

# **End of 2009 Review: Learning From the Past, Anticipating the Future, and Adapting Quickly in the Present**

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After two of the most difficult and challenging years many of us can remember, we would like to step back and summarize what is on our mind as we head into 2010. One of the points we continually emphasize is the need to learn from the past, anticipate the future, and (given that we can only imperfectly perform the first two tasks), prepare ourselves to adapt quickly as our situation evolves – often in ways that surprise us. We'll use that framework in this essay.

## Learning from the Past

Clearly, all of us have learned lessons over the past two years. Too often, they were learned the hard way, confirming the old adage that experience is a tough teacher (and that “making mistakes” is synonymous with “learning from experience”). The good news is that the events of the past two years have sharply boosted interest in the study of markets as the disequilibrium systems we experience every day. This research is occurring at both the macro level (e.g., the renewed interest in the writings of Minsky and the Austrian school of economists) and the micro level, with its focus on agent based modeling, neurobiological drivers of individual behavior, and social network effects.

An excellent example of this work is a new paper by Thomas Brennan and Andrew Lo, on “The Origin of Behavior”, in which the authors “propose a single evolutionary explanation for the origin of several behaviors...including risk aversion, loss aversion... and diversification.” Three other short but very interesting papers include “Stabilities and Instabilities in the Macroeconomy” by Axel Leijonhufvud, “Top Down Versus Bottom-Up Macroeconomics” by Paul De Grauwe, and “The Economy Needs Agent Based Modeling” by J. Doyne Farmer and Duncan Foley. We will continue to do our best to keep our readers up to date with the progress of this research, as we

believe it has and will continue to provide a rich source of insights (and, we hope, improved foresight) about the complex processes that generate the asset prices we observe. For us, the key takeaways from this research over the past two years have been the critical role of the amygdala, and the fears of loss, uncertainty, and social isolation it can produce, the connection between these fears and the strength of network effects, the trade-offs between different types of regret (errors of commission versus omission), and the tradeoff between regret and social envy.

A second major lesson from the past two years is the implications of the sharp increase in the amount of assets under management and market volume controlled by quantitative trading strategies. That these strategies have become extremely sophisticated is beyond doubt. To cite one public example, Dow Jones has introduced a full suite of algorithmic and quantitative trading solutions that are based on real time analysis of its news feeds. As Dow Jones notes in its marketing literature, "This powerful package allows institutions to build, test and deploy algorithmic trading strategies that analyze and react to news that has an immediate impact on the prices of equities, derivatives, forex and fixed-income instruments." To put this in perspective, the ability of machines to profitably exploit human traders' departures from perfect information and perfect rationality has never been greater.

My very strong sense is that most of us underestimate the impact that algorithmic trading has had on markets. For example, John Hussman recently wrote the following: "Clearly, I was wrong about the extent to which Wall Street would respond to the ebb-and-flow in the economic data – particularly the obvious and temporary lull in the mortgage reset schedule between March and November 2009 – and drive stocks to the point where they are not only overvalued again, but strikingly dependent on a sustained economic recovery and the achievement and maintenance of record profit margins in the years ahead. I should have assumed that Wall Street's tendency toward reckless myopia – ingrained over the past decade – would return at the first sign of even temporary stability. The eagerness of investors to chase prevailing trends, and their unwillingness to concern themselves with *predictable* longer-term risks, drove a successive

series of speculative advances and crashes during the past decade – the dot-com bubble, the tech bubble, the mortgage bubble, the private-equity bubble, and the commodities bubble. And here we are again.”

We completely agree with his sentiments; what we’re curious about is the extent to which algorithmic trading is responsible for the rapid run-up in asset class prices we have seen in 2009. On the one hand, this year’s market behavior is consistent with the results of agent based financial market models, in which each trader utilizes a different price forecasting and decision algorithm, and these are updated on the basis of their performance. Once the percentage of agents utilizing trend-chasing (momentum) rather than fundamental value-based algorithms passes a tipping (phase change) point, market volatility and the frequency of bubbles and crashes sharply increases. Given the way many managers’ incentives are structured in the investment industry, with bonuses and increases in assets under management both substantially based on this year’s performance, we shouldn’t be surprised to see widespread use of momentum strategies and much more volatile market – call it Keynes’ beauty contest on (algorithmic) steroids.

This only reinforces another lesson we’ve learned over the past two years: while “buy, rebalance, and hold” is an excellent long-term strategy when financial markets are operating in their normal (close to equilibrium) regime, this isn’t the case in the High Uncertainty and High Inflation Regimes. These are both characterized by substantial disequilibrium which can easily give rise to dangerous asset class overvaluations. Under these circumstances, it is absolutely critical for investors to pay attention to valuation levels, and, more broadly, to risk management. The fact that the fundamental value of an asset class can only be estimated with some degree of uncertainty does not undermine this point.

As we demonstrate in our monthly equity markets valuation update, it is possible to construct a range of fundamental valuation estimates that take uncertainty into account. And when most of these are signaling dangerous overvaluation, it is time to act. However, we also recognize that this runs straight into the decision trade-offs noted

above. Most people have a stronger desire to avoid the regret caused by errors of commission (deviating too soon from the conventional wisdom, and being forced to feel envy) than by errors of omission (sticking with the herd and selling too late). It is therefore extremely hard to take action in the face of what appear to be dangerous overvaluations. As former Citibank CEO Charlie Prince famously said in July 2007, "As long as the music is playing, you've got to get up and dance." Overall, experiences over the past two years with valuation, incentives, and decision making have taught us three lessons. First, adding "automatic stabilizers" to a portfolio -- like an allocation to traded volatility products -- is an excellent way to avoid human decision making conflicts during bubbles.

Second, the way investors measure and reward their own and/or their managers' performance contributes to this conflict -- it is much easier to take action to avoid large losses when you are focused on earning the long-term real portfolio return needed to achieve your goals than when your main purpose is beating an external benchmark. Finally, regular use of a consistent valuation methodology that incorporates uncertainty makes it easier to take action in the face of dangerous overvaluation.

The last big lesson the past two years have taught us is that rather than diversification as a concept, it was asset allocation models that too often failed over the past two years. In particular, the past two years highlighted many of the shortcomings of traditional one period, mean/variance optimization models that we have written about since 1997. Our model portfolios were based on a model that included both an upside and a downside regime, during which asset classes would display different returns, volatilities and correlations. We believe this resulted in their generally delivering better results than portfolios that were based on the traditional MVO methodology, with its use of a single regime and historical averages values for key input variables. Building on this experience, our new model portfolios will be based, in part, on a new asset allocation model that incorporates three regimes (High Uncertainty, High Inflation, and Normal Times) as well as a broader range of asset classes (e.g., traded volatility products). Other firms whose opinions we respect are also moving in this

direction (see, for example, an excellent new paper from Rogers Casey's Cynthia Steer on "Asset Allocation in the New World").

However, the events of the past two years have also made painfully clear just how hard it is to accurately predict the future behavior of a complex adaptive system like the financial markets. This has reinforced our belief in the enduring virtues of a portfolio that is equally weighted across a range of broadly defined asset classes. As we have noted in the past, across a range of functional currencies the equally weighted portfolio has historically delivered compound annual real returns of between 4% and 5% over long periods of time, without any need to make quite possibly erroneous forecasts. Given this, we believe that the equally weighted portfolio should be all investors' starting point, with adjustments away from it based on differences in personal preferences and confidence in one's forecasts for future regime probabilities and the behavior of different asset classes within them.

Practically, this amounts to combining the equally weighted portfolio with the portfolio that emerges from our asset allocation model, with its regime assumptions and underlying simulation optimization methodology. For example, an investor who requires only a three percent compound real portfolio return to achieve his or her goals might place more weight on the model portfolio than on the equally weighted portfolio, since the former will likely have a lower volatility than the latter. An investor who requires a real return of 4% or 5% might either be indifferent between the model and the equally weighted portfolios (suggesting 50/50 weighting), or, if they had a relatively low level of confidence in our forecasting ability, might place more weight on the equally weighted portfolio. Finally, an investor requiring 6% or 7% real returns would have no choice but to put relatively more weight on the model portfolio, as the equally weighted portfolio is unlikely to deliver these long-term returns.

### Anticipating the Future

I wish I could end 2009 with an optimistic view of what lies ahead in 2010. Unfortunately, the accumulated evidence does not support that view. Across the Anglosphere, household debt levels

remain stubbornly high. Along with continued fear of job loss and weak housing markets, high debt burdens will continue to hold down private consumption spending. Nor can we expect private investment to pick up the slack in economic demand caused by reduced private consumption. Businesses face considerable uncertainty on many fronts, including demand growth, tax rates, exchange rates, environmental regulations, and a rising level of trade-related tensions. Medium size and small business also face a continuing shortage of bank credit – a situation that probably won't improve in 2010, due to rising levels of problem loans, particularly in commercial real estate, but also in household mortgages (due to a new round of adjustable rate resets and recasts), leveraged buyouts, and rising business bankruptcies if the economy continues to stagnate.

Unfortunately, widespread debt to equity conversion, which helped to restore Latin America's economic health in the 1980s, has yet to be seen as a solution to our current crisis. In sum, while we should expect to see continued rebuilding of business inventory levels (particularly if trade conflicts disrupt global supply chains), strong growth in business and residential fixed investment seems highly unlikely in 2010.

And what of the prospects for trade related growth, via increased exports and import substitution? In 2009, we have seen the Chinese Renminbi depreciate in lockstep with the U.S. Dollar, making exports from elsewhere in the world even less competitive, and creating more pressure from imports on domestic producers – and domestic employment. While China has talked a good game about the need to increase domestic consumption and reduce its dependency on exports, its behavior – including continued investment in many export industries as part of its stimulus program – suggests that its primary goal continues to be the maintenance of high employment and social stability. In effect, China's exchange rate and stimulus policies have become the early 21<sup>st</sup> century equivalent of the "beggar thy neighbor" policies that prolonged the Great Depression when they triggered a sharp increase in tariffs and other trade barriers.

Moreover, as Michael Pettis recently noted ("The Difficult Arithmetic of Chinese Consumption", China Financial Markets, 5Dec09)

even if it wanted to substantially increased private consumption, the challenges to accomplishing this are daunting: "What kind of consumption growth will we need for the country to rebalance? The numbers are a little worrying. If China grows by 8% a year, consumption would have to grow by a little over 11% to raise the consumption share of GDP from 35% to 36% in one year. It would have to grow by a little over 9 1/2% annually to do it in two years. Consumption, in other words, must grow substantially faster than GDP for the rebalancing even to begin to take place. This is arithmetically true because China begins the process with such a low consumption ratio.

Look at it over the longer term. Just to return consumption to 40% of GDP over the next five years (and even that level is widely considered to be way too low, and probably unprecedented in the world excluding recent Chinese history), 8% average annual growth rates in GDP would require a tad under 11% annual growth in consumption. Similarly, 7% average annual GDP growth rates would require that consumption grow annually over the next five years by nearly 10%. To bring Chinese consumption in 20 years up to 50% of GDP, which is the low end for other high saving Asian countries, and far lower than any other large economy in Asia (and remember that large economies are less able to rely on exports to fuel growth than small countries), 7% annual GDP growth would require average annual consumption growth of just under 9% for twenty years. In other words while GDP growth slows significantly from its 12-13% rate of the past several years, consumption will nonetheless have to surge at rates far in excess of the 8-9% growth rates of recent years in order for even a small, partial rebalancing to take place. I don't think I have ever seen a case in which consumption has grown at nearly that rate for any length of time. I believe if China pulled it off it would be unprecedented."

In sum, if some, albeit low, level of positive real growth is to be maintained in the economies of the U.S., Canada, Eurozone, UK, Switzerland, Japan and Australia, there appears to be no alternative to continued levels of extraordinary deficit spending by the public sector. A recent IMF staff report ("The State of Public Finances Cross-Country Fiscal Monitor: November 2009") examined the implications of this

conclusion. Here is a short summary of this report's key findings: "Many advanced economies entered the crisis with relatively weak structural fiscal positions, and these have been eroded further, not only by anti-crisis measures but also by underlying spending pressures. This will raise the bar on fiscal adjustment...Government debt in advanced G-20 economies is projected to reach 118 percent of GDP in 2014, even assuming some discretionary tightening next year. Getting debt below 60 percent by 2030 will require raising the average structural primary balance by 8 percentage points of GDP relative to 2010 (10 1/2 percentage points for the headline primary balance). Action will be needed on entitlement spending, on other spending, and on revenues. Japan, the United Kingdom, Ireland and Spain are projected to require the largest fiscal adjustment. Only Denmark, Korea, Norway, Australia and Sweden among advanced economies will require little or no medium-term adjustment to keep debt stocks at safe levels.

Many G-20 economies have achieved big declines in debt ratios in the past. Improvements in the primary balance were at the core of these efforts. Faster growth can also help. Faster inflation is not an effective debt-reducing strategy: raising inflation to 6 percent for five years would erode less than one fourth of the projected trend increase in debt ratios. Fiscal deficits and government debt levels both affect interest rates. Stabilizing debt at post-crisis levels would imply higher interest rates (perhaps by 2 percentage points). Moreover, there are important nonlinearities: the impact on interest rates of each additional percentage point of debt or deficit increases as the initial debt or deficit level rises, pointing to a risk that government debt could snowball without corrective action. This underscores the need for governments to announce credible exit strategies now, even if it is premature to begin exiting from fiscal support."

Unfortunately, the ability of some governments, most critically in the United States, to maintain their current levels of fiscal stimulus appears to be increasingly in doubt, due to rising public levels of disappointment, distrust, and in some cases outright disgust at the results achieved by current fiscal stimulus programs. As a rising number of commentators have noted, too much seems to have been spent on avoiding layoffs of unionized public sector employees, on



supporting imports and employment in other countries (notably China), on supporting more debt financed consumer spending (e.g., cash for clunkers, first time homebuyer tax credits), and on bailing out politically favored groups (e.g., autoworkers) and especially bankers who seem intent on taking ingratitude, arrogance, and conspicuous consumption to previously unimagined heights. Not enough has been spent on investments and aggressive structural changes that are critical to improving total factor productivity, and countries' ability to grow their way out of the very large government debt burdens they are rapidly building up.

For example, around the world, innovative cleantech and energy companies still confront what has been termed the "financial valley of death." In a nutshell, while traditional venture capital financing can be used to develop new technologies, there is a great shortage of financing for the large capital investments needed to scale them up. As far as traditional project finance lenders are concerned, they are still too risky. Unfortunately, existing government programs, which are often oriented towards funding R&D grants, are proving inadequate to the challenge posed by the valley of death. And while many proposals have been made for "national infrastructure banks" to bridge this gap, none have yet been enacted into law. For an example of government's unwillingness, thus far, to aggressively pursue structural reforms that are critical to higher productivity, consider education. With some notable exceptions (e.g, the province of Alberta in Canada), few governments have been willing to aggressively challenge teachers unions in order to implement substantial reforms to improve the quality of public education, at a time when the majority of voters see that it is critical to improving human capital quality, productivity, and economic growth.

As frustration with governments' response to the current crisis mounts, a growing chorus of commentators is asking whether the current political leadership in many countries is up to the challenges that lie ahead – and much of the middle class undoubtedly shares their doubts. When was the last time you heard an expression of great confidence that things would rapidly improve, if only the opposition party was running the show? Comments that Walter Russell Mead (one of our favorite authors) posted on his blog on 28Nov09 well summarize

our perception of the current situation: "More and more I wonder if our experts and political classes are serious about anything. Whether it's the U.S. Budget deficit, the looming crisis in healthcare, the global economic imbalance between surplus and deficit countries, the coming crisis with Iran, or the way that current U.S. policy systematically sacrifices the interests of youth to protect the status quo and the interest of the old, I see a lot of talk and handwringing, but little if any real movement...We are living in a time of revolutionary social and economic change and we are governed by a generation of time-serving mediocrities."

As we said at the beginning of this article, we're not optimistic about what 2010 will bring to the global political economy. Tensions are rising between China and the rest of the world, and increased conflicts over exchange rates and trade seem impossible to avoid. In his 8Dec09 column in the *Financial Times*, Martin Wolf starkly described the most likely outcomes we face: "What would happen if [countries running current account deficits] sustained domestic demand with massive and open-ended fiscal deficits? Answer: A wave of fiscal crises [which, as we have noted in the past, are often accompanied by currency crises and high inflation]. And what would happen if deficit countries slash spending relative to incomes while their trading partners [i.e., China] remain determined to sustain their own excess of output over incomes, and export the difference? Answer: A depression."

Unfortunately, the increasing conflict between the U.S. and China (see, for example, a new paper by Niall Ferguson and Moritz Schularick, "The End of Chimerica") will likely be non-linear in its development and unpredictable in its effects. In the U.S. and Europe, it feeds on long-held doubts among labor unions and much of the middle class about the benefits of globalization and outsourcing. With sharply higher unemployment, protectionism becomes ever easier to support. But when and if those steps are taken by Western governments, they run the risk of both destabilizing China due to falling exports and rising unemployment, and fanning the flames of the resurgent nationalism that has been building in China over the past decade (a trend which is further reinforced by the substantial surplus

of single men over single women, a legacy of China's one child policy and preference for male progeny).

Elsewhere, there is no shortage of potential international wildcards that could adversely affect events in 2010, including the future political stability of Mexico, Egypt, and Pakistan, the actions of the Ahmadinejad regime in Iran, and the likely exhaustion of Israel's patience with Iran's efforts to continue its nuclear weapons development program, Russia's tendency towards brinkmanship in its effort to regain its lost power (which may yet be offset by a weakening economy, falling energy prices, and the need to restore the confidence of foreign investors in order to grow its economy), Japan's continued struggles with deflation, a very high government debt/GDP ratio, a rapidly ageing population and slowing growth, and the unpredictable evolution of the H1N1 influenza virus.

Perhaps it is the Irish in me (and the accompanying faith in Murphy's law), but there sure seem to be a lot of things that could go wrong next year. Put differently, after reviewing the current trends and uncertainties, try to construct a scenario that would deliver smooth economic sailing, rising asset prices and low volatility in 2010 (e.g., a revaluation of the Renminbi versus the USD, a sharp increase in domestic consumption in China, widespread debt/equity conversions and/or bankruptcies in the United States and elsewhere to reduce the debt burden, strong growth in emerging markets to support increased North American and European exports, a rise in business investment and productivity, etc.). Then ask yourself how plausible your story seems (for another good recent analysis of the challenges we face, see "A Vicious Cycle of Manias, Crashes and Asymmetric Policy Responses – An Overinvestment View" by Hoffman and Schnabl).

Given this outlook, in 2010 we expect that we will be delving deeper into what we have termed the "conflict scenario", examining the critical uncertainties that will drive the next phase change. We have already thought about this a great deal; it has preoccupied our thinking for quite some time. At this point, we are leaning towards productivity growth and political legitimacy as the key uncertainties we face. For example, a sharp increase in productivity growth and retention of political legitimacy by the major governments in the world

could lead to a relatively rapid recovery, though one that could easily include a period of significantly higher inflation, due to central banks' under-reaction to improving conditions in the real economy. In contrast, a failure to increase productivity growth, along with other policy mistakes, could create a situation in which the very legitimacy of many governments was in peril. As we have noted in the past, we believe that neither an integrated global economy nor representative democracy are natural equilibrium conditions; in our reading of history, the more common state of affairs has been relatively closed blocs that were often comprised of authoritarian or corporatist governments. We admit to being haunted by events at the turn on the 20<sup>th</sup> century, and the fear that we are once again in 1910.

### Adapting Quickly in the Present

Given the multiple uncertainties we currently face, and what we believe is a significantly greater risk of difficult times compared to the chances of a return to stable growth and normal financial markets, the ability to adapt quickly will likely be critical to investors' success in 2010. This involves not only maintaining a well-diversified portfolio, but also paying attention to valuation levels, being willing to reduce exposures when asset classes appear to be dangerously overvalued (as, for example, many equities appear to be today – see this month's Asset Class Valuation Update for more detail), and ensuring that one's liquid reserves are large enough (we think the old rule of 3 to 6 months' expenses should be raised to 12 – 24 months in the current environment) and include a mix of currencies as well as physical gold, or ETF shares that allow conversion into physical gold).

The ability to adapt quickly also depends on having a thesis about how different asset classes will perform under different return/risk/correlation regimes, and about the regime we are likely to be in over the next one to three years. Along with medium-term scenario analysis, short-term regime analysis is a critical part of our journal each month.

To goal of ensuring quick adaptability to surprising changes also raises questions about the asset classes to include in our model portfolios. Obviously, this includes newly introduced traded volatility

products; however, it also includes other asset classes that perform best under the High Uncertainty Regime, such as short-term U.S. Treasury Bonds, as well as short-term government bonds issued by countries such as Australia, Norway, Sweden, and possibly Canada that seem to be well positioned to weather future uncertainties (because of some combination of resource endowment, manageable levels of debt and liabilities for future health care and pension obligations, and strong fiscal policy). A separate allocation to gold as a stand-alone asset class remains a possibility; however, it depends on our ability to develop a fundamental valuation model for this asset class that we find satisfactory.

Improving adaptability also involves combining asset classes where that is appropriate. It is clear that this is happening in equities, where a growing number of investors are combining various country equity allocations into a single allocation to developed market equities (for more on the logic behind, this, see "Globalization and Asset Prices" by Bekaert and Wang, "Stock Market Comovements and Industrial Structure" by Dutt and Mihov, and "Globalization of Equity Policy Portfolios" by Subramanian, Nielsen, and Fachinotti). We will also take this approach in 2010, but refrain from going a further step to a single allocation to global equities.

As we have repeatedly noted, we think the differences between institutional and economic conditions in emerging and developed markets are still large enough to warrant their treatment as separate asset classes. With the introduction of new index products that enable investors to make allocations to developed market property securities, we will also likely consolidate our current allocations in this area too. As is true of developed equities, both research and recent returns have shown that the underlying drivers of returns are increasingly similar across different markets for listed commercial property securities. Finally, as we describe in this month's Product and Strategy Notes, depending on the availability of new investable products, we are likely to add direct oil and gas investments as an asset class, as the evidence shows a growing divergence between their behavior and that of long-only commodities index products based on continuously rolled futures contracts.

Last but certainly not least, it is also clear that the need for greater adaptability in the face of heightened and prolonged uncertainty will present substantial challenges to the business models of many financial advisers. And in some countries (e.g., Australia and the UK), this challenge comes at the same time as profound regulatory changes that will deeply affect the industry (e.g., a move to universal fiduciary requirements, and the elimination of commissions). There is no doubt that the number of potential clients needing financial advice to help weather the storms on the horizon has gone up exponentially. The challenge remains finding profitable ways to define and deliver it.

We believe that many governments will eventually respond to this challenge by changing workers' so-called "default options" – for example, instituting mandatory defined contribution savings plans on the lines of Australia' Superannuation Plans, default allocations to a mix of asset class index products, as in the case of the U.S. Government's Thrift Savings Plan (TSP) for its employees, and requiring that at least a portion of accumulated balances in these plans be converted to annuities upon retirement. We hope that these changes will also create new opportunities for advisers to leverage technology to profitably deliver simple financial planning solutions to, and maintain ongoing value added relationships with a larger number of clients, most of whom we believe will continue to resist providing private financial information to anonymous websites.

In short, a relationship with a trusted financial adviser will continue to be what most clients desire – the challenge will be how to match evolving technological possibilities with changing client needs to profitably seize this opportunity.