



CAPITAL MANAGEMENT

# PORTFOLIO INSIGHT

2ND QUARTER

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The S&P 500 fell 2.7% during 2Q 2008 bringing its six-month return through June 30, 2008 to -11.9%. The month of June saw the S&P 500 Diversified Financials Index decline by 19% as continued anxiety about financial asset values, economic growth and commodity prices aborted a rally earlier in the quarter. The Federal Reserve clearly wants to keep interest rates low for an extended period to support financial asset values, but it faces pressure to raise interest rates to fight inflation created by higher energy prices. Beyond the Fed's near-term dilemma with respect to interest-rate policy, three potent secular pressures are noticeable long-term threats to Western economies: energy pricing, carbon emissions, and demographics.

Energy prices have soared due to aging giant oil fields (see our Q2 2007 newsletter for a discussion of Peak Oil), years of underinvestment in oil, coal, and uranium, and institutional investors' discovery of commodities as an asset class. At the same time, Emerging Market demand has grown due to rising per capita income and such growth has been insensitive to higher energy prices due to subsidies. According to Empirical Research Partners June 2008 Portfolio Strategy, "about 40% of the world's population, representing about a fifth of (global gasoline) demand, benefits from (gasoline) subsidies..." Gasoline consumers in China, paying an estimated \$2.89 per gallon, and those in Kuwait, Iran, Saudi Arabia, the UAE, and Venezuela paying between \$0.10 and \$1.50 per gallon, have had little incentive to economize. According to BCA Research Global Investment Strategy, China generated almost 70% incremental global oil demand in recent years. On a positive note, on June 19, 2008, the Chinese government indicated it was raising gasoline prices by about 17%.

Carbon emissions continue to rise as a number of European Kyoto signatories ignored their treaty obligations and the US has avoided commitments. While both US presidential candidates have committed to enacting carbon caps, by our estimates, China has passed the US as the world's largest carbon emitter. According to BP's 2007 Yearbook, coal was the fastest-growing fossil fuel both in 2007 and during the entire 2003-2007 period. This is significant for future carbon emissions because coal is at least twice as carbon-intensive as natural gas. Asian countries appear committed to using even more coal. According to the October 10th, 2007 Financial Times "...more than 75% of planned new (power plant) capacity in Asia (ex-Japan) will be coal-fired", and recent power plant construction announcements in Chile and South Africa featured coal plants. Oil sands are a growing source of Western oil supply, but oil sands processing is extremely carbon-intensive. Given trends in global coal consumption and oil sands production, global carbon dioxide emissions should rise even if the US and Europe sign (and adhere to) an amended Kyoto Accord.

Demographic pressures and their impact on our healthcare system are becoming more noticeable as the vanguard (aged 62) of the baby boom is approaching retirement when most estimates indicate Social Security and Medicare are actuarially insolvent. America's cultural allies and economic competitors in Europe face similar crises with even stronger demographic headwinds. While the US fertility rate is near the replacement rate of 2.1 and the US has a long history of attracting and assimilating immigrants, Europe has more homogenous populations, a more difficult to assimilate pool of immigrants, and far below-replacement fertility rates, as low as 1.3 in several countries. At this rate, European populations would be roughly cut in half in 45 years. A recent study asked European women to state their ideal number of children and reported that 16.6% of German women answered "none." Such a change in social mores argues that Europe's demographic trajectory will not change even in the medium-term. Since Europe's population is likely to decline in absolute numbers while its median citizen ages dramatically, Europe's ratio of workers supporting each retiree will decline rapidly, leading to pressure to raise taxes to maintain a constant level of expenditure per retiree. Such tax hikes would further erode the 'Old' Continent's tax base. Given this backdrop, health care politics are likely to be shaped by pressure to restrict government beneficiaries from accessing costly treatments.

Beyond their individual significance, the three secular pressures discussed intertwine with each other in ways that cause simplistic solutions to one problem to worsen the other problems. The US could dramatically cut its carbon emissions

by reducing the number of coal plants it uses to generate electricity, but such action would dramatically raise electricity prices. Western countries could temporarily stave off demographic problems with increased immigration adding additional wage earners to pay for retiree healthcare costs, but at the cost of increasing energy usage and carbon emissions.

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These three secular headwinds are serious, but innovation has solved prior Western economic crises such as: (i) the geopolitical obstacles for European trade with the East in the 15th century; (ii) the Malthusian pressures of Europe's 18th century population explosion; and (iii) the oil shocks of the 1970s. Limits on Western European trade with the East

were surmounted by navigational innovations that led to low cost sea routes to Asia. Grim Malthusian pressures were defeated by agro-industrial innovations. The West dramatically improved its energy efficiency in the last oil crisis. According to the Energy Information Administration, US oil consumption peaked in 1978 at 18.8 million barrels per day, but by 1983, consumption dropped to 15.2 million barrels per day.

### **Seven innovations may help relieve both energy pricing and carbon emissions:**

**1) Electricity Demand-Response Management** – A recent North American Electric Reliability Corporation report opined that electricity demand would grow 19% over the next 10 years while transmission capacity would grow by only 6%; thus implying the US grid will be delivery-constrained. “Demand response” is the ability to curtail electricity demand during peak demand periods. Advanced electricity meters are the cornerstone of such a system as they sense grid congestion and adjust individual thermostats accordingly. The Climate Group recently estimated that better global electricity grid management would create the biggest reduction in carbon emissions (2.03 billion tons per annum) of a variety of social changes.

**2) Hybrid Autos/Lithium Batteries** – From 2000 to 2007, per Calyon Securities, annual hybrid electric vehicle unit sales in the US grew from a mere 9,400 to 353,000 with one model, the Toyota Prius, driving the market. Year to date, US hybrid sales are up 17% while auto sales are near a 15-year low. \$4.00 gasoline has made hybrids economical at

the same time that the US has raised its corporate average fuel efficiency standards. Manufacturers have announced dozens of new hybrid car models for the 2009-2012 time frame. The Saturn Vue, expected in 2009, is one such hybrid model. Plug-in rechargeable lithium batteries may be a part of hybrid systems or a separate feature.

**3) Organic Plastics** – A number of companies, some early stage, are developing natural biodegradable plastics to compete against petrochemical-based plastics. One recipe is a fermentation process that uses corn sugar as the feedstock. On a unit to unit comparison vs. petrochemicals, organic plastics have the potential to reduce petroleum usage as much as 95% and greatly reduce greenhouse gas emissions. Organic plastics are in their infancy, but improving economics may lead to broader adoption.

**4) Server Virtualization** – According to IDC, America alone has more than 7,000 data centers, each with thousands of servers that require extensive air conditioning systems and may consume more than 5% of US electricity. The largest data centers now rival aluminum smelters in energy consumption. Most data center servers have extremely low utilization, as they are set up to run a specific software application. Virtualization software allows one server to run multiple software applications, increasing server utilization, and lowering electricity usage and air conditioning bills.

**5) Power Chips** – “Energy vampires” are electrical devices that continue to consume electric power even when in standby mode. Appliances, cell phones, computers, flat-panel TVs and cable set top boxes can all waste electricity. Power chips mitigate this problem and are generally less than \$1 per chip. The US and the EU have passed legislation or regulations that encourage the use of these chips.

*“Increased innovation seems to be the West’s best solution to today’s problems...”*

**6) Solar Power** – The silicon photovoltaic cell was invented in 1941 and solar power has struggled to achieve “grid parity” or electricity production costs comparable to fossil fuels since that time. However, new technologies adopted from semiconductor manufacturing such as thin-film and multi-junction, as well as new materials, offer the prospect of lower costs. Wider scale adoption of solar power would displace an enormous amount of fossil fuels and carbon production.

**7) Videoconferencing** – Skyrocketing jet fuel prices, sizable airplane carbon emissions, and abundant long haul Internet capacity are bolstering the deployment of new videoconferencing systems. Videoconferencing uses high quality audio and “telepresence” wall-sized video screens to bring together people at different sites around the globe. Videoconferencing systems are increasingly common in Fortune 500 companies and the technology is likely to spill over to smaller businesses and ultimately household usage as its costs decline.

### **Two healthcare services/products have some potential to ease demographic-induced healthcare pressures:**

**1) Life Science and Life Science Tools** – Healthcare innovation has shifted from big pharmaceutical companies to a swarm of smaller biotech firms and toolmakers that enable biotech discoveries. Biotech drugs offer the prospect of longer and healthier lives.

**2) Healthcare Information Technology** – President Bush said in 2004 that ‘computerizing health records...can avoid dangerous medical mistakes, reduce costs and improve care.’ A single uniform digital record allows health care providers to avoid unnecessary tests and coordinate patient care among myriad specialists. Hospitals using electronic records have reported up to an 88% reduction in medication errors in the first two years.

**Conclusion:**

Increased innovation seems to be the West's best solution to today's problems, as we have little ability to control China's voracious energy demand growth, Emerging Market energy subsidies, or the onset of Peak Oil. Energy efficiency can be boosted by several individually modest changes that are commercial or nearly so. Unlike supply-side solutions to the energy problem, energy efficiency-boosting measures displace carbon emissions and thereby sidestep the energy affordability vs. carbon emissions tradeoff.

Demography may be the longest-lasting headwind. Baby boomer retirement will increase demand for pensions and healthcare. At the same time, European fertility rates will dramatically reduce Europe's ability to pay for its boomers. Baby boomers may be more entranced by the notion of a single payer health care system with de facto health care rationing. However, the US's higher fertility rate may give it the demographic breathing room to focus on improving healthcare productivity through biotech innovation and healthcare information technology. The nexus between Western demography and health care is significant enough that we are likely to expound upon it in a future quarterly letter.

Chilton Capital Management (CCM) portfolios are managed with an eye towards these long-term secular trends. CCM clients currently own several beneficiaries of these trends and we actively monitor a sizable list of innovators and beneficiaries whose shares are currently being considered for purchase.