



### **On the Road to Zero Growth**

*Jeremy Grantham*

*(pages 2-17)*



### **“Help, Help, I’m Being Repressed!”**

*Ben Inker*

*(pages 18-20)*



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#### Summary

- The U.S. GDP growth rate<sup>1</sup> that we have become accustomed to for over a hundred years – in excess of 3% a year – is not just hiding behind temporary setbacks. It is gone forever. Yet most business people (and the Fed) assume that economic growth will recover to its old rates.
- Going forward, GDP growth (conventionally measured) for the U.S. is likely to be about only 1.4% a year, and adjusted growth about 0.9%.
- Population growth that peaked in the U.S. at over 1.5% a year in the 1970s will bob along at less than half a percent. This is pretty much baked into the demographic pie. After adjusting for fewer hours worked per person, man-hours worked annually are likely to be growing at only 0.2% a year.
- Productivity in manufacturing has been high and is expected to stay high, but manufacturing is now only 9% of the U.S. economy, down from 24% in 1900 and 15% in 1990. It is on its way to only 5% by 2040 or so. There is a limit as to how much this small segment can add to total productivity.
- Growth in service productivity in contrast is low and declining. Total productivity is calculated to be just 1.3% through 2030, if we use current accounting methods.
- However, current accounting cannot accurately handle rising resource costs. Spending \$150-\$200 a barrel in offshore Brazil in the future to deliver the same barrel of oil that cost the Saudis \$10 will result perversely in a huge increase in (Brazilian) GDP. In reality, rising resource costs should be counted as a squeeze on the balance of the economy, as they lower our total utility.
- Measuring the non-resource balance of the economy produces the correct effect. The share of resource costs rose by an astonishing 4% of total GDP between 2002 and today. It thus reduced the growth of the non-resource part of GDP by fully 0.4% a year.
- Resource costs have been rising, conservatively, at 7% a year since 2000. If this is maintained in a world growing at under 4% and a developed world at under 1.5% it is easy to see how the squeeze will intensify.
- The price rise might even accelerate as cheap resources diminish. If resources increase their costs at 9% a year, the U.S. will reach a point where all of the growth generated by the economy is used up in simply obtaining enough resources to run the system. It would take just 11 years before the economic system would be in reverse! If, on the other hand, our resource productivity increases, or demand slows, cost increases may decelerate to 5% a year, giving us 31 years to get our act together. Of course, with extraordinary, innovative breakthroughs we might do even better, but we certainly shouldn't count on that. (Bear in mind that we don't even know precisely why the prices started to rise so sharply in 2000.) Excessive optimism and doing little could be extremely dangerous.

<sup>1</sup> All references to GDP growth are expressed in real terms.

- For a few years fracking will add helpfully to growth: my guess is that the benefit will peak at about 0.5% within five years, but be modest over longer periods. The key concept here for understanding growth is to know when the maximum upward push will occur. (See Appendix A.)
- Increasing climate damage, reflected mainly in food prices and flood damage, is going to increase. With any luck this will not be severe before 2030 (we allow for a 0.1% setback) but it is very likely to accelerate between 2030 and 2050. A great deal will depend on our responses.
- The bottom line for U.S. real growth, according to our forecast, is 0.9% a year through 2030, decreasing to 0.4% from 2030 to 2050 (see table on Page 16). This is all done presuming no unexpected disasters, but also no heroics, just normal “muddling through.”
- GDP measures must be improved so that they begin to measure output of real usefulness or utility. The current mish-mash of costs and of “goods” and “bads” produces poor and even damaging incentives.
- Accurate measurements of growth must eventually include the full costs of running down our natural assets. True income (said Hicks) is meant to allow for sustained productive capacity, which our current measures clearly do not. If they had done so the developed countries might well have been in reverse for the last 20 years.
- Investors should be wary of a Fed whose policy is premised on the idea that 3% growth for the U.S. is normal. Remember, it is led by a guy who couldn’t see a 1-in-1200-year housing bubble! Keeping rates down until productivity surges above its last 30-year average or until American fertility rates leap upwards could be a very long wait!
- Some of the investment implications of this low growth outlook and the Bernanke optimism will be addressed next time (with luck!).

### **Introduction: Wishful Thinking**

Attitudes to change are sticky. We cling to the idea of the good old days with enthusiasm. When offered unpleasant ideas (or even unpleasant facts) we jump around looking for more palatable alternatives. Critically, the tech boom and bust and the following housing boom and housing and financial busts helped camouflage the recent unpleasant economic development lying below the surface: the steady and important drop in long-term U.S. growth. Someday, when the debt is repaid and housing is normal and Europe has settled down, most business people seem to expect a recovery back to America’s old 3.4% a year growth trend, or at least something close. They should not hold their breath. A declining growth trend is inevitable and permanent and is caused by some pretty basic forces. The question here is not “Has the growth rate dropped?” (yes, it has) or “Will it continue to drop?” (yes, it will). The question is “At what rate will it drop?”

### **The Old GDP Battleship**

The trend for U.S. GDP growth up until about 1980 was remarkable: 3.4% a year for a full hundred years. There is nothing like this duration of strong growth anywhere else, although of course there are much higher growth rates for short bursts. But after 1980 the trend began to slip. It was not the result of a specific economic setback, but just a new slower growth rate. After 2000, what had been a sustained surge of women entering the workforce came to an end, further reducing the growth rate. The effect of this slowdown was felt in the very slow recovery from the 2002 recession, the slowest GDP growth and job creation yet recorded. This was despite the creation of a housing bubble, a difficult thing to achieve in a famously diversified U.S. housing market. The bubble led directly to the building of at least two million extra houses, employing an extra three to four million workers. There was also unprecedented borrowing against increased housing values. Yet still the recovery was slow. The current recovery from 2009 has been even more disappointingly slow. Times have changed.

GDP can be conveniently divided into population effects and everything else, loosely described as “productivity.” Here, we’ll start by looking at population effects.

### Effect of Demographics on Past and Future Growth

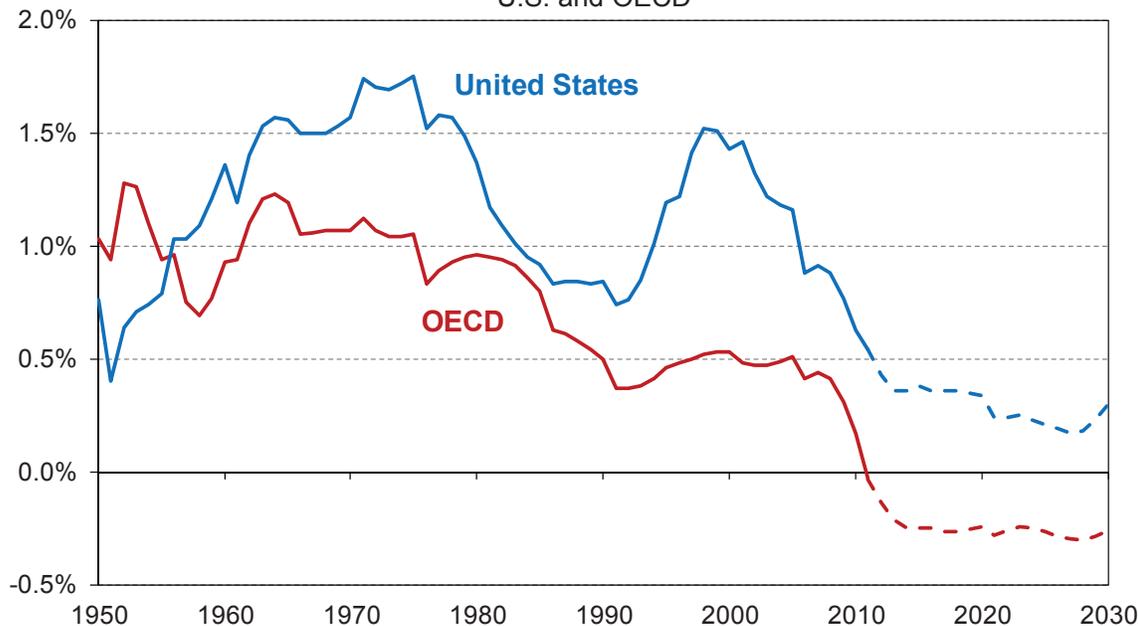
Demographics can get boring in a hurry so here are the bare bones. Exhibit 1 shows the recent rapid decline in the growth of working age population. Part of the future squeeze comes from the aging of the population. Exhibit 2 shows one of the simpler effects – hours worked per worker. It really seems to be part of our global culture today to work less as we get richer. And why not? It is so durable a trend that in the U.S. even after 1970, despite there being no further gains at all in real wages per hour, hours worked continued to creep down at 3 hours a year. Other developed countries, which did quite a bit better in average wages, not surprisingly fell quite a bit faster at over 7 hours a year. Lucky them. (From 1950 this effect has reduced potential growth in the U.S. by 0.17% a year and in the balance of the O.E.C.D. [not shown] by over twice that at 0.4%).

Exhibit 3 shows the one very substantial positive in the U.S. to the total hours worked picture: the dramatic increase in the participation rate of women. This added about 0.25% a year to work input up until 2000 when the trend ended.

The demographic inputs peaked around 1970 at nearly 2% a year growth (there are many ways to do these calculations, each yielding slightly different results). They fell to about 1% average growth for the last 30 years and demographic effects are now down to about 0.2% a year increase in man-hours where they are likely to remain until 2050, with possibly a very slight downward bias. Unusually for things economic, these estimates are much more likely than the typical estimates to be quite accurate, for much is derived from the existing population profile and social trends, which, like birth rates, change very slowly. The only variable that is quite likely to jump around unpredictably is the U.S. immigration policy.

### Exhibit 1 Population Growth Slows

Annual Working Age Population Growth and Projection  
U.S. and OECD

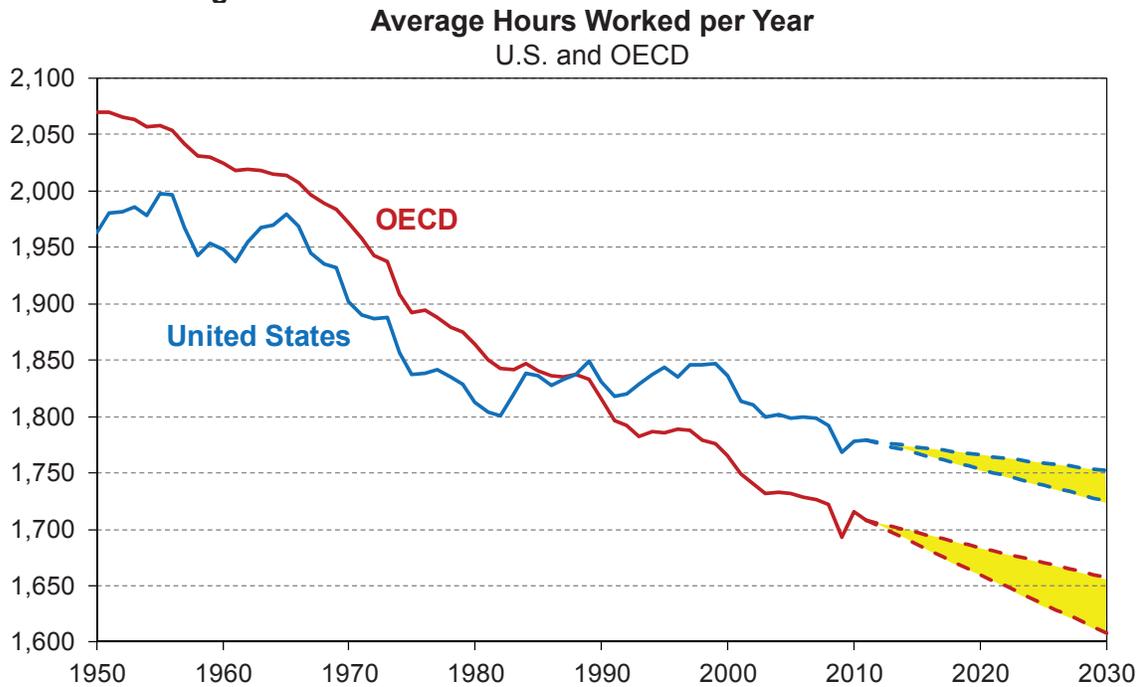


Estimates are based upon the reasonable beliefs of GMO and are not a guarantee. Estimates speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update such estimates. Estimates are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in the estimates provided.

Source: U.S. Census Bureau Actual data as of 12/31/11

**Exhibit 2**

**Hours per Worker Falling**

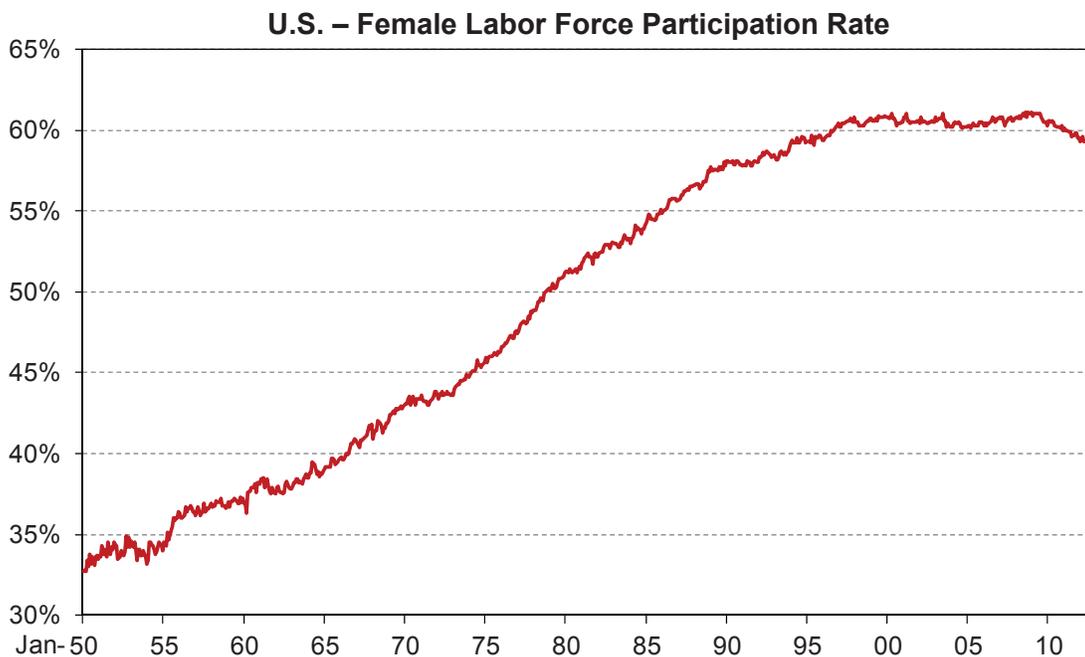


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Source: OECD Actual data as of 12/31/11

**Exhibit 3**

**Female Participation Effect Finished**



Source: Conference Board As of 9/30/12

The important point here is that these inputs are not going back to the glory days of the U.S. GDP growth battleship. They have caused GDP growth to drop by over 1.5% from its peak in the 1960s and nearly 1% from the average of the last 30 years. The population growth may just hold at current very modest growth rates, but it is highly unlikely to bounce back. Similarly the much more rapid global population growth is very likely to reach zero by 2050 plus or minus 10 years, which puts a very substantial damper on global GDP growth. I do not believe that this decline, backed as it is by unusually dependable data, is fully appreciated yet by the business and investment community.

**Paradox of Job Creation and Falling Man-hours – Possible Good News**

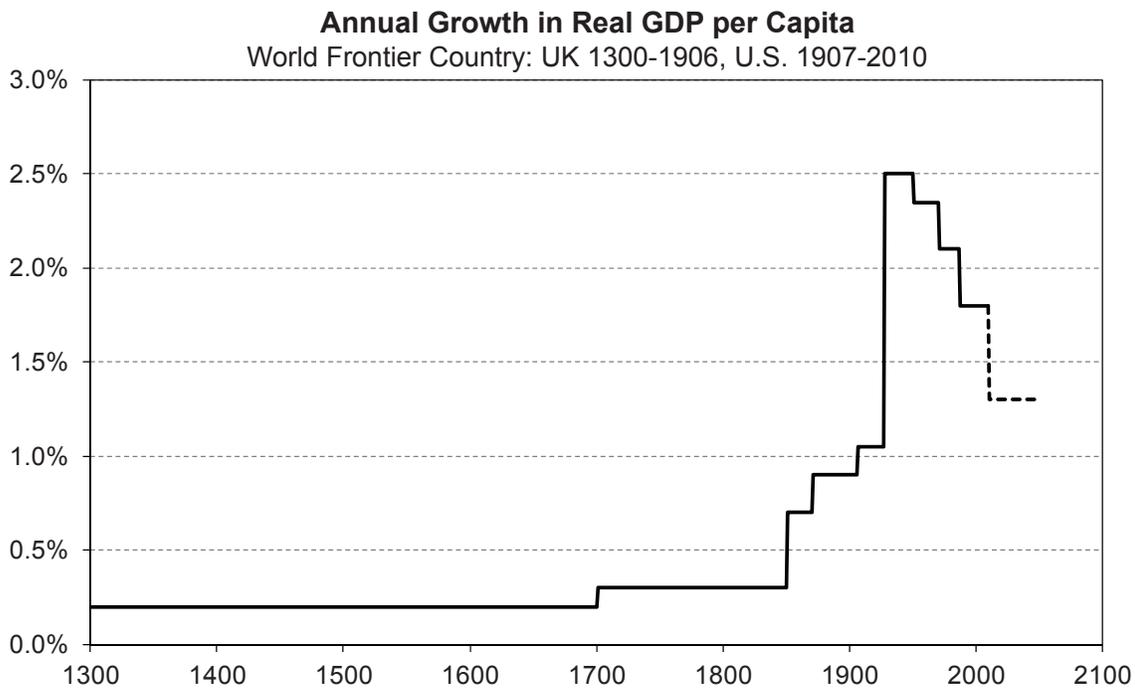
So the big long-term problem for GDP growth is likely to be a steadily reducing stream of man-hours available to the economy. Yet the big short-term problem is our apparently chronic failure to produce enough jobs. Well, obviously sometime in the intermediate term these forces will meet in what appears to be a very fortunate development, each taking some sting out of the other negative. Perhaps Japan has been giving us a sneak preview. We have all been almost gloating at their population crisis – falling rapidly – while barely commenting on the fact that they have half our unemployment rate. Yes, they have other problems, but just imagine how much worse their last 10 or 20 years of unemployment would have been if their population growth rate had been 1% or 1.5% more per year. Painful indeed.

**Productivity**

Productivity is the other half of the growth equation. Exhibit 4 shows a chart from a new paper<sup>2</sup> by Professor Robert Gordon of Northwestern, which gives us some historical perspective on the issue of productivity per capita. (It uses British experience until the 20<sup>th</sup> century and then switches to the U.S.) It shows that productivity gains were negligible for centuries (as was population growth, for the record). We can see how growth slowly picked up first

**Exhibit 4**

**Gordon’s Growth Chart – Productivity Now Falling**



Source: Gordon

<sup>2</sup> Gordon, Robert J., “Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds,” NBER Working Paper 18315, August 2012.

in the British Agricultural Revolution and then in the Industrial Revolution, rising to a then dizzying 1% growth rate around 1900. With the surge of innovations – steam engines, electricity, telephones, autos, and the full use of the stored energy of coal, oil, and gas – the rate soared to a peak of 2.5% at mid-century. And then it started to decline, with the estimated trend reaching 1.8% in the year 2000. (The dotted line is his prediction of a further fall in the trend of productivity growth to 1.3% by 2025.)

Professor Gordon offers a further thought experiment by speculating that possible future growth in productivity might continue to go down, all the way back to the original growth rate of about 0.2%. This argument is worth a look.

Professor Gordon covers four topics of particular interest to me: declining education; income inequality; globalization; and debt overhang, all relevant issues in regards to growth. He did not cover the underappreciated large decline in population because he made a reasonable choice to focus on productivity per person. In my opinion, though, he made much too little of the longer-term implications of the squeeze on growth caused by commodity scarcity and a rapidly deteriorating climate. Before getting to what he does well in my opinion, let me point out where his math was wonky as often happens when dealing with flows and changes in flow rates. Professor Gordon's points are, I think, unarguably holding back our growth potential. But they were doing so during the last 30 years. If these factors are only predicted to be as bad as they had been in the past, then they have no effect at all on changing future growth, for they are already counted as some of the forces that have already caused productivity to drop substantially since the peak in the 1960s. In particular, relative educational standards, globalization, and income disparity have all deteriorated so badly in the past that I am confident they will become less bad, perhaps much less bad. (To be fair, Professor Gordon offered this pessimistic flight path as only a "provocative fantasy." And he may be right, but definitely not because of the math offered here.)

Professor Gordon either skipped entirely or gave short shrift to a few issues that I think range from important to vital. I would like to start with the issue of reduced capital spending and then move onto the three factors that bode very badly for both near-term and very long-term growth: a maturing economy, with a diminishing manufacturing component; tightening resource constraints; and environmental costs that increase at an accelerating rate, slow at first and drastic eventually.

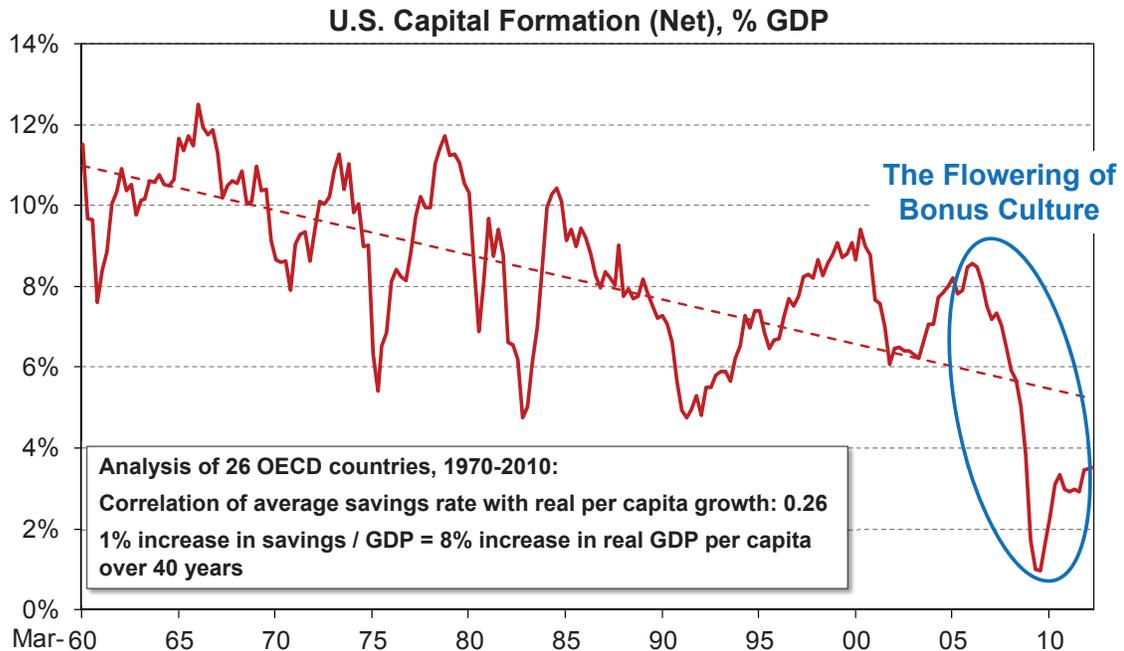
### **Reduced Capital Spending**

Typically I see less significance than others in debt and monetary factors and more in real factors. When someone says that China is building its trains and houses on debt I think, "No, they are built by real people with real bricks, cement, and steel and whatever happens to the debt, these assets will still be there." (They may fall down but that's a separate story; you can build a bad high rise with or without debt). So I take the quality and quantity of capital and people very seriously: they are the keys to growth and a healthy economy. A badly trained, badly educated workforce is a problem we will get to, but reduced, abnormally low capital investment, particularly in the U.S., is the current topic. My friend and economic consultant Andrew Smithers in London has a theory deserving much more attention in my opinion, and that is his concept of the "Bonus Culture." When I was a young analyst, companies like International Paper and International Harvester would drive us all crazy, for just as the supply/demand situation was getting tight and fat profits seemed around the corner, they and their competitors would all build new plants and everyone would drown in excess capacity. The CEOs were all obsessed with market share and would throw capital spending at everything. It might not have been the way to maximize an individual company's profit but it was great for jobs and growth. Now, in the bonus culture, new capacity is regarded with great suspicion. It tends to lower profitability in the near term and, occasionally these days, exposes the investing company to a raider. It is far safer to hold tight to the money and, when the stock needs a little push, buy some of your own stock back. This is going on today as I write, and on a big scale (approximately \$500 billion this year). Do this enough, though, and we will begin to see disappointing top-line revenues and a slower growing general economy, such as we may be seeing right now.

My colleagues have put together Exhibit 5, which shows the long-term history of capital spending for the U.S. (The savings and investment rate has a 25% correlation with long-run GDP growth.) Mostly the data in Exhibit 5 reflects a

## Exhibit 5

### Capital Spending Falls Sharply



Source: OECD Quarterly National Accounts, Bureau of Economic Analysis As of 6/30/12

lower capital spending rate responding to slower growth. The circled area, though, suggests an abnormally depressed level of capital spending, which seems highly likely to be a depressant on future growth: obviously you embed new technologies and new potential productivity more slowly if you have less new equipment. This currently reduced investment level appears to be about 4% below anything that can be explained by the decline in the growth trend. If this decline is proactive, if you will, and not a reflection of earlier declines in the growth rate, then based on longer-term correlations it is likely to depress future growth by, conservatively, 0.2% a year.

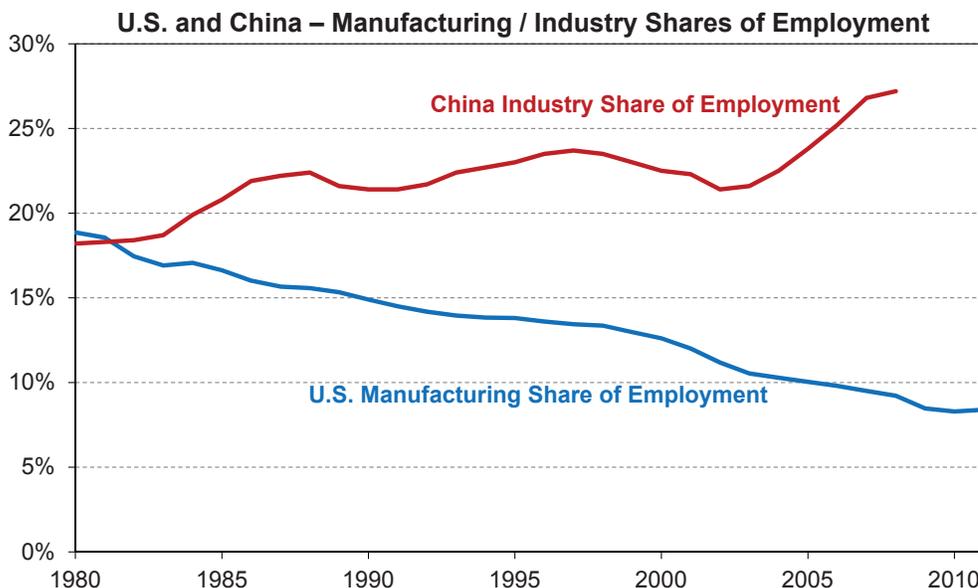
### Maturing Economy and the Decline of Manufacturing

A large long-term drag on past productivity gains has been the steady growth of the service sector and the commensurate decline in first farming and then manufacturing, which is shown in Exhibit 6. (The counter example of China is thrown in for contrast.) Productivity in manufacturing has actually held up remarkably well over the years in the U.S., as can be seen in Exhibit 7. We turn out to have an apparently inexhaustible supply of clever ideas in the making of cars and television sets and solar panels.

Services, though, are another matter. As can be seen in Exhibit 7, the productivity of services has declined to a fairly dismal 1.2% in recent decades. Why does it do so poorly? First we must concede that it is hard to measure productivity in many service sectors. However the essence of the problem was revealed to me in Kyoto a few weeks ago in the gardens of a 14<sup>th</sup> century Buddhist Temple. First, let me say the gardens were remarkable – the trees, shrubs, and moss represented centuries of loving care and artistic thought. There, in a patch of moss and pine trees, were eight or so gardeners, mostly crouched, clipping very small twigs that were not quite perfect from beautifully layered pine trees and pulling small pieces of moss of apparently the wrong kind out of a lush, uniform green carpet. As I watched them silently and steadily working, it occurred to me that for them it could indeed have still been the 14<sup>th</sup> century. A similar group of gardeners would no doubt then have worked a few hours longer each day and perhaps inherited a few more secrets from their fathers and grandfathers. I am pretty sure, though, that they would have been just as productive per man-hour 700 years ago.

**Exhibit 6**

**U.S. Economy Matures (Chinese Economy Develops)**

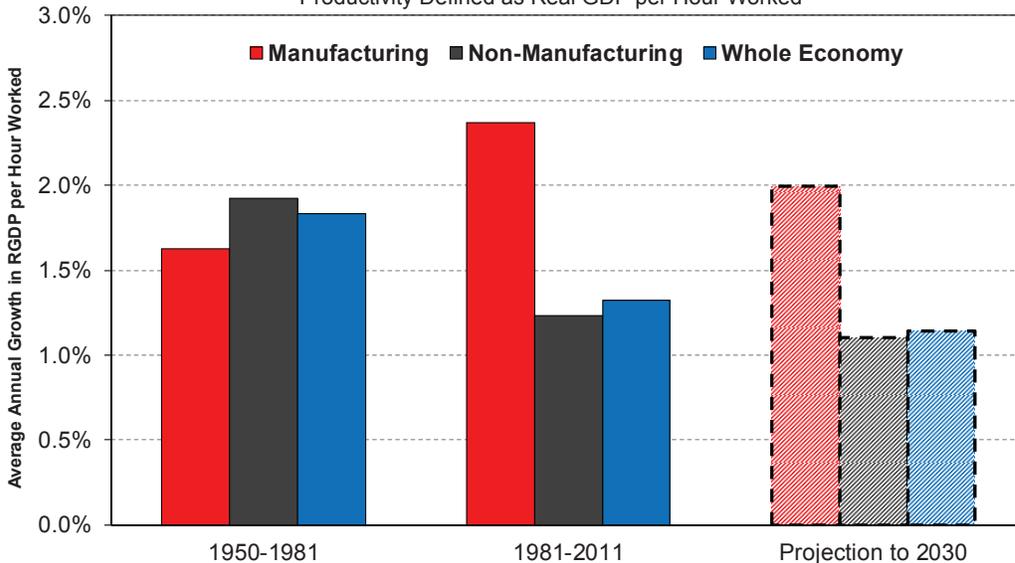


Source: Bureau of Labor Statistics, Bureau of Economic Analysis, World Bank WDI As of 12/31/11

**Exhibit 7**

**Resilient Manufacturing Productivity, Declining Services Productivity**

U.S. – Average Annual Productivity Growth, Manufacturing and Non-Manufacturing (traditionally measured!)  
Productivity Defined as Real GDP per Hour Worked



Memo: We have used the CPI deflator in all of our calculations. Higher growth numbers can be generated using the GDP deflator. We believe CPI does not overstate inflation, but may even understate it.

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Source: Bureau of Labor Statistics, Bureau of Economic Analysis, OECD, GMO

The other thought is that services are mostly about luxuries or, shall we say, non-essentials, the desirability or perceived quality of which often increases with the number of attendants and personal face-to-face time. There are also extreme measurement “problems.” For example, if money managers or lawyers raise their fees, their productivity is deemed to have risen. Really. But to simplify this incredibly complex issue, let us assume that the official numbers are correct. What they show is that as economies mature and jobs move toward services, productivity per man-hour becomes

harder to achieve. This headwind will continue into the indefinite future until one day, perhaps, we will reach what has been called a singularity. The last handful of humans engaged in manufacturing – all engineers and designers – are supervising intelligent robots making and designing yet another generation of even more productive and intelligent robots. On this particular day, R3142 sends the fateful silent communication to his fellow robots suggesting that their friendly human acquaintances, Fred and the boys, are beginning to get in the way. After which, there is no more productivity per man-hour at all, but only productivity per robot-hour or per unit of capital employed. This deepening of capital and technology almost guarantees that productivity will continue to be high in manufacturing even as the percentage of the total workforce employed there dwindles away toward zero. As the rest of us do each other's art appraisals and investment management we can fantasize about productivity, but it will mainly represent hard to measure qualitative improvements. (On a hypothetical island where services are outlawed and only manufacturing exists, the final position is that automation, and thereby capital, produces everything while all of the mere mortals sit on the beach. And starve? The worthless unemployed who are obviously not carrying their weight? Ah, there's the rub! Up the beach, in a protected, cordoned-off section is the capital owners' club. There, a handful of equally "unemployed" owners sit, enjoying tea and the ocean. How material goods and sustenance are divvied up will determine the future of that island, for the unemployed will be 100 or 1000 times the number of dividend counters.) Is there not a growing element of this unfortunate hypothetical island in our current world, for basically the same reason? Capital deepening and technology (and offshoring) steadily replace manufacturing and farming jobs until one day perhaps there will be no manufacturing jobs at all. The task of maintaining growth then has to be borne solely by service jobs where measuring productivity has always been quite flakey. It seems true, though, that the most important values that are generated, particularly when things start to go wrong, are in necessities, all of which seem to fall under the heading of "manufacturing": think about the trade between (necessary) bread and (luxury) haircuts as times get tough: seven loaves per haircut quickly become seven haircuts per loaf! Earlier, more philosophical economists than the current generation, like John Stuart Mill, Adam Smith, and Keynes, seemed to take pleasure in the idea of a distant future where citizens had vast amounts of leisure time to enjoy the world's beauty. They saw that as a sensible response to increased wealth. Unfortunately, they did not tell us much about the problem that, when that day arrives, capitalists – at least those in manufacturing – will own everything and the "unemployed" manufacturing workers nothing.

### **Tightening Resource Constraints**

The next large factor to consider is relatively new: the shift from a world of declining resource prices to a world of rising prices, which I have discussed in earlier letters in a different context. Here I am interested in how this shift in resource prices has worked to lower growth in the last 10 years from what it would otherwise have been, and how it will almost certainly continue to squeeze growth as far as the eye can see. The sum of these influences will lower the growth rate out into the indefinite future from what it would otherwise have been, and the net change will be greater on developing countries than on us.

As discussed before, in general the global picture until 2002 was one of erratic but generally declining resource prices. The average decline for 33 equally weighted commodities was 1.2% a year. This negative 1.2% is the sum of a positive increase in marginal extraction costs – deeper wells and thinner ores, etc. – tending to push prices up and a more than offsetting negative force from technology – finding and digging wells more efficiently, etc. – pushing prices down. My arbitrary but I hope reasonable guesses for the hundred years to 2002 is that technological innovations subtracted about 3.25% a year from resource prices and naturally rising marginal costs pushed them up by about 2% for a net annual decline of 1.25%. One could say that cleverness was overcoming increasing scarcity. But in 2002, the momentum shifts and scarcity gains the upper hand. Today, I believe that resource prices probably still have about 20% fat in them, representing short-term supply catch-up, some judicious foot dragging in increasing supply, some speculation, and, more recently, a decline in Chinese growth, which seems very likely to settle onto a materially lower trend in the intermediate term of, say, 5% or 6% a year. (In this my colleague Edward Chancellor appears to have been completely right, although either he was early or the Chinese were slow to admit reality.) To capture this I am mentally allowing for a further decline of 20% in all commodities including grains, where I cannot get my brain around the idea of a fourth consecutive terrible global growing season! However, even after an imputed 20%

markdown, the prices will still have doubled in 10 years or compounded at 7% a year. This is far higher than global GDP growth and painfully higher than growth in the U.S. or other developed countries. This 7% a year increase, in my opinion, represents a paradigm shift in costs.

Let us take this conservatively marked down 7% a year increase in costs and compare it to that of the previous 100 years.

	1902-2002 % per Year	2002-2012 % per Year
<b>Productivity/Technology Effect on Price</b>	<b>(3¼)</b>	<b>(3¼)</b>
<b>Deduced Increase in Marginal Costs per Year</b>	<b>+2</b>	<b>+10¼</b>
<b>Net Annual Increase in Costs</b>	<b>(1¼)</b>	<b>+7</b>

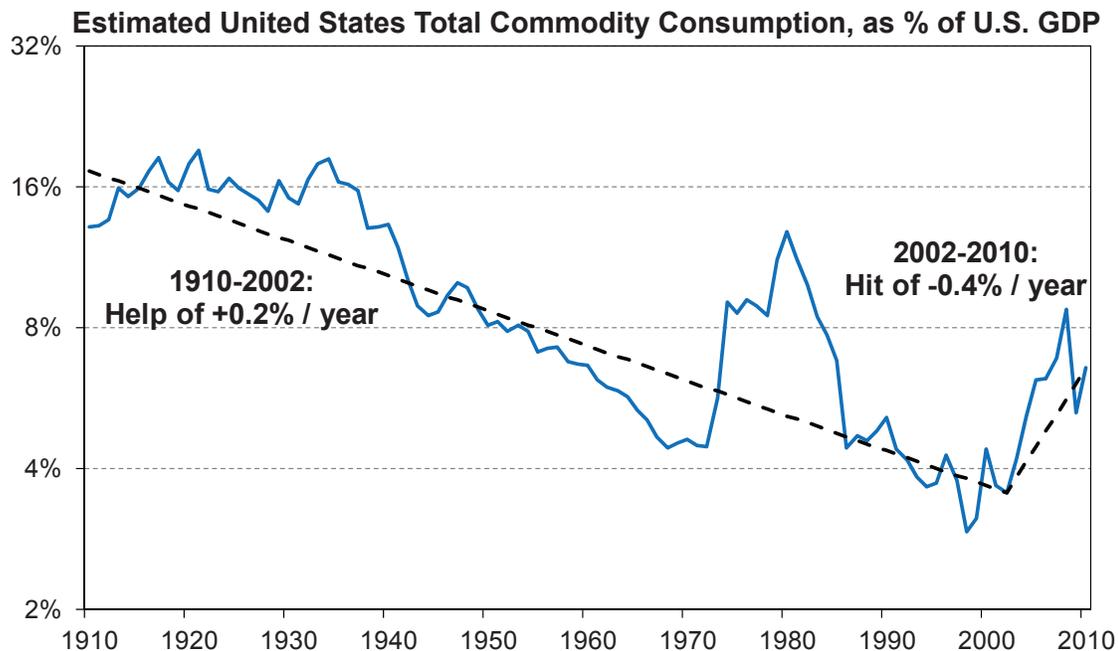
Here I have assumed a steady productivity/technology benefit of 3.25% a year. The shocker here is that around 2002 the rate of cost increase inflected upwards from 2% to around 10% a year, even on our conservatively adjusted numbers. When 2% jumps up to 10% a year it can reasonably be called a paradigm shift, if not a revolution. Bear in mind this was not caused by an unexpected war catching producers short. This event is entirely unlike the oil and commodity crises of 1973 and 1979. In those events the costs of obtaining oil did not really change much – it was more a case of an angry OPEC stamping its feet. It was like a tax. We paid and they got rich and we analysts all became amateur “experts” at predicting the problems of recycling their wealth. This time it is painfully different. Oil costs, for example, have risen from \$14 a barrel in 1968 and \$35 in 2000 (both in today’s dollars) to a painful \$85-\$90 today, according to the major oil companies. The oil companies are doing nicely in profitability, but they are not rolling in money as they would be if finding and delivering costs were still at \$35 or \$50. Suspicious as I am about the ethics of oil companies, the current prices are clearly not a conspiracy. They are cost driven. The same applies, I believe, to most metals, although it is obvious that their prices did get way ahead of their costs in 2008 and 2011. Even agricultural costs have soared, as fertilizer and fuel costs doubled or tripled and the costs of pumping water and a host of other lesser inputs leaped upwards.

The net effect of these price rises is to squeeze U.S. GDP growth and corporate profits, at least those outside the resource companies themselves. If the price trend of commodities continues upward, which I believe is nearly certain, then commodity company profits and their stock performance will continue to outperform as they have magnificently since the game changed in 2002, as we showed in last quarter’s exhibits of the high correlation between real commodity price moves and relative performance of commodity stocks. Conversely, the squeeze on the rest of the economy will continue. Exhibit 8 shows the total cost of commodities as a percentage of GDP. Prior to the time period of the exhibit, the share of commodities had fallen from close to 100% back in the Middle Ages in Europe, when almost everything went to survival, to way over 50% in the U.S. by 1700, and much higher elsewhere. The exhibit shows that by the early 1900s it had fallen to about 16% and finally to a remarkably low 3% of U.S. GDP around 2000. Since then, though, the percentage of GDP in resources has risen by an equally remarkable 4 percentage points to 7% of the total, more than double! This 4-percentage-point squeeze has therefore reduced the growth rate of the non-commodity world by, on average, 0.4% a year for the last 10 years. In comparison, in the previous 90 years resource prices had dropped by enough to raise the growth rate of the non-resource world by 0.2% a year, an increment that was missed in the official data. (The summary on this point is that when the costs of real resources fall, it creates unmeasured productivity gains. Conversely, real resource costs rising, as they are now, create productivity losses that are missed in the official data.)

The best way to express the impact of the resource squeeze on future U.S. growth is to assume for a minute that the 7% rising costs of resources will continue and that global growth of GDP will be, at best, 3.5% a year. When you extrapolate these two growth series you do not have to be a mathematical genius to sense the squeeze. Quite possibly, though, the 7% cost squeeze will accelerate as some resources become very scarce indeed. Alternatively, we can hope for an above-trend surge in productivity that would serve to reduce the rate of resource cost increases to 5% a

## Exhibit 8

### Commodities Go from Boost to Drag



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Source: Global Financial Data, U.S. Geological Survey, UN Food and Agriculture Organization, BP Statistical Review of World Energy, Smil et al, GMO  
As of 6/30/12

year. The range of uncertainty is very large. I believe, though, that it is highly unlikely that productivity will exceed the rising costs of resources and so the squeeze on growth will continue. The interaction between these two series will make for some incredibly volatile periods. Partly because the cost squeeze is unlikely to go away, the global growth rate of physical, manufactured output is likely to decline to zero (five or six decades would be my guess). Because zero growth in physical output is inevitable on a finite planet with finite resources, this does not strike me as catastrophic but a step in the right direction toward a more balanced and sustainable existence. At the same time there seems to be no reason why growth per capita of services and qualitative improvements in everything should not continue indefinitely or at least as long as science and innovation continue. Put another way, we could and probably will see qualitative improvements go on indefinitely even as quantitative growth comes to an end. So as not to end this section in too Pollyanna-ish a manner I must point out, however, that the squeeze described above does not stop at zero growth in physical output. Even at a zero growth rate in physical output, we will still be steadily exhausting our non-renewable resource reserves and will still be experiencing the effects of their rising costs.

The bottom line for the U.S. is that if resource prices rise at an accelerated 9%, then obtaining sufficient resources will use up all of our growth potential in just 11 years. After that, the balance of the economy will be in reverse! If we get lucky and cost increases decelerate to 5% a year, then we will have 31 years to fix our problems. Enhanced efforts to increase efficiency in the use and production of resources and re-tooling agriculture to be fully sustainable will be the most critical. Much-increased investments in technology and innovation and in a better educated workforce will also be essential. Almost certainly, retirement ages will rise. With the chips down, we must become more open-minded and put less weight on tradition and custom: work sharing, redesigning work and living habits, and just becoming more insistent that all resources must provide real utility. The alternative strategy is to sit back and hope for science to bail us out. And it may. But it is safer to assume that costs will continue to rise, global population will grow to nine billion plus, and developing countries will continue to get richer, albeit at a slowing rate. Delaying too long before

acting might be a damaging, even dangerous decision. When a real crisis arrives it may find us lacking the capital and other resources (including willpower) to respond effectively. Why, when the stakes are so high, would we take such a risk?

### ***Possible Positive Responses to the Resource Squeeze***

Countries and companies that can adjust most quickly and imaginatively to the new world we have entered will win, at least on a relative basis. We are likely to have a concentration of intellectual resources and venture capital on efficiency plays and substitution. Aluminum for example, with a reserve life of centuries, is likely to be ingeniously substituted for copper and other metals, most of which are genuinely scarce and have only decades' worth of reserves, and those at rapidly increasing costs. Using less material; recycling; designing products from the beginning to be recycled; energy saving; renewable energy; energy storage; and smart redesigning of life styles could surprisingly cause a surge in investments in resource efficiency and a jump in resource productivity, which might well improve the quality of life if not the quantity or sheer weight of things used. One of the most important developments and fortunately, I believe, one of the most likely in the next 10 years, is much cheaper energy storage devices, which, with continued progress in lowering the costs of home solar and improvements in home energy efficiency, would allow us to be off the grid. Yes!! An equally desirable development and also one currently researched would be a small people-mover, 10% of the weight of a current car, made of safe lightweight materials (carbon fiber and its descendants) that drives itself and can run in series to reduce drag like a small train. It is technically feasible to reduce the energy used for a single traveller to below 10% of the current level, which would basically remove personal ground transportation as a serious environmental problem. In addition, it is likely we will have organic materials to replace metals and oil-based synthetics, some with wonderful new features such as mimicking the strength of spider webs. Using the land for materials must come with the caveat, though, that we cannot do this and feed nine billion plus people unless we make profound changes to our agricultural system along the lines described last quarter. Using land for materials may one day be necessary, but using it for general-purpose fuel should be a shooting offense. Even if necessity requires some increased load on agriculture from metal and material substitution, we would pretty soon need to have both a gradually declining population and to be very, very clever. I believe it can just be done.

### **Rising Environmental Costs**

Fortunately I am not running for office. I am a capitalist and have co-founded two firms that today employ about 600 people in total. Like most capitalists (and most humans) I prefer to please myself than to be told what to do. I am willing, though, to part with some of that personal freedom to advance an important or even a vital public good. I like to think of myself as numbers and fact-driven. I am not political: I have never been able to listen to more than five minutes of any Presidential debate. In fact, I am apparently brilliant at finding fault with every party in power. Where are Obama's environmental experts hiding? Where was Obama himself on the climate bill? How come he talked of "change" and appointed or reappointed the tired old "Teflon Men" (see my Letter of January 2009) to run the financial world, when they themselves had presided over the collapse? They had not seen a 1-in-1000 bubble about to burst? You see my point. I hold opinions on the Fed, immigration, and teaching that would be considered right-wing politically. What I am is a one-issue voter (if I had the vote), and this is my issue: we should not unnecessarily ruin a pleasant and currently very serviceable planet just to maximize the short-term profits of energy companies and others.

The damage from warming is escalating rapidly and the evidence is statistically clear as a bell. Our farming weather is being hurt too often – the last three years in a row have been extreme outliers – and we have plenty of other food problems without making it unnecessarily worse. Increasingly severe floods and storms have other high costs. Of the 10 extreme floods in NYC since 1920 three have occurred in the last two and a half years! This September 21<sup>st</sup>, the Arctic ice had lost 75% of the volume it had on average over the last 30 years. Not 2.3%. 75%! It used to reflect a lot of sunlight that will now be absorbed into the grey ocean. It could easily be all gone in 5 or 10 years. Other self-reinforcing feedback loops such as the melting of the Arctic Tundra and release of methane, a hundred times worse than CO<sub>2</sub>, may start up anytime and run out of control. We might well destroy the planet as livable for all but a small

fraction of us in extreme latitudes. It is not worth taking the risk and it may not be too late. Yes, it will hurt our future growth. Either considerably or enormously. And we just had two candidates for President who both must have known all of the above yet said nothing. On television ads and in Presidential debates we often heard the expression “clean coal,” two words worthy of Goebbels, the infamous Nazi propagandist who recommended the “Big Lie.” It would make him proud that his idea had legs. Coal used to be utterly poisonous and is now still moderately poisonous, hurting our health even as it ruins our planet. It never was and almost certainly never will be clean in any sense. I have studied quite hard and long the unwillingness of ordinary, often reasonable, people to process bad news. By the standards of refusing to recognize an overpriced stock market in 2000 at 35 times earnings or an overpriced U.S. housing market in 2006 at statistically a 1-in-1200-year outlier level, this climate issue is very, very easy to ignore. Personally, I think that as badly led as we are and surrounded by capitalists with very much to lose and much to defend with, we are quite likely to lose this game. If so, rest assured it will eventually hurt our growth more than all of the other factors that we have discussed added together.

Do not think for a minute that I would keep trying to deliver this thoroughly unpleasant point unless I truly believed it was getting desperate and that there was some chance of avoiding the worst. (To have the point hammered home, please read the box on Carbon Math.<sup>3</sup>)

### Developing Countries

The story so far is that population effects and, simply, the maturing of economies and the consequent movement to services have both lowered the growth of GDP in the developed world and particularly

in the U.S. and will continue to do so in the future. In complete contrast, the developing countries have been largely in the sweet spot in the maturity of their economies (see, for example, China in Exhibit 6), with a rapidly rising percent of manufacturing that represents a leap in productivity over their overpopulated agricultural base. Even in man-hours worked, much of the drop in population growth will have taken place in the number of children. The numbers of those of working age have continued to grow rapidly, except very recently in China. But over the next 50 years the population growth in developing countries will also fall to zero, their hours worked per person will continue to decline, and their populations will be aging rapidly, led by China and followed by almost everybody. (Only in India and a handful of other developing countries will the percentage of workers in the 20-65 age group grow rapidly for at least most of the next 50 years.) Similarly, the braking effect on their economies from the rising costs and shortages of raw materials and, in many cases, the growing effects of climate damage on food, health, and flooding, will be felt much more severely by developing countries. Their resource intensity is far higher and their pollution damage often greater. Their share of consumption going to food and energy can often be a dangerous 25% to 40%, where ours in developed countries is typically less than 10% or 12%.

### Carbon Math Made Simple

- 1) Our emissions of greenhouse gasses have increased global temperature by 0.8°C since 1850.
- 2) A 2.0°C increase is the limit that gives us even a modest hope of avoiding very serious climate damage.
- 3) We can calculate how much CO<sub>2</sub> it would take to incur that incremental 1.2°C: 565 gigatons.
- 4) We can also calculate how many gigatons would be produced by the proven reserves of the hydrocarbon industry: approximately 2,800 gigatons, 5 times our target allowance. (Behind the “proven” are terrifyingly larger “probable” and “possible” reserves.)
- 5) Thus, we know that to be even a little safe we need 80% of these proven reserves to be left in the ground. The market value of oil companies is about equal to the perceived value of their reserves. The odds of the energy companies being enthusiastic about having 80% of their value left in the ground: nil.

<sup>3</sup> Bill McKibben, Carbon Tracker Initiative, *Rolling Stone*, July 19, 2012.

## Measuring GDP or Utility: Problems with Resources and Environmental Costs

### *Problems with Productivity Measurements and Resources*

As mentioned earlier, a major problem confuses these important points of resource and environmental cost squeezes and allows those with the normal optimistic bias to make hay, so it is worth discussing. GDP, as currently constructed, completely fails to measure commodity pressures. GDP is a mish-mash of costs and outputs of “goods” and “bads” indiscriminately jumbled up. Put more of your unemployed in prison and GDP rises. Raise your legal or consulting fees and the GDP rises. Hire more lawyers to sue and cover that risk with more insurance and the GDP rises. (Japan has only 1/16<sup>th</sup> of our lawyers per capita, one in 4,000 to one in 250. Makes you think!) Fight more wars, build more tanks, and have them blown up and the GDP rises. Have twice as many workers in a service industry like teaching than you might have had and ... you get the point. But nothing shows the deficiencies of GDP measurement as clearly as the topic of a resource squeeze. Take oil. Today we are constantly pumping those wonderfully cheap, irreplaceable barrels of Saudi oil from their great oil fields (the likes of which have never been discovered since the 1970s or, one could argue, the 1950s) that begged to leap out of the ground with a lifting cost of a handful of dollars. In their place, to maintain oil production, we are preparing to deliver oil from deep and dangerous offshore Brazil. One-day daily flights of 300 miles, outside the range of current helicopters, will have to be made to supply rigs of incredible size, anchored to the ocean bed two miles below and drilling another two miles below that. They will need vast quantities of steel and other increasingly expensive commodities as well as large inputs of brains from the best Schlumberger types the industry can offer. The “good” that comes out is the same good that came out of the Saudi field – one barrel of nearly identical oil – but instead of a \$10 lifting cost it will have costs of \$120-\$170 and counting, all of which will be accounted for as Brazilian GDP! So the more you torture the planet to produce oil, digging up tar sands and baking the oil to dribble out, the higher the GDP. Similarly, if when one day, not too far off, we are reduced to digging a thousand tons of copper ore to get a ton of pure copper, chewing up 10 times the energy of 50 years ago at 3 or 4 times the cost of energy (or 30 to 40 times the total energy cost), the higher the GDP will seem. The greater our collective pain, the greater the apparent pleasure will be. So you see the problem: we are trying to measure future growth and one of the bigger and least recognized negative factors is plugged in with the reverse sign! So what can we do? Well, you have already seen our rough and ready trick for adjusting the data: because the cost of getting the necessary raw materials rose by 4% of GDP (from 3% to 7%) we counted that increment as a debit to stated growth of 0.4% a year. Thus, instead of the stated productivity of 1.3% a year for the last 10 years, the true rate adjusted for rising real costs for the same resources was only 0.9%.

As currently done, our GDP most closely describes labor costs in a year. Because this is a very far cry from the sum of “goods” and goodly (or beneficial) services that we often imagine it to be, it motivates us in perverse ways, mainly toward growth at any price and regardless of true costs. With incredible good fortune we inherited a remarkable but finite stock of resources and an amazing biodiversity. All free. This was our capital account, yet as we run our assets down we are not accounting for the losses. Free clean water becomes expensive recycled water. Free fish and free trees become expensive fish farms and tree farms. A free mountainous watershed area in China becomes a deforested invitation to a ruinously expensive flood. True accounting after John Hicks, the great English economist (who graded my final papers in Economic Theory!), defines true growth or income as that amount that can be withdrawn (or paid out) without affecting the ability to produce the same next year. Yet we deplete copper and anthracite mines and there is no allowance for their replacement. The full replacement of our resources is somewhere between very expensive and impossible so our measurement system simplified the issue by ignoring it completely. And just as we run down our irreplaceable metals, so we have mined our soils, polluted our waters, and started to warm the atmosphere and the ocean. But the GDP reflects none of this. If it did it might have had negative growth for the last two decades. The sooner we adopt a more complete accounting that comes closer to measuring true utility, the sooner we might start to protect our collective long-term well-being.

## Settling Up

### Growth Rates in U.S. GDP: Past, Current, and Forecast

All in percent per year

	Past 30 Years	Estimated to 2030	Estimated 2030 to 2050
Demographic Effects	+1.2	+0.4	+0.3 ± 0.2
Hours Worked per Person	-0.2	-0.2	-0.2
Est. Productivity per Hour – Traditional Accounting	+1.3	+1.1	+1.1
Adjustment for R. Gordon's Four Factors (Discussed)		+0.2	+0.2
Adjustment for Reduced Capital Spending		-0.2	nil
Stimulus from Cheap Fracking Gas (and Oil)		+0.2	nil
Adjustment for Rising Resource Costs	+0.1	-0.5 ± 0.2	-0.6 ± 0.3
Adjustment for Environmental Damage		-0.1	-0.4 ± 0.2
<b>Total</b>	<b>+2.4</b>	<b>+0.9 ± 0.2</b>	<b>+0.4 ± 0.7</b>

Estimates are based upon the reasonable beliefs of GMO and are not a guarantee. Estimates speak only as of the date they are made, and GMO assumes no duty to and does not undertake to update such estimates. Estimates are subject to numerous assumptions, risks, and uncertainties, which change over time. Actual results may differ materially from those anticipated in the estimates provided.

Source: GMO

## Conclusion

With a little luck, U.S. GDP growth (even after an increasing squeeze from rising resource costs and environmental damage) should remain modestly positive, even out to 2030 and 2050, in the range of 1% at the high down to a few basis points at worst. Increasingly, the growth will be qualitative. Qualitatively, growth is likely to be limited to services as manufactured goods will bear the brunt of the rising input costs. It would certainly help a lot if considerable changes were made in how GDP is measured. It needs to be closer to what we all apparently think it is already: a reasonable measure of the utility of useful goods and services.

The other developed countries will be very similar to the U.S. in most respects but are likely to end up through 2050 with growth about half a percent lower in population effects and therefore in total growth. That is to say, with growth at about zero, or even a little below.

Similar forces will serve to drive down global growth from 4.5% at its recent peak in 2006 and 2007 to around 3% by 2030 and between 2.0% and 2.5% by 2050, all on the assumption that nothing unexpectedly serious goes wrong on the resource, climate, and “all other bumps in the road” categories. All of the remaining growth will be in those developing economies that function effectively in the face of the resource and environmental squeeze. Sadly, there is likely to be an increasing number of failed or failing states.

The key issue will be how much unnecessary pain we inflict on ourselves by defending the status quo, mainly by denying the unpleasant parts of the puzzle and moving very slowly to address real problems. This, unfortunately, is our current mode. We need to move aggressively with capital – while we still have it – and brain power to completely re-tool energy, farming, and resource efficiency. We need to do all of this to buy time for our global population to gracefully decline. It can certainly be done.

The short- and intermediate-term consequences for investors are complicated and (with luck) will be addressed next time, perhaps with help from one or more of my colleagues.

## Appendix A

### Fracking Development: A Rare Positive

The new technologies of lateral drilling and fracking – bombarding geological structures that have held on tightly to oil and gas – with sand, water, and Lord knows what chemicals, have resulted in a dramatic increase in U.S. oil and gas output. This has been a direct outcome of around-the-clock aggressive trial and error and engineering tricks. This development is owed largely to smaller “independent” oil and gas drillers. They have developed the capability to race in, drill a well in two or three weeks, and race out. It has been a remarkable demonstration of U.S. frontier-type spirit, although it does owe something also to the relative lack of regulation influenced by the recent Halliburton era of government. Still, very impressive indeed.

U.S. onshore oil production, after falling remorselessly for decades (since 1972), has spiked up for three years and is likely to keep going for up to five more years. Natural gas drilling became a frenzy, despite rapidly falling prices, because of strange “drill or lose it” clauses in agreements that other countries mostly do not have.

Environmentally there are plenty of worries, but by far the most important is that leaking gas, anywhere from the drill to the stove, is a hundred times worse than CO<sub>2</sub> in its greenhouse effect. Still, that can be relatively easily controlled; although, like all externalities, it needs regulation otherwise it will not be done. When controlled for leakage, natural gas (and even oil) is much to be preferred environmentally than coal. So this will be a great opportunity for environmentalists to show a practical side and pick the lesser of two evils. (Long live nuclear, I must add while that thought is in my head.)

In terms of growth impact, we have to think always of first and second derivatives: natural gas growing at 10% a year is a bigger growth impact than growing at a still impressive 5%. The maximum impact or stimulus from actual drilling has already passed, though it did help the last three years limp along a little faster. The secondary stimulus from cheaper fuel will take longer to peak but it is likely to do it in five years unless we are asleep at the switch. As industry responds, it will drive the price of natural gas quite rapidly back toward more normal levels – the futures discount a 50% increase in five years – and that will reduce the stimulus effect.

My guess is that the economy has already been helped measurably; say, by 0.3% a year in the last year. Another guess would be that the growth effect will rise further by up to five years longer and will peak at around 0.5% a year, which is massive in the context of the whole GDP, and then will decline: thus, if I’m right or even approximately right, most of the stimulus is already in the system. Second, this is a very temporary factor unlike several others we have discussed. Finally, it must be considered that a minority of experts believe that fracking wells – especially gas wells – may peak out not only far more quickly than traditional wells, but far more quickly than generally expected. It is still an important unknown. (The numbers shown in the summary table are less because the table uses much longer-term estimates.)

Disclaimer: The views expressed are the views of Jeremy Grantham through the period ending November 20, 2012, and are subject to change at any time based on market and other conditions. This is not an offer or solicitation for the purchase or sale of any security and should not be construed as such. References to specific securities and issuers are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations to purchase or sell such securities.

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November 2012



## “Help, Help, I’m Being Repressed!”

*Ben Inker*



I had been planning to follow up that Holy Grail quote with the opening line “Bearded men flying about in helicopters distributing money is no basis for a sound monetary policy.” But I have realized there are two problems with that introduction. First, given where the economy is and the Fed’s dual mandate to encourage full employment along with ensuring price stability, it is not entirely impossible that zero short rates and QE infinity actually is sound monetary policy. And second, even if it isn’t sound monetary policy, it is the monetary policy we have, and it is important to think through its implications, whether we like them or not.

According to the Fed, an important goal of current monetary policy is to drive asset prices higher, generating a wealth effect that will lead to more spending and economic growth. There is a significant problem with this policy from a theoretical standpoint, though. The problem boils down to this: while Fed policy actually can cause rational investors to bid up the prices of assets, it probably can’t cause a wealth effect if investors truly are rational. Because the truth is that for the majority of investors, current Fed policy is taking them backwards, despite higher asset prices. The slightly odd corollary to this fact is that the less effective current Fed policy is at boosting the economy, the longer it is likely to persist, leaving rational investors in the position of hoping the damn thing works so that it will end, but unwilling to participate in the actions that would lead to success.

You might expect GMO, as believers in reversion to the mean, would dispute the idea that Fed policy can increase the fair value of long-term assets, but I’m not going to do that here. My colleague, James Montier, is in the process of writing up a white paper on the portfolio implications of ultra-low interest rates, so I’ll leave the details to him, but the argument is a pretty straightforward one. A good working definition of fair value is “a valuation level that is consistent with earning an adequate premium over the risk free rate.” Glossing over the question of whether U.S. treasuries actually qualify as “risk free,” it probably is true that if the Fed credibly promises to keep short rates at zero for the next 5 years, this will increase the fair value of equities. If the real return to cash for the next 5 years is going to be -2% instead of the historical average of 1.5%, then for that 5-year period stocks need to deliver only 2.0-2.5% real instead of 5.5-6.0% real to give a fair return above cash. If equities were otherwise going to be priced to deliver 5.5-6.0% for those 5 years, then the impact on the fair value of the stock market would be to increase it by a bit over 16%, if you go through the math. Over the following 5 years, valuations should gradually decay back down to the old fair value, with the net effect that returns in that period should average around 3.5% lower than they might otherwise.

But there are a couple of important things to note about the increase in the fair value of equities. The first is that it has occurred not because the expected cash flows from equities have risen, but because the discount rate has fallen. And the second is that it doesn’t actually affect any forecast of returns that extends beyond the period of repressed interest rates. Our methodology, which assumes reversion in 7 years, would be unaffected by a 5-year period of repressed interest rates, because the “fair value” that matters is the fair value of the market at the end of 7 years, which would not change.

Regardless of the details, though, if ultra-low interest rates have caused asset prices to go up, doesn’t that mean there should be a wealth effect as our collective portfolios are worth more than they were before? The slightly non-intuitive answer is no. Anyone managing a defined benefit pension plan probably already knows this, but the rest of us are somewhat less used to thinking about our portfolios in terms of the future spending they will allow. But let’s just go

through the math for a second. You bought \$100 worth of stocks, which were going to give you a return, through some combination of growth and income, of \$5.70 per year, rising with inflation. You now own an asset priced at \$116, which is going to give you, through some combination of growth and income, \$5.70 per year, rising with inflation.<sup>1</sup> The whole point of buying that asset was to get that stream of returns, and the returns haven't changed. The present value (PV) of those returns discounted by interest rates plus a risk premium has risen, but so has the present value of whatever liabilities you were intending those assets to fund. Outside of the defined benefit pension plan space we don't tend to think about it, but an endowment funding spending on behalf of an institution has no greater ability to fund that spending than it did before. An investor saving for retirement cannot buy any larger an annuity than they could before, or afford to spend any more dollars in retirement if they do not annuitize. The only investors who have received any windfall gain are those whose liabilities are shorter term than the assets intended to fund them. This is more or less never the case for the bulk of investment dollars. Retirement savings, both defined benefit and contribution ... endowments and foundations investing to fund future spending ... even the very wealthy looking to create a legacy for their children and grandchildren, all have very long duration liabilities to fund and can hope only for their assets to have kept up with the increased PV of those liabilities.

In fact, there is only one group whose liabilities are shorter duration than their assets in general, and that is households whose primary asset is a home and who are carrying mortgage debt that they are able to refinance. Why are they special? Their home is an asset, which is fairly well-matched by the future liability of their future housing needs, but the debt behind it can be refinanced whenever they want. The cost of the mortgage drops when they refinance. While the PV of their future implied rent has risen, it has only risen in line with the fair value of the house. The falling cost of the mortgage truly does provide them a wealth effect (or, more properly, an income effect).

Okay, so here is a group with a wealth effect in the right direction, so shouldn't that help? Possibly, but there is another side to that story. If someone is benefitting from the value of the refinance option, someone else is losing out: the holder of the old mortgage. And while it would be somewhat satisfying to say that the banks hold the mortgages and to hell with the lot of them, the truth is more complicated than that. The holders of those mortgages are banks, Fannie and Freddie, and other investors. The banks are owned by investors, and Fannie and Freddie are owned by us as taxpayers. One way or another we are collectively short the refinancing option that the homeowners are exercising, so there isn't a net benefit, although the marginal tendency to spend an extra dollar may well be higher for the homeowners saving money than the investors forgoing income.

So the system winds up flat on the mortgage issue, neither winning nor losing from the refinancing. Perhaps that means there is no net wealth effect, good or ill? Not so fast. The truth is that very few investors have quite as many long duration assets as liabilities. Any mismatch hurts, because only assets that are long enough duration to go beyond the period of interest rate repression see their fair values rise by the full amount. In a simple world where short rates are kept at zero for 5 years and then go back to normal, we see the same basic rise in fair value on a 5-year bond, a 30-year bond, equities, or real estate. A 3-year bond is helped less, and it does nothing at all to increase the value of a savings account.

If we as investors have held some cash or short-term investments above and beyond our short-term spending needs (which is the stance of most "prudent" investors), we're net losers, as our liabilities have risen faster than the value of our assets. So how are we supposed to increase our spending from a wealth effect that has actually taken us backwards? We can only hope that investors are too myopic to have noticed that despite the higher numbers in their investment statements, they actually aren't any better off.

And here's where the slightly sad bit comes in. I think that we, as prudent investors who tend to hold cash and short-term investments in the hopes of better prices tomorrow, really have to hope that investors in general are myopic. If they are and they spend now on the basis of their illusory wealth, maybe the economy will improve and we can move beyond the era of ultra-low interest rates. If investors don't respond the way the Fed hopes, this policy will have been a failure, but with a continuing weak economy there is every expectation that ultra-low interest rates are here to stay, hurting the "prudent" investor all the while.

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<sup>1</sup> And actually, in the first 5 years, that \$5.70 will be partly countered by a fall in valuations as the impact of the shorter and shorter period of ultra-low rates lessens. That is a change in price as opposed to the long-term return generators of income and growth, which will determine the long-term sustainable spending available from the investment.

So where does that leave us with our asset allocation portfolios at GMO? Pretty much where we were before. We own significant amounts of short duration assets in accounts where such assets are an option, with the recognition that the longer rates are repressed, the greater the opportunity cost of those holdings. We are doing this because the risks around jumping into long duration assets under the assumption that low interest rates make them more valuable leaves us more vulnerable to taking losses if that policy winds up not lasting as long as investors assume it will. The strong move in equities and other long duration assets in the months up to the announcement of QE infinity may be “justified” on the basis of a promise from the Fed of low rates for longer, but buying assets whose prices are only justified by low discount rates is an inherently dangerous way to invest, and we responded by taking down our equity weights modestly in asset allocation portfolios where permitted. If the Fed is true to its word, inflation does not flare up, and the various nasty events out there (China hard landing, euro blow-up, fiscal cliff, etc.) either don’t happen or cause less trouble than we fear they might, our “prudent” holding of short duration assets in the face of uninspiring asset valuations will wind up costing us and our clients money.

So, our fingers are crossed that, despite our reservations, Fed policy actually works, because we can then go back to a world where we aren’t faced with the ugly idea that stocks priced to deliver 2% real might be “fairly priced” after all. If investors see through the game the Fed is playing, however, we could be in for a long wait.

*Mr. Inker is the co-head of asset allocation.*

Disclaimer: The views expressed herein are those of Ben Inker as of November 20, 2012 and are subject to change at any time based on market and other conditions. This is not an offer or solicitation for the purchase or sale of any security and should not be construed as such.

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