning of this century, “economic activity” meant the OECD. The story of the global economy as measured in the global statistics was largely the story of the industrial nations which meant that the economists and statisticians who prepared the reports and forecasts used by producers, consumers, investors, and central bankers focused on the leading industrial nations. China was out there among the emerging markets, but most global economists were skeptical of Chinese economic data, which didn't seem to be reliable. China also remained under the radar due to the fact that until 2000 it had been self-sufficient in natural resources. Around 2000 China stopped flooding the markets with excess subsidized production of oil, metals and soft commodities and became quite rapidly a major importer.

As explained before, GDP growth does not become a trigger of expanded consumption until certain levels of GDP per capita are attained. The initial effects of GDP growth are generated by a strong public investment in infrastructure. It is then that the increased economic activity begins to transpire to the people as new job creation translates into new salaries and then into savings and consumption. When consumption kicks in the demand for goods begins to grow exponentially and so does demand for natural resources, especially for economies whose GDP per capita increases in a very short period of time.

Another factor that stresses the magnitude of the change becomes clear when GDP growth is combined with the size of the population.

As Don Coxe of BMO NesbittBurns points out, if China and India, with combined population of 2.3 billion, continue to grow at an average rate of 7%, there could be more than 300 million new middle class inhabitants by 2015. That is something in the order of four times the size the new middle class for med in North America, Europe and Japan between 1948 and 1963, the time of the greatest mining boom in history.

China is now on the verge of the consumer goods (IV) stage as shown in Figure 1, and will surpass the US in energy consumption within five years. From being the world's twentieth-largest oil consumer to being

the second largest took China less than a decade. Its demand for oil doubled since 1993, now representing 7% of world consumption. China imports 3 million barrels a day, half its consumption.

The number of private cars in China – about 10 million – is growing rapidly each year. It is estimated that there are 450 million people in China with purchasing power above \$7,000/year; \$6,000 is the usual income threshold that triggers the possibility of car ownership. The following tables show the relative position of the potential for growth in the number of cars and the potential room for increased oil consumption in China and India:

Figure 2

Vehicles Per 1,000 People		Annual Oil Use Per Capita (bbl)	
US	740	US	27
China	3	Korea	17
India	1	China	1

Source: City of London Investment Management

Another interesting reference for the magnitude of what an increase in consumption implies in terms of potential volume can be seen in the following study. McKinsey, the consultancy, conducted in-person interviews with consumers, to gauge purchase intentions in 2006, in 30 Chinese cities representing about 60 percent of the country's population, 90 percent of its GDP, and 80 percent of its disposable income.

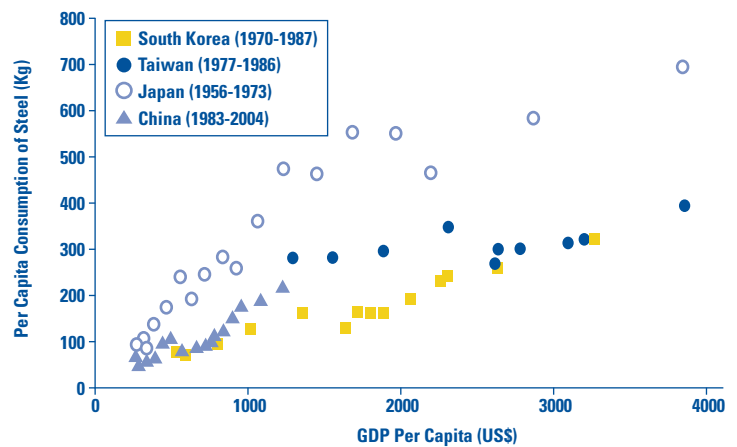
Figure 3

Stated Intention to Purchase in 2006	% of Population	Number of People
Mobile handset	15%	195,947,072
TV	10%	130,631,381
Desktop PC	10%	130,631,381
Microwave	9%	117,568,243
Washing machine	8%	104,505,105
Air conditioner	8%	104,505,105
Refrigerator	8%	104,505,105
Digital camera	8%	104,505,105

Source: The McKinsey Quarterly

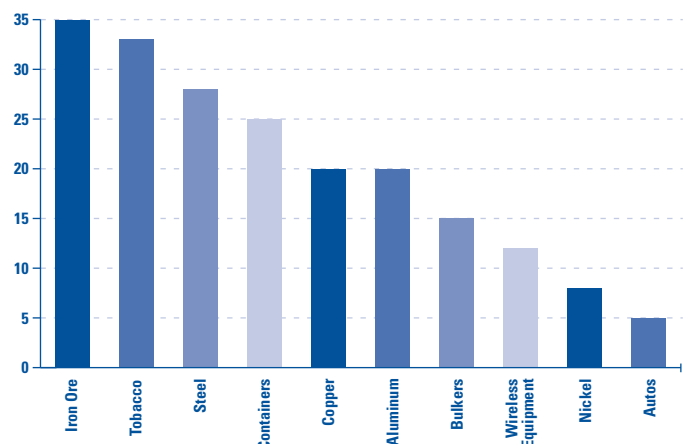
The following graph, Steel per capita consumption related to GDP per capita shows China's current position in its development cycle compared to the evolution of consumption in South Korea, Japan and Taiwan during their industrialization processes. China clearly will increase its per capita consumption as GDP per capita continues to grow. And this will certainly have an effect on the global production of steel, iron ore and zinc especially taking into account that today China already consumes 35% and 27% of the global production of iron ore and steel, respectively.

Figure 4: Steel Per Capita Consumption



Source: IISI, CVRD, Itau, Corretora

Figure 5: China Share of World Demand



Source: CVRD

Regarding China's economy and the sustainability of growth rates, there are a few angles that make us believe that, in the future, slower growth should be expected, even desired, but we do not believe GDP growth rates will go below 7-8%. The reason behind our rationale is that China is pursuing a clear strategy of continuing to promote growth so that the emergence of a middle class becomes a sustainable growth force capable of reducing the current dependence of China's economy on the US/developed world consumer.

Nevertheless, China knows that GDP growth rates over 10% present the risk of overheating the economy, which could translate into a financial crisis. Eight provinces out of the 31 in China had annual investment growth of more than 35 percent at the end of October, and three of those had investment growing faster than 40 percent annually. That is why the Government has increased interest rates and ordered banks to set aside more money as reserves to damp business investment and clamp down on wasteful factory expansion. On the other hand, China knows that it must make room, in terms of job creation, for the 8-10 million young people that annually migrate

from the countryside to the industrial/commercial areas. That is also why the Government, while trying to slow down fixed investment, has started to boost consumer spending. China has raised minimum wages and increased welfare spending to get households to spend more and make the economy less dependent on investment and exports. Consumer spending is gathering pace as curbs on lending and land use slow business investment, helping China's economy skirt a sharp slowdown. Retail sales jumped in October at the fastest pace in almost two years.

The World Bank on Nov. 14 raised its estimate for China's 2007 economic growth for a second time in four months. The World Bank said the world's fastest growing major economy may expand 9.6 percent next year after advancing 10.4 percent in 2006.

2.1.1.2 - India

India, with 1 billion inhabitants, is the second demand for oil behind the current secular bull market in natural resources.

India's starting point in 1978, when Deng Xiaoping began the Chinese economic transformation, was not much different than China's per capita income, export sector size, urbanization rates and pool of cheap labor. But India has not shown the same growth rates than its neighbor.

Many reasons lie behind this divergence, including a much less market oriented and much more bureaucratic political environment, a rigid labor market, an education system that has been concentrated in the elite social class and lower savings.

But as many experts point out, despite popular resistance to major changes, there are many glimmers of hope for Indian development. Domestic savings, urbanization rates and the size of the trade sector are all rising. And demographics are potentially more encouraging than in China if the rising Indian labor force can be put to work. In addition, Indian politicians at least claim to support market supply-side friendly policies.

In terms of demographics, based on trends in the working-age proportion of the population, India's savings rate will keep rising for several decades, in contrast with China, where the rate tops out around 2010. Another important factor in economic growth, the urbanization rate, has been on a slow-but-steady upturn since the 1970s. On the labor front, structural reforms to ease hiring and facilitate infrastructure will eventually happen. The pace of reform is the wild card, not whether it will occur. Also, the size of exports and imports relative to GDP will keep moving up. In addition, software and other capital-intensive exports are making explosive gains.

India's commodity demand will be a function of its expanding traded goods sector, which is expected to grow about twice as fast as world trade. Currently, India only accounts for 1% of world trade, but nearly 4% of the world's energy consumption.

Base metals demand also is rising sharply even before India "plays catch up" with China. The reason behind this is the strong infrastructure development that the Government is promoting. India's infrastructure, including roads, airports, energy grids and telecommunications, is rapidly being developed to cope with the massive needs that economic growth demands. This is happening simultaneously with a rapid housing and commercial development in many of India's main cities.

The China success story has had a profound impact on global commodity prices, interest rates and traded goods prices. We do not expect India to play the paradigm-changing role that China assumed over the past 10 years. However, the effect will be in the same direction as the "Chinese economic miracle." India is 10 years behind China in terms of development but is certainly moving in the same direction. Barring major surprises, Indian domestic savings will rise, trade will increase and commodity demand will continue to expand relative to the world, as has been the case in recent years.

China vs India

One further point that reinforces the secular bull case for natural resources is the increasing impact of the competitive positioning these two countries are getting into in order to secure the resources needed to maintain a sustainable growth path. As these two countries move further along the path of economic development, their energy needs will increase, signaling an alarming situation for the global supply of energy resources.

Some analysts have the view that this scramble had, in fact, already begun toward the end of last century. At present, Beijing imports 40 percent of its oil consumption which accounts for over 8 percent of world demand, or 7 million barrels a day. India, on the other hand, imports more than 70 percent of its oil needs, consuming about 2.5 million barrels a day.

Already, both countries have started pondering about hoarding energy sources and have indeed begun to do so. Nevertheless, at 18 billion barrels for China and 5 billion barrels for India, both countries' current estimated oil reserves are just a fraction of the 70 billion barrels held by the United States in its Strategic Petroleum Reserve.

These reserves are also very low relative to India's and China's respective consumption levels.

Notably, India is more dependent on oil for its energy needs than is China; oil and gas represent over 50 percent of its total energy consumption. Though India may want to diversify to reduce its dependence on oil, the reality is that, for the foreseeable future, the bulk of India's energy will continue to come from fossil fuels. This is because its investments in coal, oil and gas far exceed investments in alternative energies. In fact, the International Energy Agency (IEA) projects that India's dependence on oil imports will further grow to 91.6 percent by the year 2020.

2.1.1.3 - Other Emerging Countries

The situation described above for China and India in terms of the emergence of middle class and its effect on demand for natural resources is also joined by many other emerging countries.

For many years the developing countries looked like they could become a strong economic force. But every time that notion was proven wrong. The reasons for the continuous disappointment among investors were varied, including the lack of market oriented governments, economic and political instability, extreme dependency on the developed markets' own economic cycles, high levels of external debt, lack of domestic demand to make economic growth sustainable. In terms of global growth, this meant that the developed world acted as the global engine whilst the emerging markets behaved as the caboose. This pattern had been in place for most of the 19th and 20th centuries.

The turning point for such a non-stop history of economic debacles came as a result of serious economic and social crises in almost all of these countries. Mexico had its crisis in 1995, the Asian tigers in 1997, Russia in 1998, Brazil in 1999, Argentina in 2001.

Since then and as a result of the combination of profound structural changes, economic reform, market oriented policies and a certainly helpful global backdrop – synchronized growth in the developed world, rising commodity prices – the emerging countries entered a very strong virtuous circle. High GDP growth translated into increased exports, increased revenues for the governments, increased international reserves, stronger domestic economies, higher domestic demand, and increased GDP per capita.

The consequence of this process was a structural shift with two main characteristics:

1. The exponential rise in the size of dollar reserves in absolute and relative terms for major central banks. There are today five emerging countries with international reserves over \$100 billion and China is very close to reaching \$1 trillion in foreign reserves. Russia, South Korea and Taiwan's reserves are above \$250 billion. There are also 19 emerging countries with Investment grade sovereign ratings compared to 10 only five years ago.

2. The reversal of capital flows. For most of modern history emerging and developing nations have been capital deficient, depending on inflows from developed nations. Today, the opposite is true with the U.S., for example, becoming addicted to capital flows from emerging nations to finance its deficits. Developing nations, particularly in Asia, are internal generators of capital and have reached a status of financial strength, where they do not need to build up further dollar reserves to court foreign lenders.

The developed and emerging parts of the global economy are now in rough balance in terms of contributions to total global output, and they are at a tipping point going forward.

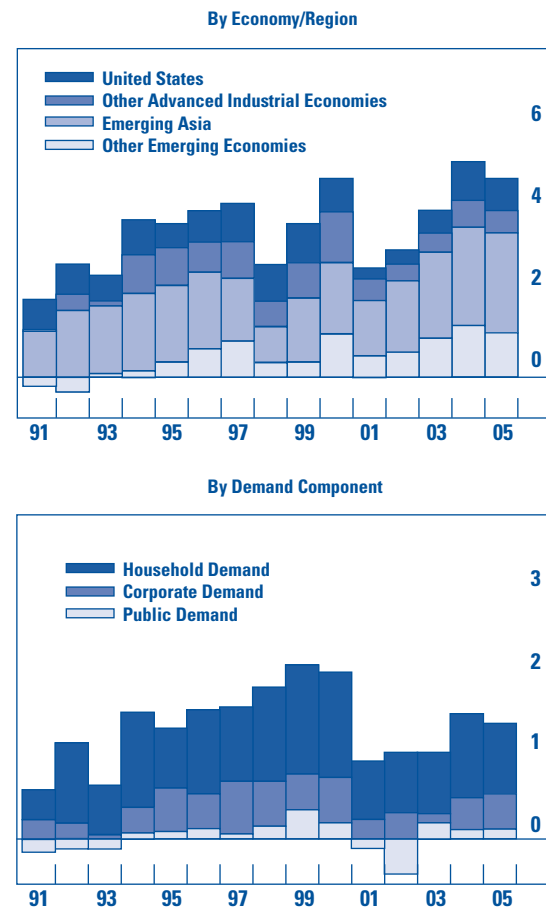
But most importantly, the emerging world may be nearly ready to fly on its own and drive its own growth and development, with less dependence on assistance from rich countries in the forms of capital and technology transfers or demand propulsion. It may also, before too long, reverse the polarity of cause and effect in global economics: Once, if the U.S. sneezed, the rest of the world caught a cold; in the years ahead, the causation may run the other way.

While Japan, Europe and the Anglo-Saxon economies are still global giants, the developing world, nearly seven-eighths of the world's population, now accounts for half of global output, when measured at purchasing-power parity, which takes into account the lower prices in poorer countries. When measured at current exchange rates, their share is nearly 30%.

Developing countries have diverted established trade patterns: Trade between rich countries and developing ones is growing twice as fast as trade among the rich. Their per capita GDP growth over the past five years has been triple the pace of the rich world. The Economist calculates that if current trends persist, the first decade of the 21st century "could see the fastest growth in average world income in the whole of history."

The prospects for continuing rapid growth in developing countries makes it plausible to imagine a world in which current imbalances can be tilted back toward balance within the context of cyclical expansion. Emerging nations have accounted for more than half of global growth over the past 15 years, as the chart below from the Bank for International Settlements shows.

Figure 6: Contributions to World Growth



Source: Bank for International Settlements

From their original low base, however, even rapid growth did not register on the scales that rich nations are used to. But now, from rough equality in terms of global GDP shares, a continuation of such growth will feed back into the rich world on a noticeable scale.

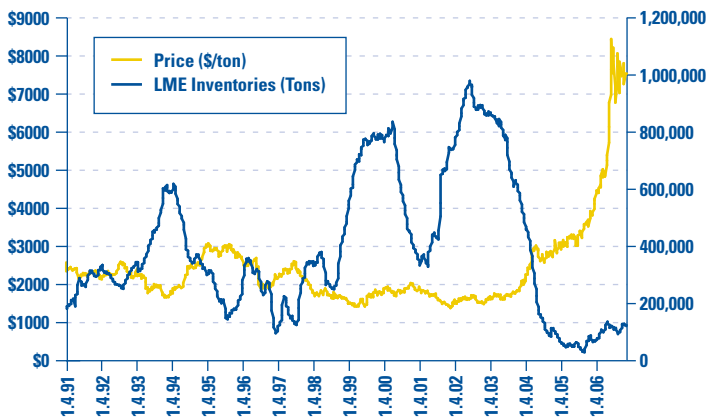
These fast economic growth economies have high metal content or metal intensity per unit of GDP growth as they build infrastructure, factories, communication networks and, of course, large numbers of new homes. One of the main consequences of this widespread creation of middle class among emerging countries is, again, an exponential increase in the demand for natural resources.

2.2 Supply

But there is a structural problem. And that is supply. The industries that provide those very much needed natural resources have not been prepared to cope with such monumental increase in demand. And the supply response, now that demand is there, is not going to be quick because of the same nature of the industry.

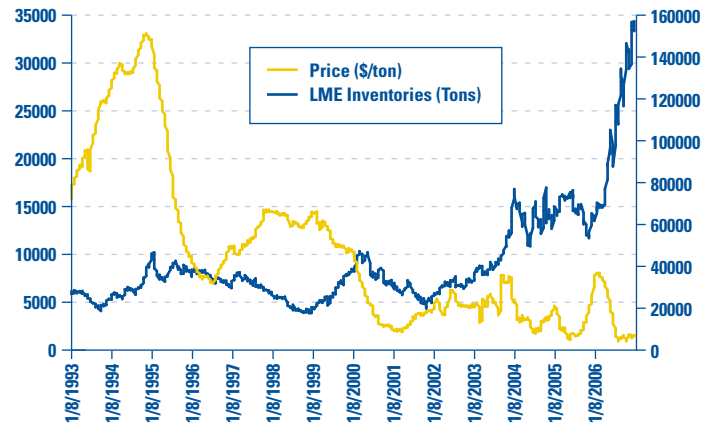
Despite the very strong increase in prices experienced in the last three years, the multi-year trends of LME global warehoused stock for the base metals have spiraled downward as global demand has outpaced supply (see following four graphs).

Figure 7: Copper



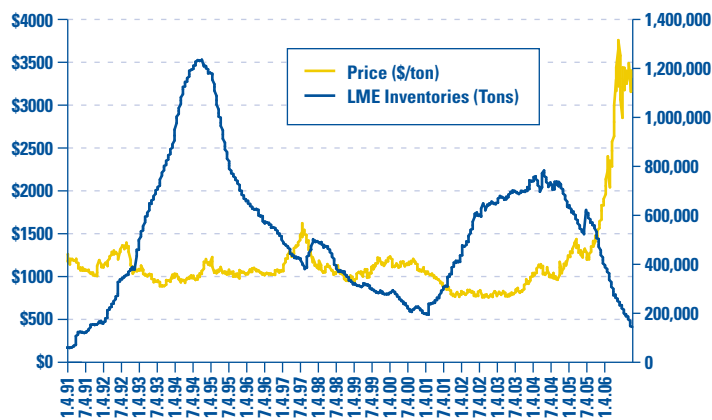
Source: Bloomberg

Figure 10: Nickel



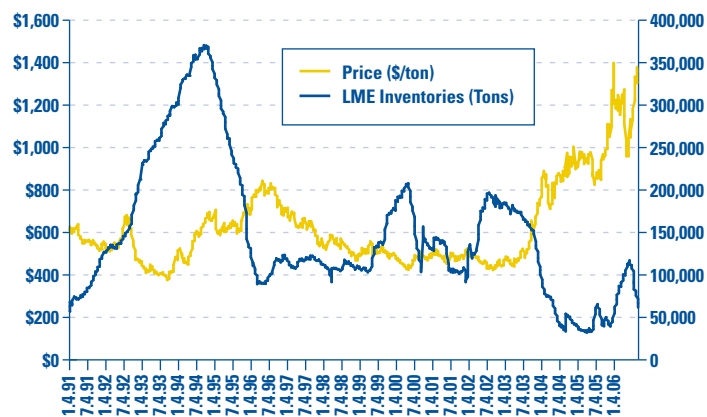
Source: Bloomberg

Figure 8: Zinc



Source: Bloomberg

Figure 9: Lead



Source: Bloomberg

This definitely hints at a widespread economic imbalance for these resources. After all, during the last three years the only way to satisfy the increased demand was depleting the global inventories to the current friction levels. And to paint even more of a fundamental picture, consider that as stocks are being raided, global mined supply of these metals is rising on balance each year.

In the last ten years, global mined production of the base metals has been subject to widespread growth. Since 1995, lead production has risen 21%, zinc +42%, nickel +44%, copper +52% and aluminum +61%. Even with these impressive increases, demand has obviously outpaced the best the producers had to offer.

So with increasing production and decreasing stocks still hardly fulfilling the global appetite for the metals, this indeed stands to serve as powerful ingredients for a strong secular bull market that should be subject to many years of rising prices until the ultimate hunger is satiated and an abundance of leftovers remain.

There are fundamental factors that explain why, under such a benign pricing environment, supply has not increased even after three years of —by traditional measures—extremely high prices.

As mentioned before, the consequence of a protracted bear market in the industry caused a serious but natural case of underinvestment. Oil and mining companies, due to lack of internally generated cash-flow, lack of access to bank financing, and mainly due to the lack of visibility of the business as a whole, ceased investing. This was specially aggravated in the last few years of the cycle.

In the last three years activity has certainly increased at the production level, but this time the addition of capacity to expand supply will take much longer. Historically, the cycle for bringing a basic metal mine from feasibility study to production was 5-6 years. That has dramatically changed. Today that period has extended to 10 years. The reasons are:

- **Lack of Skilled labor**

As commodity prices started to move up, the industry started to ramp-up production and exploration. But given the magnitude of the increase in activity, the industry found that skilled labor was not readily available. The previous bear market caused a large migration of basic workers from the mining industry to other economic activities. This has triggered a sudden need to train new workers and to re-create the conditions to attract new labor (in an industry hardly seen as attractive by basic workers). Aggravating the current condition is the fact that existing workers are now more organized and are already requesting

higher salaries and better working conditions, causing a series of strikes in Chile, Peru, Mexico, Indonesia, and Nigeria.

Another problem, perhaps more important in terms of delaying the expansion of supply, is the lack of highly educated labor. A vast majority of the educated work force in the industry (engineers, geologists and physicists), are close to retirement or are setting up new companies by themselves. And there is no quick replacement because the previous bear market created the perception that pursuing careers in the mining industry was not worthy, which caused a brutal reduction in the number of graduates in geology, mining engineering, and everything related to the sector.

• Environmental Issues

Events that occurred during the latter part of the previous bear market greatly contributed to today's situation regarding the longer period it takes to bring on a greenfield mine. Back then, too often, mines would be opened with grossly inadequate environmental protections in emerging countries desperate for economic growth (or, in some cases, where local politicians were desperate for payoffs). By the time the inhabitants realized the seriousness of the situation, the reserves at the mine were already exhausted, or the mine was shut down by falling metal prices, inflicting economic damage on the community. The mining company had gone bust and there was no one to sue to finance a cleanup.

That situation has certainly changed. Emerging markets, where most of the available natural resources are located, are in a much better economic position. This allows them to have a much tougher negotiating ability. Also, they are now more conscious of the need for a sustainable environment and the economic consequences. Moreover, the activity of NGO's has spread globally and has increased the population awareness on environmental issues.

The result is simple: companies need to devote a lot more resources, financial and time wise, to get projects approved.

• Increasing Costs

The rise in commodity prices has also caused overall production costs to steadily increase. The impact of such increase not only affects mining companies' margins but also contributes to reduction of expected expansions in supply. Companies in the process of analyzing new additions to production are, in many cases, delaying final decisions given that higher costs mean higher break-even points and, if prices were to fall dramatically they could see themselves in a dire financial position.

• Geopolitical Risks

Reserves of natural resources, especially metals, are located mostly in emerging market countries. The change in roles discussed in previous sections relating to the increasing influence of developing countries in the global arena is also producing a change in the distribution of power among nations. Countries with resources highly sought after have seen their power suddenly increase. Venezuela, Bolivia, Ecuador, some countries in Africa and, up to some extent Russia, have engaged in a process of "re-nationalization of resources". The immediate effect is the reduction of expected increases in supply given the fact that, as Western companies operating in those countries are obligated to abandon or renegotiate contracts, the general lack of knowledge of the new people in charge takes its toll. A clear example is Venezuela, which since its re-nationalization of oil resources has seen its production fall from almost 3Mbbbl/day to around 2.4Mbbbl/day in less than two years.

A longer term effect is that the pool of resources available to Western companies is shrinking.

3 - The Investment Case: Stocks vs Underlying Commodities

There is a generalized discussion among investors about the best way to take advantage of the current secular bull market in natural resources.

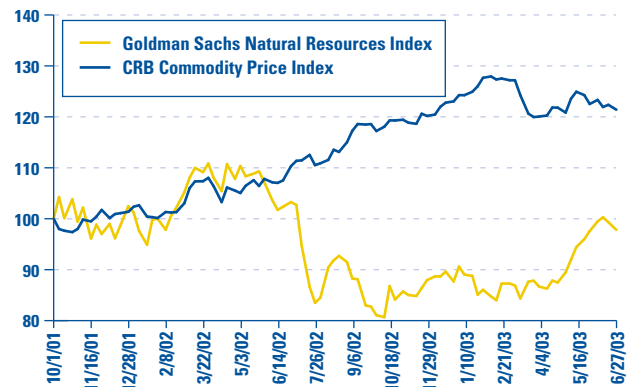
On one hand, there is a large pool of investors whom believe that it is better to invest directly in the underlying commodities using the very liquid futures market. Their rationale is that the underlying commodities provide the investment case upside without the risk involved in companies, which may have financial problems, managerial problems, wrong commercial or financial strategies, and environmental and geopolitical risks.

On the other hand, there is also a large pool of investors, including ourselves, who believe in the leverage in earnings growth provided by high commodity prices.

The reality shows that both approaches are valid but their timing differs.

Investing in the underlying commodities has historically proven to be the best option in the early stages of commodity bull markets. The following chart, which compares the CRB Commodity Price Index (underlying commodities) and the Goldman Sachs Natural Resources Index (commodity producer stocks) shows how the underlying commodities outperformed stocks from 2001 to 2003, the early stages of the current bull market.

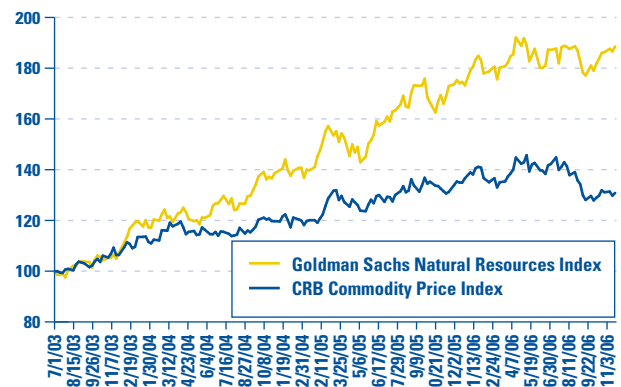
Figure 11



Source: Bloomberg

On the other hand, once the bull market is established and earnings begin to grow, investing in producers certainly proves more profitable. The following chart shows that, despite commodities continuing to appreciate, the producers' stocks outperformed by a large margin.

Figure 12



Source: Bloomberg

Commodities stocks' greatest attribute is their extreme leverage to underlying commodities prices.

A clear example is copper. For years in the early 2000s, copper prices languished around \$0.75 per pound. Copper producers were forced to cut costs so they could survive. Average costs for producing copper were, back then, \$0.65. Producers were selling this metal for a modest \$0.10 profit in 2002.

Regardless of how high copper prices rise, the costs for miners are still relatively fixed, or at least costs rise slower than commodities prices. Today this same miner might be able to produce copper for \$1.25 due to inflation and rising labor and energy costs. While this would have been devastating when copper was selling for \$0.75, today this essential base metal is running around \$2.60. Using these numbers copper is up 250% in the last 4 years!

The natural assumption to make is that commodities stock profits move up in proportion with commodities prices, so if copper is up 250% then copper miners' profits must be up 250% too. In reality this relationship is exponential. Today the same average producer that was earning \$0.10 per pound, is producing at a cost of \$1.25 and selling for \$2.60, earning a massive \$1.35 per pound profit. In this leverage example a 250% increase in the copper prices yielded a 1,250% increase in profits for producers.

This is certainly a simplified and debatable calculation given the fact that costs will possibly continue to rise, that today prices are not guaranteed in the future. But in a secular bull market, besides cyclical corrections, prices stay high for longer than expected.

Since we believe we are in the middle of a major secular bull market in natural resources, our view is that it will continue to be more rewarding to invest directly in the equities of companies that explore, produce and mine natural resources than investments in the underlying physical commodities. The profits' leverage is why commodities stocks with unhedged production are such an opportunity during a secular cycle. Their profits, and hence stock prices, rise far faster than the commodities they produce. The prices of commodities may not rise much more from current levels, even though they may stay at these levels for longer than the market expects. The persistence of high prices should result in upward revisions to earnings for mining companies and higher share prices.

There are specific risks inherent to investing in stocks that certainly need to be mitigated. Those company specific risks, as mentioned above, include the fact that commodity deposits are local and cannot be moved, so commodities' producers are at the mercy of their local governments. Whenever a new anti-free-market government comes into power, as recently happened in Bolivia, a company with heavy exposure in such a country can be sold drastically. In addition to political risk, disasters can happen. Mines can flood, oilfields can burn, and resources can deplete faster than expected.

Our approach to mitigate these risks can be summarized as follows:

- Maintain a widely diversified portfolio from a sector, stock, production cycle (integrated mature producers, new producers, exploration companies) and geographical point of view,
- Invest in companies with capable management with large proven and probable reserves and relative low cost of production located in market-oriented and shareholder-friendly countries.

4 - RISKS

There are inherent risks to this secular bull market that can be identified as:

4.1 - Risk to the Secular Case:

4.1.1 - Global Growth

The major risk that could derail the continuation of the current bull market relates to global growth. A sudden and deeper than anticipated slow-down in US growth, leading the economy into recession, could have dramatic negative effects in natural resources' prices. Despite the fact that emerging economies are slowly de-coupling from the developed world, there is still a high degree of correlation in between the two, especially taking into account that the vast majority of the investment community resides in the developed world. We do not assign a high probability to this scenario.

4.1.2 - Protectionism

In terms of the structural changes in the global balance of power there are also risks. The most prominent among them being protectionism. Big changes don't often come without friction. The sluggish growth in real wages in rich countries and the rise in income inequality that have accompanied the incorporation of 1.5 billion new workers into the global economy are often discussed in partisan political terms. But the underlying driver of these results is competition from newly empowered workers elsewhere in the world. As those new workers climb the value ladder, they are likely to exert competitive pressure on more job classes in the rich world, and more politically effective groups.

4.2 - Cyclical Risks

There are also cyclical risks that produce steep corrections in commodity prices and in commodity related stocks. Parabolic increases in prices, like the ones experienced during the last quarter of 2003, the first quarter of 2005 and, more markedly, in the first quarter of 2006 are not naturally caused but are the result of the increased participation of Hedge Funds and other speculative investors. These type of momentum investors can highly increase the volatility and the speed of price movements, exaggerating both the upward as well as the corrective moves.

5 - Sector Specific Comments and the Current Factors Driving our Strategy

5.1 - Gold

In our opinion, the current strength in the gold price, which has broken its inverse correlation with the dollar price and is actually increasing in value against the dollar, euro and yen, is a clear signal of the market perception that the major currencies are losing attractiveness as a store of value. The economic outlook for the US supports this view and will prompt the Fed to change its tightening policy soon.

Gold prices, around \$660 an ounce, recently reached an 18-year high in dollar terms, a 14-year peak versus the yen and all time highs versus the euro and renminbi.

Conditions traditionally fueling a surge in gold demand are slowly building up.

The rise in gold prices certainly reflects renewed inflation fears, which we don't share, but also reflects other variables, and they suggest a

further substantial increase, conceivably challenging the all time high of \$850 of January 1980.

The foundation of the great bull market in gold of the 1970s was laid when President Nixon in August 1971 abandoned the Bretton Woods agreement and ended the convertibility of gold into dollars. Central banks tenaciously held their gold reserves, while heightened currency volatility and a dramatic surge in inflation sparked demand for the metal by individual investors and speculators. The price rise climaxed in January 1980 at \$850 an ounce. The subsequent decline coincided with a radical, and successful, battle against inflation, led by then Chairman Volcker of the Federal Reserve Board. A secular bear market in gold was born.

That bear market was exacerbated in the early 1990s when several central banks adopted a strategy of decreasing gold reserves, preferring to hold earning assets, particularly dollars. In the background was the prologue to establishment of the euro, diminishing the need to hold gold reserves by central banks. To eliminate the first mover advantage for the most aggressive sellers, the banks signed the Central Bank Gold Agreement in September 1999, limited selling by European central banks holding 45% of reserves. Other major holders such as the U.S., Japan, the IMF and the BIS were not signatories but cooperated. That agreement established the low for gold around \$250 an ounce.

Conditions today are radically different from the last bull market in gold, but quite possibly more powerful.

1. Most important, perhaps, is the exponential rise in the size of dollar reserves in absolute and relative terms for major central banks, particularly Japan and China, whose gold holdings are minimal.

2. Even more striking is the reversal of capital flows. For most of modern history, emerging and developing nations have been capital deficient, depending on inflows from developed nations. Today, the opposite is true with the U.S., for example, becoming addicted to capital flows from emerging nations to finance its deficits. Developing nations, particularly in Asia, are internal generators of capital and have reached a status of financial strength, where they do not need to build up further dollar reserves to court foreign lenders.

3. Another major difference in conditions today is the dramatic increase in liquidity in the whole economic system, as evidenced by extraordinarily low real interest rates, narrow risk premia, and the inflation of asset categories benefiting from the carry trade, particularly real estate and bonds.

4. Also of importance is the large transfer of wealth to oil producers, most of which do not have adequate domestic reinvestment opportunities to absorb the surplus, now running around a yearly rate of a trillion dollars.

A major issue is whether holders of gold will find other assets more attractive. Most important, selling by central banks overweighted in dollars is likely to transform into net buying. Also, European central banks may well reassess any selling intentions in view of the risk to the euro implied by the June rejection of the European constitution by France and the Netherlands and the heightened economic stresses on some members, particularly Italy.

The desire to diversify out of the dollar may intensify, reflecting concern over the continuing large current account deficit and the escalation of the US budget deficit.

On the political front, mounting hostility by Iran and Venezuela raise the risk some oil producers will agitate for pricing in a basket of currencies rather than in dollars.

Thus, banks may be joined as buyers by the increasingly affluent populations of the emerging nations where gold is traditionally seen as an attractive store of value.

Adding to potential demand is the pool of funds (of unprecedented size) in the hands of performance compensated managers who, finding the oil trade too crowded and vulnerable, and bonds and stocks lacking momentum, shift their focus to gold. With real interest rates still at historically low levels, the opportunity cost of holding this non-earning asset is modest.

Gold is still dramatically underweighted in portfolios of virtually every type of investor. Only a modest shift toward rebalancing could have an explosive impact on its price.

5.2 - Energy

In our view, the current energy shock is different from the one in the 1970s in a number of ways that make the bull market in oil prices more sustainable.

First, the current energy shock is demand-driven, unlike the crunch of the 1970s that arose from the supply side as OPEC decided to manage the oil market. Rising energy prices are currently a reflection of strong demand rather than a response to artificial cutbacks in supply.

Second, there are still supply bottlenecks in the global energy sector. Global oil production is not far from its current potential. Meanwhile, North America's oil output has been falling despite surging prices. This is in contrast to the 1970s when global oil output rose by 20% from 1976 to 1980, creating a supply glut and eventually provoking a peak in crude prices.

Third, the run-up in oil prices in the 1970s led to an inflationary wage-price spiral and, consequently, higher interest rates. That pushed the global economy into recession and squeezed overall demand. The reason why the 1970s energy shock translated into a major inflation surge is that productivity growth was sluggish and the labor market in the developed world was rigid. These conditions do not hold now. Wage costs are contained in most economies and productivity gains are widespread. Thus, the energy shock has so far been reduced to a relative price shock with limited implications for inflation and interest rates.

Recent US Department of Energy figures spooked the product and equity markets as the notion of oil demand destruction took hold.

It is clear that US oil demand growth is slowing, the question is by how much and for how long.

We believe that there is a process of demand retardation, specially in the US market, which will result in slower demand due to a consumption shift. But in our view, global demand is not going to diminish substantially. Supply is not forecasted to increase significantly in the near future. Thus we expect the oil price to remain in a \$50-\$70 range.

Main beneficiaries of this scenario are, in our view, the exploration, oil services, low cost producers and producers with ample access to resources.

5.3 - Uranium

As global energy concerns have moved to the forefront of everybody's minds, a big drive toward alternate energy is underway. Nuclear energy is becoming a very acceptable alternative to the fossil fuels that power

the globe today and uranium is the commodity poised to shoulder this drive.

Nuclear energy is the largest and most talked about form of alternate energy as more than 16% of the world's electricity is currently generated from it. The price for uranium today is the highest it's been in 27 years. There are several reasons why uranium has finally awoken from its dormant state.

Just like all commodities taking part in this bull market, fundamentals are ultimately the driving force behind each secular trend. And like most other hard commodities, uranium is in the midst of a massive economic imbalance as mined supply is not even close to keeping up with increasing demand.

Though uranium has been entrenched in this imbalance for many more years than most other commodities, it is only recently that the supply/demand spread has become noteworthy. Meeting uranium demand to power today's reactors has not been an issue up until now for various reasons. First, not many new reactors were being built so demand was not growing very fast. And second, massive global stockpiles built up during the Cold War have been more than sufficient to supplement mined supply in meeting demand. But stockpiles and recyclables from dismantled nuclear weapons are quickly dwindling and will only last for so long, especially since the Highly Enriched Uranium (HEU) Agreement between the US and Russia ends in 2013.

Interestingly in 2005 global mined production of uranium was just over 100 million pounds. Even though 2006 global production figures are not published yet, it is safe to assume it to be within a few percent of the 2005 amount. If 2006 mined uranium was also in the same ballpark, which it is expected to be, this would leave a mined-to-consumed uranium deficit of nearly 70 million pounds.

And the growing pipeline of reactors coming online in the next decade will substantially add to the overall demand for uranium. Today there are 441 operational nuclear power reactors around the world and there are another 178 either in construction, planned or proposed. It is estimated that in 2007 over 170 million pounds of uranium will be required to operate these reactors. And this is most likely a conservative number considering the hundreds of research reactors, ships and submarines that consume uranium.

Therefore rising prices driving increasing production over many years is the only thing that will bring this supply imbalance together.

Another reason behind our positive stance on uranium is the outlook for supply growth. Despite the large estimated known recoverable uranium reserves in the ground, mining and production of uranium is a delayed process that seems to be getting even more delayed. Because uranium prices had been so low in the last 20 or so years, very little uranium exploration took place and very few significant discoveries were made.

And to add another twist to this already short-supplied market, many mining companies are struggling with governmental bureaucracy in bringing uranium mines into operation. Uranium more than any other metal has strict regulatory measures due to the perceived environmental and social risks involved, in bringing it to market.

The bottom line is the uranium needed to fuel the growing nuclear-friendly economy is in major short supply. Even though the price of uranium has rapidly ascended recently, \$70 uranium may seem cheap years down the road. There aren't many companies that are able to feed this market. Some of them will prosper greatly until this economic imbalance disappears.

5.4 - Base Metals

The outlook for materials is favourable due to a combination of economic growth, underinvestment in the mining sector, low levels of inventory and increasing concentration of producers.

The concentration of producers has improved in the last decade via mergers and acquisitions. Fewer players now account for a larger portion of the metals market, tilting more of the pricing power in their favor. This further extends the trend of consolidation in the industry and increases the pricing power of miners. Mergers and acquisitions are happening as there are few economically-viable large-scale mines left for exploration globally.

The weak dollar scenario in an environment of tight supply and demand, allows room for producers to ask for higher metal prices. Producers of metals tend to be in non-US regions such as Australia and Canada. Labour and equipment costs in these countries are largely denominated in the local currencies. As the local currencies appreciate versus the US dollar, margins of the producers will surely be squeezed. In the current environment, producers possess greater pricing power due to the tight supply/demand balance and are able to raise metal prices to regain some of the margin lost due to currency exchange.

We have a preference for bulk commodities such as iron ore and copper. China is now a dominant driver for the marginal demand growth, and aims to become more self-sufficient to mitigate the effect of rising commodity prices. China is now capable of producing sufficient capacity to meet its internal needs for aluminium and steel. However, lacking in natural resources such as iron ore and bauxite, it would thus have to purchase these products from external producers or buy such mines outright.

5.5 - Soft commodities

Soft commodities have been uncorrelated to economic cycles for at least the past 50 years. Instead, the primary drivers for grain prices are similar to those of other commodities, and comprise the combination of population growth, increases in standard of living, and production capacity.

5.5.1 - Grains

Demand

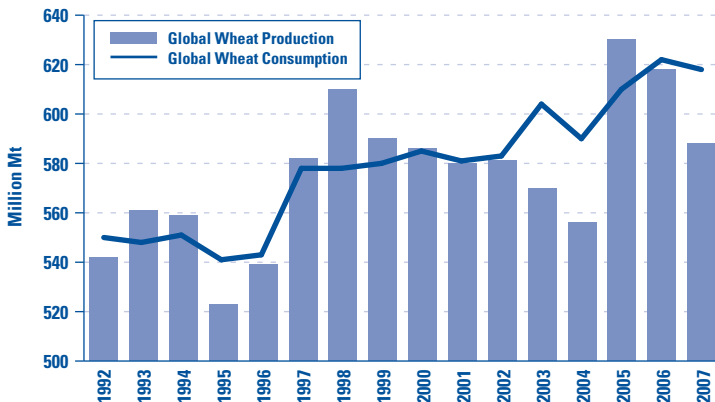
Grains, such as wheat and corn, represent the major diet staple in most developing nations, and because of the unrelenting population growth in those nations, demand for grains has been increasing steadily. More importantly, however, improving standard of living in the developing nations is driving additional demand for grains as livestock feed. For example, the average Chinese consumes 2,500 calories a day, the same amount as the average Taiwanese. However, while the bulk of the calories consumed by the Chinese comes from grains, the average Taiwanese consumes nine times more animal protein than the average Chinese. Given that on average, it takes 9 kg of grain to produce 1 kg of beef, the 20% growth in Chinese animal protein consumption is creating an unprecedented demand for grains to use as feed.

However, food and feed demand pales in comparison to the demand generated by the use of biofuels. In his January 2006 State of the Union Address, George Bush outlined a strategy to reduce US dependence on oil by increasing the use of renewable fuels to 20% of all transport fuel in the US. This move would have tremendous implications for the demand for corn. The current US consumption of 215 billion gallons of gasoline and diesel a year would require 45 billion

gallons of ethanol to achieve the 20% switch. However, according to the National Corn Growers Association, in 2005, the US only produced 11 billion bushels of corn, of which 1.5 billion were used in ethanol production, while the production of 45 billion gallons of ethanol alone would require 15 billion bushels. Given that the US is the world's largest producer of corn, and that initiatives to increase biofuels consumption are undertaken around the world, the outlook for demand of corn and other grains is very bullish.

Supply

Figure 13



Source: USDA, World Agricultural Supply and Demand Estimates

The supply of grains, on the other hand, has been faltering, as arable land diminishes due to industrialization and urbanization, and changing weather patterns result in the increasing occurrence of drought, harsh winters, flooding, etc. In China, for example, the Ministry for Agriculture estimated that this year's heavy dust storms rendered 10.4 million hectares (40,000 square miles) of farmland (an area the size of Ireland) unsuitable for agricultural use. The situation is similar for most of the grains, but can be best illustrated on wheat. For illustration, China's wheat production has fallen from its peak of 125 million Mt in 1998 to 95 million Mt today. To put this into perspective, the world's largest grain importer, Japan, representing 10% of China's population, imports 27 million Mt a year. Countries are forced to fill the gap in production by using stored wheat stockpiles, which in China fell from 103 million Mt in 2000 to a mere 35 million Mt in 2006. In fact, global wheat demand has been outpacing supply since 2000, except in 2004, and the supply/demand gap is widening, as traditional grains suppliers, including the US, have been facing problems of their own; in addition to the diminishing arable land and changing weather patterns, water is becoming a problem as well.

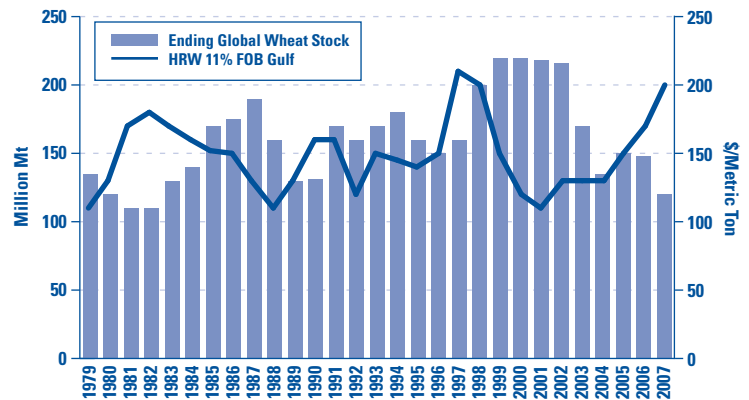
5.5.2 - Water

Approximately 80 percent of the Earth's surface is covered with water, but only a small percentage of the total waterbody is fresh water and, more importantly, a small percentage of that is suitable as drinking water. In China, there are numerous examples of major rivers running dry or failing to reach the sea. In 2006, the Yangtze River, China's longest, reached its lowest level in a century. Furthermore, it is estimated that 80% of the Chinese waterways are so degraded they no longer support fish. In India there is a very similar picture, and the

water table in India has fallen 75% in the past 25 years, as new cities and rapid urbanization has led to cities competing with industry and farmers for water. As the growth of China and India continues, this problem will intensify, because developed countries consume on average ten times more water per person than non-developed countries. China and India will be forced to provide water to 40% of the world's population rather than to their fields, resulting in them becoming net grain importers of enormous size. The US has traditionally been the grain supplier of last resort and is the world's largest exporter of corn; but water issues are also starting to become apparent in the grain-producing regions of the US. The Ogallala aquifer is one of the world's largest underground water reserves and is used to irrigate one-third of the US corn crop. However, the Ogallala is the world's fastest disappearing aquifer; in some regions it has run dry, while farmers who still have access are forced to pump water from increasing depths at increasing costs. The huge Klamath Basin in Northern California/southern Oregon has also seen its water levels drop by 20 feet in the past three years. These water reserves took millions of years to form; however, they are being depleted at an astounding rate and are unable to replenish themselves fast enough. For illustration - it takes 1,000 tons of water to produce 1 ton of grain, but the water reserves needed to produce the grain are being depleted more rapidly than they are replenished.

Investment Case

Figure 14



Source: USDA, World Agricultural Supply and Demand Estimates

The supply/demand imbalance for grains (illustrated by wheat, see Figure 14) has been driving up prices, and is not expected to abate any time soon. In fact, the imbalance, and hence price appreciation, could be enormous should the supply be impacted more severely by drought or other natural disasters, as stockpiles dwindle at historically low levels while demand is increasing at a rapid pace. In any case, a growing world population, an increasing middle class with upgraded diet consisting of both grains and animal protein, and extension of use of grains beyond food and feed creates a significant growth in demand that will not be satisfied at current output levels constrained by diminishing arable land, changing weather patterns, and inadequate water supply.

Martin Garzaron



CITY OF LONDON
Investment Management Company Limited

Contacts

Information/Queries

Megan Hartnett, Client Services, US Office

Phone: 610 380 5065

Fax: 610 380 2116

E-Mail: megan.hartnett@citlon.com

U.S. Office

The Barn, 1125 Airport Road

Coatesville, PA 19320

Phone: 610 380 2110

Fax: 610 380 2116

Article

Martin Garzaron, Portfolio Manager, US Office

Phone: 610 380 2115

Fax: 610 380 2116

E-Mail: martin.garzaron@citlon.com

London Office

10 Eastcheap

London EC3M 1LX

United Kingdom

Phone: 011 44 20 7711 0771

Fax: 011 44 20 7711 0772

E-Mail: info@citlon.co.uk

U.S. Office

The Barn, 1125 Airport Road

Coatesville, PA 19320

United States

Phone: 610 380 2110

Fax: 610 380 2116

E-Mail: info@citlon.com

Singapore Office

20 Collyer Quay

10-04 Tung Centre

Singapore 049319

Phone: 011 65 6236 9136

Fax: 011 65 6532 3997

Website

www.citlon.co.uk

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