THOUGHT ECONOMICS

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The Post Crisis Economy

In this article, we talk to **John Brynjolfsson**, **Managing Director** of Armored Wolf LLC, a global macro hedge fund. Previously, Mr. Brynjolfsson was a Managing Director with PIMCO, firm with in excess of *$750 billion of assets under management*). Mr. Brynjolfsson discusses the risks, opportunities and the future of the world's economy—covering the range from inflation to interest rates, commodities to equities, and currencies to emerging markets.

Vikas Shah, Thought Economics, January 2010

Dr. Hyman Minsky (*1919-1996*) was an influential post-Keynesian economist who focused on understanding the causes and characteristics of financial crises. At the core of his theory rested the belief of 'financial market fragility'. Dr. Minsky observed that an economy in prosperous times experiences cash-flow in excess of what is needed to pay off debt, creating a 'speculative euphoria'. This euphoria invariably leads to conditions where debts exceed an economy's cash-flow, creating financial crises, and economic contractions (*as a result of banks, lenders and central banks tightening credit availability*). Minsky argued that, "*a fundamental characteristic of our economy is that the financial system swings between robustness and fragility, and these swings are an integral part of the process that generates business cycles.*"

The process of moving from stability to crisis has been termed a "Minsky Moment" where investors, loaded with debt and suffering cash-flow problems, begin a major sell-off. The lack of counterparties to these sales creates a sudden and steep collapse in prices of assets and dramatically reduced liquidity. Many suggest that in 2007, the world experienced just such a "Minsky Moment", as a dramatic rise in mortgage delinquencies and foreclosures in the US triggered a "sub-prime crisis" which, arguably, was a key

catalyst for the global recession we are experiencing today.

With co-ordinated action from central banks, regulators and other bodies, it would seem we have averted a precipitous depression, but whether we like it, or not, the shape of our economy will change.

In this exclusive interview, John Brynjolfsson, Managing Director of Armored Wolf LLC, a global macro hedge fund, discusses the risks, opportunities and the future of the world's economy—covering the range from inflation to interest rates, commodities to equities, and currencies to emerging markets.

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Prior to launching Armored Wolf with proprietary capital in February 2009, Mr. Brynjolfsson was Managing Director and Portfolio Manager at PIMCO, a firm with more than $750 billion in assets under management. Mr. Brynjolfsson is co-author of Inflation-Protection Bonds and co-editor of The Handbook of Inflation-Indexed Bonds. He has 20 years of investment experience and holds a bachelor's degree in physics and mathematics from Columbia College and a master's degree in finance and economics from the MIT Sloan School of Management. Mr. Brynjolfsson oversees all investment activity at Armored Wolf, which currently has assets exceeding $100 million and is widely regarded as an expert in the area of managing alternative real assets; with experience including commodities, global inflation-linked bonds, event-linked catastrophe bonds, asset allocation and risk management.

Q: In your view, what do you think will be the key differences in the shape and nature of the post-crisis economy?

[John Brynjolfsson] I see this as a real estate, mortgage, financial and banking crisis and congratulations to the U.S., U.K. and southern California, for being the collective epicenter of that crisis. Rather than the emerging markets, or weaker economies, this problem originated in the most sophisticated and advanced financial markets because those are the markets where leverage was the greatest and people took the most advantage of it.

I believe that the best policy makers can do is to provide lubrication and a temporary balm to some of the challenges faced by the U.S. and the U.K. However, the policies they prescribe are a continuation or exaggeration of the previous policies that created the structural problems in the first place. I am therefore relatively pessimistic on the intermediate and longer term outlook for the U.K., the U.S., Spain and other countries where credit was readily available and where real estate was built up and the net worth of financial institutions frankly is suspect.

To make sure we don't sound too pessimistic, I see the emerging market countries as having transformed over the past 50 years or more, and in particular during the past 10 years. Even though they were hit by contagion and other financial transmission mechanisms at the onset of the crisis, they did not have the same fundamental problems. These nations had lower debt-to-GDP levels on a central government basis, and lower private debt, lower cost of living and a greater ability to compete on export. This means that the lubrication needed by the U.S. and U.K. to get through the crisis will overheat these emerging markets. We have already seen this in China, India and even Australia, though it's not technically an emerging market, and the central banks are tightening in these nations.

Q: What are your views on sovereign credit ratings?

[John Brynjolfsson] The developed nations have routinely been able to operate at debt-to-GDP levels of 60% to 100%. In contrast, countries with more suspect reputations (*often called emerging markets*) have sometimes been cut off from credit when debt-to-GDP was as low as 40% or 50%. This may not make sense when analyzing demographics.

The developed world actually has worse demographics when looking at competitiveness and systemic issues, and has a lot of work to do in order to shore up financial systems. Separately, some of the government guarantees and accounting generosity that was allowed to get us through the crisis has not yet matured, which means that the future holds headwinds. As much as I have to acknowledge that policies were needed to navigate through the implosion, these policies are, in the long term, very dangerous for productivity, growth, entrepreneurial spirit and wealth generation and will create

further issues within the developed economies.

Q: Where is your sentiment in the context of inflation and interest-rate expectations?

[John Brynjolfsson] There is limited ability on the fiscal side to borrow because of problems such as debt ratios and so forth, and the maturity of debt in the U.S. in particular has come in quite a bit as huge amounts of T-bills and other forms of short-term financing were issued to cut these checks and patch up the system. Now, these debts are maturing and the Treasury is trying to extend their maturities towards the seven-year average, or *what they call 84-month average maturity*, and is issuing a lot of 30-year instruments ("TIPS") and nominal Treasuries, and more in the 10-year sector. Those longer maturities fortunately are being absorbed by the market because of deflationary fears. That's the good news.

The bad news is that I think it is inevitable that seriously higher inflation will be spawned and, in fact, is already here because the core inflation numbers are severely muted by domestic factors such as falling rents, dropping home ownership and equivalent rents. Headline inflation, which includes food and energy, is more appropriate as these items are both high-frequency indicators of inflation and also more global indicators of inflation.

The performance of the dollar will have an impact on food and energy inflation more so than on core inflation. These are exactly the portion of the inflation calculus that U.S. Federal Reserve Chairman Ben Bernanke and the Fed have chosen to exclude from their arithmetic, even though they are accelerating sharply and bringing the overall inflation rate up towards the 3% to3.5% rate. You probably haven't heard that U.S. inflation is running at 3.5% Part of this is the Fed's focus on core inflation, and part of it is the use of year-over-year calculus, which is used to remove seasonality from inflation calculations.

However, remember that back in 1950, they invented something called the computer that allows you to do more complex calculations than you could with a paper and pencil. Computers allow us to use much more sophisticated statistical techniques to calculate

seasonal adjustments, which mean that we do not need to use year-over-year calculations.

I tend to look at seasonally adjusted rates on a three- or six-month horizon, and in the current situation, I am free to ignore the fact we did have deflation in Oct-Dec 2008. That is now ancient history because inflation has been positive since then, and in recent months, has been dramatically positive (in the range of 3% to4%) and is on its way up from there.

In context of interest rates, while I focus on the U.S., the same challenges relate to the U.K., and even Japan (*although they have been finding it politically difficult to re-flate due to an elderly population wanting interest on bank deposits*). The European Central Bank remains relatively hawkish given conditions and therefore not as vulnerable the same inflation risk that the Fed is engineering.

Chairman Bernanke, as good as he is academically, and as much integrity as he has (*which I believe is unlimited)*, has an analytical framework that suggests a lot more inflation is allowable. Part of this is because he looks at core rather than headline, which is a flawed calculus, and also because he looks at inflation, not as a targeting objective (*though this could be inferred from headline*) but as a price-level plus trend-targeting system. The subtle difference is that when prices peaked in 2008, and the CPI started falling because of negative inflationary trends, Bernanke's analytical framework (*as he described in Toyko, 2003*) is to extrapolate from that peak price level, a straight line with the trend inflation rate. What this means is that the deflation in 2008 has to be erased from the records by having similar inflation prints on the other side. The problem is that none of this offset would be considered as inflation in Bernanke's mind—at least as I read it.

What this means for interest rates is that the Fed must keep them at zero for an extended period of time (*which is my expectation*). However, even if they raise it from zero, the Fed will keep the front-end shorter-term rates much lower than you would typically expect. The longer term bond will certainly reflect inflation and interest rates will go up. Some of this can be managed or manipulated with Fed purchases of longer term treasuries rather than monetary policy (*money-market*). Absent that kind of

artificial cap on interest rates (*which ultimately can only be temporary*) the general effect would be a very steep yield curve with low short-term, and much higher long-term rates.

Q: Where do you think the next bubble will come from?

[John Brynjolfsson] Part of what we're suggesting here is that the Fed can continue to engineer low short-term interest rates and affect artificial value by buying open market instruments. I would call that a bubble in 2- 3-year Treasuries. However, I am not sure that the global markets realize the risk embedded here.

If they do not, the dollar would, in effect, be in a bubble because it would be debased by this process continuously, and the debasing could get masked by the Fed's purchase of Treasuries and maintenance of the steep yield curve (*low interest rates*). The scenario I am describing would involve a relatively sharp collapse of the dollar, which I would qualify by stating that if the same policies are undertaken in U.K., Japan and continental Europe, the collapse of the dollar may not be reflected in exchange rates between these currencies, as all would collapse at same time. The collapse would more likely be reflected against more robust currencies such as the RMB (*which has upward pressure on it, even though it's maintained in a peg*), other emerging market currencies, and commodities such as gold (*most specifically*) and industrial metals, crude oil, energy products and food.

Q: Could you explain the concept of catastrophe bonds and how they give risk protection?

[John Brynjolfsson] Traditionally, insurance markets have been highly specialized and the complexity of the contract between a home owner and an insurance company would depend on the jurisdiction--property type, peril and so forth. That is clearly something which is a specialty and the insurance industry is well qualified to deal with that. As you start to aggregate these risks, insurance companies can diversify them across their portfolios, and even with re-insurers and so forth.

However, when aggregated there is a point where certain risks are in such large quantities that they radically imbalance an insurance company's balance sheet or risk profile. These risks are called "peak perils" and the two most dramatic in the U.S. are "California Quake" and "Florida Wind," which is due to the combination of large wealthy populations (*meaning huge real estate values in those states*) and the uniqueness of the perils in those states. Florida is distinctive as it is the epicenter of most hurricane tracks that originate in the Eastern Atlantic, and California is unique in that it has such a scientifically high earthquake risk. It is impossible for insurance companies to create a diversified portfolio of natural perils without leaving homeowners and businesses in these states under-represented. The alternative is to represent them on insurance company books, but this would cause an imbalanced risk profile.

This situation created the "cat-bond" market, which allows insurers and re-insurers to offload the risks of peak-perils. You may think the capital markets have the same problem, but the answer is no. While insurance companies diversify portfolio risks consisting of, for example, automobile risks, U.K. ice storm risks and German flood risks, the Florida Wind and Cal Quake risks would be so large as to make this portfolio lop-sided. The capital markets already have huge risks that dwarf any of these, which mean that if you add Florida Wind and California Quake to the capital markets, they literally become diversifiers within the larger context, meaning that when you price them, rather than pricing them at a steep premium (*which insurance companies would be forced to do*), you price with a healthy risk premium—but not exaggerated. This is why capital markets players who have equity market risk, corporate risks, mortgage risks, forex risks and so forth, can incorporate cat-bonds in their portfolios, thereby enhancing their risk-to-return profile.

Q: Do you think the role of corporate and sovereign paper will change in the market? And are there any particular opportunities in the market?

[John Brynjolfsson] One of the things that we have observed is that risk has been somewhat socialized. There are various camps and angles to expand that, but clearly one of the most important is volatility. Socializing risk does tend to reduce risk overall, but at the cost of reducing return. You therefore deal with a socialized business or economic risk resulting in more managed and less volatile environments and with less income

distribution between high- and low-income. In the long term, this gives a lower trend growth rate.

The other notable thing here is that we are dealing with some one-off costs that resulted in huge debt on public balance sheets. Debt servicing also is important as homeowners de-leverage and reduce their rates of consumption. In the face of higher interest servicing costs, we see cyclical patterns emerging, combining with the longer term structural problems. There is a point of view that says the political process is so far off the rails that spending could become unending (*President Obama suggested, in 2010, he will push pay-as-you-go aspects through Congress to limit this excessive spending, and cap it, but acknowledging and fixing the problem are two different things*). There also are camps concerned with more rapid acceleration of budget deficits and debt that agree that socialization will reduce volatility.

Looking at corporate paper, as uncomfortable as private or company defaults are, we must acknowledge that it would be much more volatility-inducing to have defaults at the sovereign level where a state like California or New York, or a country such as Greece, Ireland or even the U.S. or U.K. cannot repay their debts. Past experience suggests that corporate entities should have less volatility as workers, jobs and bond-holders have been guaranteed by government.

This is like an automobile accident where a teenager is lying in the road in dire need of emergency medical care. The parents must first deal with the crisis at hand, and deal later with the teen’s mis-deeds that caused the accident. Keeping this paradigm in mind, many people have suggested that there were some serious mis-deeds that got us into this crisis, and therefore, as soon as we get through the immediate difficulties and back into the healing process, we have to take aggressive steps to prevent it happening again. If that is the case, a loud and clear message would need to go out to corporate bondholders stating that we would no longer guarantee those bonds, and that next time stock-holders, management, and other stakeholders are responsible to “watch the house” to ensure against excessive risk-taking.

Q: What are your views therefore on increased regulation?

[John Brynjolfsson] My views are highly bifurcated. Let's start by looking at my kinder gentler view. If you do have guaranteed deposits (and we do) then you need to have tight regulation on the assets backing those guarantees, because otherwise whoever is doing the guarantee (*in the US, the FDIC/Treasury*) is being taken advantage of, *which is clearly not a good model*. I am generally in support of these guarantees.

However, if you look at the current crisis and look at a short synopsis of how we got here, Congress wanted to promote home-ownership, and have had this remit for 70 or 80 years. This is fine, but they got very aggressive about it, and failed to acknowledge the cost of promoting home ownership. Rather than budgeting for these programs, they tried to get them "off budget" through all sorts of hidden costs or contingent liabilities, such as guarantees. The first of these was in 1971 when the U.S. government privatized mortgage agencies. This was unilaterally done by congress, and the reason was clear—to make debt-issuance an off-balance sheet item. This also made it a private rather than public liability. We know that the reality was that these agencies were simultaneously guaranteed with a $1 billion line of credit. This is a tiny line, but it was taken by the markets as an unconditional guarantee of the whole private entity. Ultimately, this guarantee was effectively called upon, and as of December 2009, the Treasury has accepted unlimited liability for these transactions for at least the next three years. So you had the U.S. Congress creating a housing agency and other programs that guaranteed and promoted housing, but the costs were hidden. Now we are paying these costs and they are running to trillions of dollars.

You can point the finger at greedy homeowners who wanted to buy a house irresponsibly, but there is nothing irresponsible about looking after your family and taking advantage of a government guarantee where you have no downside, and pretty low interest payments. That strategy, or opportunity, which was provided to homeowners, looks great as housing prices go up, as people could generally live in nicer houses than they would otherwise been able to afford. After the crisis-induced foreclosures occurred, I find those individuals may have been put back into the situation where they were before the house with the free money, cheap mortgage, and zero down-payment.

You could say the same about the mortgage bankers, the banks, the officers and agencies who originated these loans, but it would be hard to blame this on free markets, as the

genesis of all of these things has been the idea that we could have promotion of housing without associated costs, and in effect have regulatory slack in the form of regulators saying that you didn't need income, solid credit, appraisals, and so forth.

If you have an architecture that is so convoluted that it creates huge incentives to borrow, originate and buy with no downside risk, there is no regulation that could make that functional. The first rule of economics is to watch out for "unintended consequences." You cannot intend to bring home ownerships to 80% from 50% without consequences. In this case, the consequences were that when you made housing affordable for those without the income or down-payment necessary to support multi-million-dollar homes, you got massive defaults.

Q: Do you think there are any key global topics which will affect commodities pricing?

[John Brynjolfsson] Commodity prices are driven by supply and demand. Some people look at these factors in the spot market, while I tend to start at the other end of the maturity spectrum and think in terms of very long term (*5-, 10-, 30- year*) supply-and-demand trends. This is hard to nail down precisely, but if you start with that and work backwards, you can see how much effort should be put into exploration, production, conservation, and substitution now, and then get to a spot price. I think this is the only realistic way to understand commodity prices within the market.

Going back to 2006, we realized that in the very long term, there are certain commodities that will be scarce, the reasons being depletion (*typically oil, but applicable for most commodities*), and emerging market population growth. If you think of the developed world (*U.S., U.K., EU*), it represents perhaps a billion people. This means that there are another five to six billion people who are not in the developed world. Some of them are quasi-industrialized, while some are still in agrarian societies. I do believe that a good chunk of this six billion will become industrialized and developed, and increase their standards of living closer to ours. That means that they will stop growing their own grains and vegetables, and become more integrated with the global economy. This can involve migration from grain to meat (*which is more agriculturally*

intensive) and migration from manual labor towards machine-based farming, and changes to household and industrial construction using metals.

If you put that in context, you are looking at a population which is four or five times the current industrialized world, so there will be some serious appetite for raw materials and it will certainly put pressure on supply. There is no such thing as demand exceeding supply; demand always equals supply, the contingent being price. The price will, therefore, be pretty high, and determined by marginal purchasers of these products who have available income to buy. That's where we were in 2006, and I suspect it is where we will be in 2030.

Where we will be in 2008 to 2012? We have a huge global industrial production contraction due to the crisis. This is anywhere from 10% to 20% by some measures, which creates a glut of commodities. Frankly, even though economies are recovering globally, with synchronization in 2009, and less in 2010, the recovery takes us from the bottom and must grow from that point upward, so we are still way below the point where demand is using up 100% of available supply capacity. Prices on spot markets are therefore very low. I would expect over the next two or three years that there will be slack in most commodities such as crude oil. As you extrapolate even modest rates of growth and migration, the current capacity will become fully utilized, and we will expect to return to a situation where discussions turn to expanding capacity and to assessing how long that expanded capacity can use resources before depletion starts to bite. Ultimately this means that commodities that are hard to store will be more affected by immediate surplus of productive capacity and have muted prices. I put crude oil into that category, staying at $80 to $90 for at least the next few months, but commodities that are easier to store, such as industrial metals, will certainly continue to rally. Commodities that are the easiest to store and have value as debased currencies will continue to perform the best.

Q: Are there any particular countries or sectors where you feel there are opportunities in equity markets? And do you think the structure and performance of equity markets will change?

[John Brynjolfsson] First of all, equity markets got hammered during the crisis.

Part of this was due to concern over the break-down of the financial system affecting economies and earnings. It was quite a dark period. The liquidity-fuelled rally is due, in part, to a realization that we are not facing Armageddon, but seems largely overdone because the structural problems have not been addressed, and have been exacerbated by bail-outs and greater debt, *leading to greater tax burdens*. There already are programs to aid employment and medical care that will certainly be a drag on earnings. If you look at the global pie of earnings, and I'm talking mainly of the developed world such as the U.S. and U.K., that global pie will grow at a slower rate due to the factors I alluded to. The global pie also will be divided with more going to workers and government and less to corporations. Both of these factors have depressant effects on earnings, and bring in a third factor of valuations. The multiples on equities should, therefore, drop, as growth prospects for developed world equities reduce.

While I'm quite pessimistic on developed market equities, emerging market equities are a different story. While certainly caution is always advisable, and these regions are not back to the pre-crisis peaks, we see that many of these countries are not as export dependent as they were. China, for example, has been historically very export-dependent, but in the past 12 months it has taken a huge inward look, focusing on domestically generated demand. The demand is coming from the consumer and investment sectors. Even though it is essentially a planned country, the planners are pushing schools, dams, infrastructure, power generation, and transportation. This combines with financial infrastructure such as banking and insurance and means that they are no longer as dependent on the fate of U.S. and U.K. consumers to support them. They have, in effect, become a self-sustaining dynamo, which creates opportunities.

Even though these markets are volatile, and have relatively high prices, they are not nearly as high as the fundamentals that justify them. For example, there are Chinese companies that have 2% to 4% penetration in the Chinese market where similar industries in the U.S, e.g., the insurance industry, have 50% to 60% penetration. The Chinese companies are generating earnings from a fraction of the population and it is inevitable that over the next 20 years, these companies will grow in double digits (*I'm not talking about 10.1%. I'm talking of 20% to25% per annum.*) as the Chinese economy and customer base grows. To be able to buy companies like that, at earnings of

30x may seem expensive as similar companies in the U.S. trade at 20x, but I would gladly give up 10 multiples for that dramatically higher growth trajectory.

We can see from Mr. Brynjolfsson that the economies of the developed world are still in a perilous state, with much co-ordinated action needed to bring a new found sense of stability.

This crisis has also revealed complexities and interdependencies of our highly global economy, demonstrated by the failure of a specific financial structure (*in this case US Sub Prime Mortgages*) creating a rapid global contagion.

It would seem Dr. Minsky's theories have held true in diagnosing a financial crisis, but we can also take a step back and understand the larger cycles at play within the economy. There are many proponents of 'wave theory' (*referring to the regular sinusoidal cycles in a modern capitalist economy*), one of the most quoted having been Russian economist Nikolai Kondratiev (*the first to bring such cycles to international attention in his 1925 book 'The Major Economic Cycles'*). Kondratiev supposed that economies move in 45-60 year cycles. The 'ascendant' period comprising "Spring" (*improvement or plateau*) and "Summer" (*acceleration or prosperity*). The 'downward' period comprising "Fall" (*recession or plateau*) and "Winter" (*acceleration or depression*). Each phase not only carries financial characteristics, but social shifts and changes in the public mood.

Scholars such as Joseph Schumpeter further extend the theory showing capitalist "long waves" consisting of prosperity, recession, depression and improvement, which form the 50 year cycles. While most academic economists do not accept such 'long-wave' theories, scholars of Kondratiev waves do show that cycles of innovation, capital investment, war and crisis exist historically, and follow waveforms such as Kondratiev with remarkable accuracy. The "Schumpter-Freemen-Perez" interpretation of Kondratiev theory shows five cycles occurring, with a sixth to come. The industrial revolution (*1771*), The Age of Steam and Railways (*1829*), The Age of Steel, Electricity and Heavy Engineering (*1875*), The Age of Oil, the Automobile and Mass Production

(*1908*), the Age of Information and Telecommunications (*1971*). Scholars also show that cycles of global war are usually linked to these capitalist 'long waves', typically preceding an output upswing.

Whether you agree with the academic merit of such 'wave' approaches, it helps us to understand the structure and cycles within the global economies. We as 'developed nations' are still within the information and telecommunications cycle (*which began in 1971*) and with the current recession roughly timed with the expected 'saturation point' for the cycle (*c.2010*). The question for us is what next for the "developed" world? Mr. Brynjolfsson predicts a much more socialised economy and a shift of focus as our generation, and the one which follows; struggle to rebalance the books after the stimulus needed to prevent a catastrophic failure. The impetus for this rebalancing may not, though, come from our immediate surroundings. As Mr. Brynjolfsson has identified, there are up-to six billion new economic participants coming on-stream with 'emerging' economies entering, and leaving industrialisation, gaining wealth, and contributing to both consumption and output within the global system. In the same way that Europe and the US contributed to the growth of China and other emerging economies, so too may the emerging economies contribute to the repair of the developed world. The sixth cycle (*referring to the long-waves above*) may, therefore, be a shift in the balance of economic power between core groups within our global system. This balance shift may occur not solely at a country level (*as the US and UK become less powerful than their Asian counterparts*) but also at a structural level within individual economies as wealth (*and debt*) become socialised reducing economic growth, and return, but increasing equality and wealth distribution within the economy.

To make an accurate call on 'what next' in the face of such uncertainty, global conflict, and other issues, would be tantamount to impossible. So what is the best strategy in such circumstances? As Charles Darwin once said, "*It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.*"