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# Economic Crisis and the Global Forest Sector

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## Abstract

The paper discusses the nature and development of the current economic crisis and some of the possible effects and impacts on the forest sector. We have experienced a tremendous economic growth during the last 20 years. This growth was driven mainly by increased *credits, leverage* and *deregulation.* A whole chain of factors and developments took place during this period of some 20 years. The financial/economic crisis is a result of an *entire string of interacting factors.* My argument is that the crisis is an *overall system failure*. How can it happen in the era of ICT and a knowledge-based economy? *Many players of the system failed to take action.* A system failure cannot be repaired by simple measures such as *economic stimulus programs* to banks and the automobile industry. There is a high risk that the enormous amounts channeled to one-sided *stimulus programs* will generate *new crises* further down the road. In spite of today's "green shoots", "glimmers of hope" and "early signs of stability" in the economy I think there is a *long way* to go until *stabilization of the economy* is reached. The recovery will be *anemic* and *fragile* and will take time and we may very well have a *second wave crisis* before the recovery.

The crisis impacts the forest sector through decreased demand and prices and changed exchange rates with *restructuring* as a result. The forest sector has *two crises in one*. Before the economic crisis there was *declining demand* on certain forest products, *increased competition* by ICT, *overcapacity*, *low profitability, wood supply problems,* and competition on *raw material with the energy sector.* The *ability* of the sector to return *to strong growth* when the *recovery* comes is *doubtful.* The problems with the *first crisis* are still there. Thus, *more change must happen* (restructuring). I think there is a consensus in the sector that the conventional forest industry products are *no longer sufficient* from an economic point of view. *Something more is needed*. But *nobody has a clear idea* of what this "more" encompasses. The industry and governments have to take a bold step in creating huge programs investigating what *new exciting value added commercial products* can be produced from wood within a *restructured forest industry.*

## Acknowledgments

This paper originates from a long-term concern by the author concerning the global economic and financial development.

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# Economic Crisis and the Global Forest Sector

Sten Nilsson

## 1 Introduction

In this paper I will try to discuss the current financial crisis and the possible implications on the global forest sector. The question can be asked whether anything at all can be said because nobody really knows the dynamics of the current crisis and how it will develop. However, I think it is important to try to go through a systematic discussion of the issue and I will start with the economic crisis as such before discussing the global forest sector.

## 2 History of Economic Crisis

Jursa (2008) demonstrates that, already in the Babylon Empire (~700 B.C.), the society was highly monetarized, had financial policies, which encompassed most of the society. We have probably had financial crises since then. There is rich literature describing and analyzing earlier financial crises but I will only discuss a sample of the literature here. A conclusion of the work by authors such as Augar (2006, 2008), Parker (2008), Ferguson (2008), Elliot and Atkinson (2008) and Buchan (2001) would be that the devil in financial history has been *greed and amnesia*. It also looks as though in rising financial markets the world is new and the *Bull* has only eyes for the future and streams of future currencies. The pessimist, the *Bear*, only sees the past. Bulls do not read and Bears only read financial history. It can also be concluded that financial markets are *evolutionary* indicating that conventional statistical and risk tools are not sufficient. Reinhard and Rogoff (2009) have studied eight centuries of financial crises and conclude that *debt markets* have always played a crucial role in financial defaults. I will return to this issue somewhat later. In the following I will illustrate the most recent financial crisis by looking at the development of Dow Jones Average Industrial Index (Financial Times, 2008).

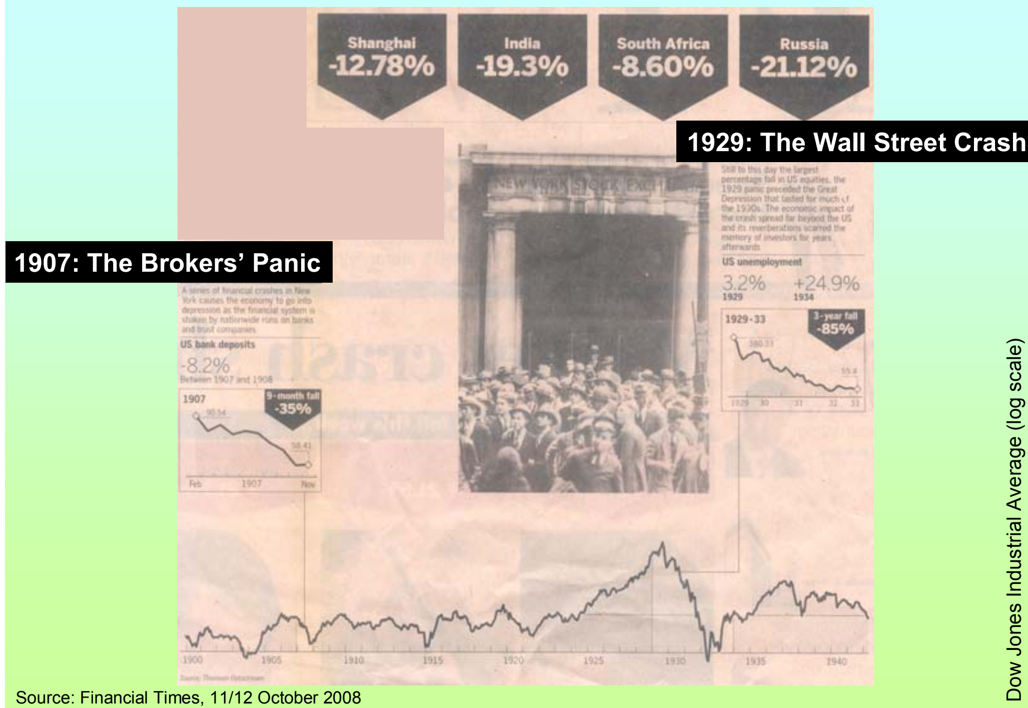


Figure 1a: Financial Disasters, 1907–1929.

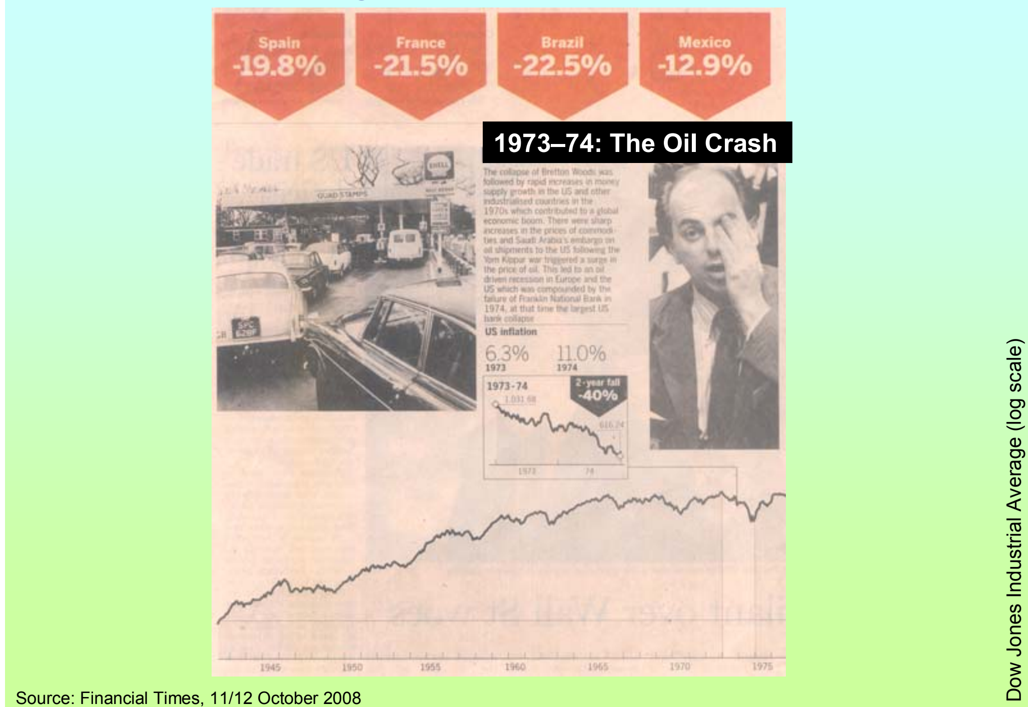


Figure 1b: Financial Disasters, 1973–1974.

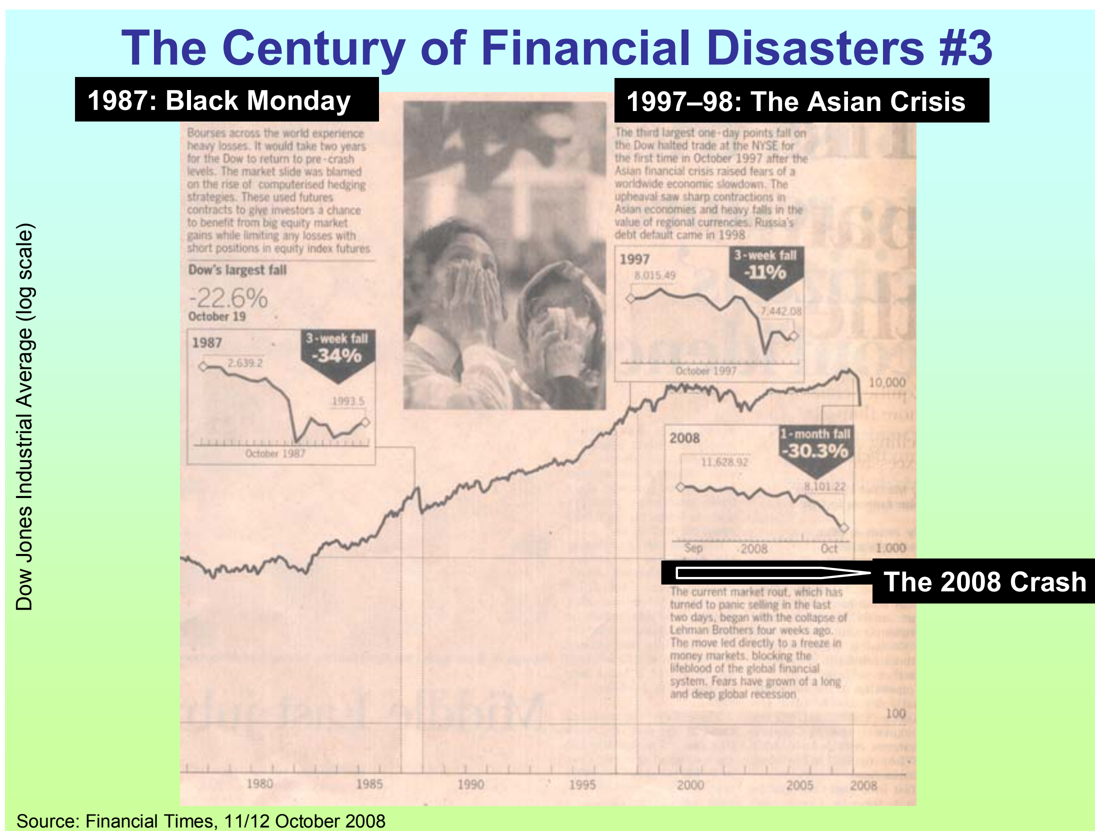


Figure 1c: Financial Disasters, 1987–2008.

There was a crisis in 1907 mainly impacting the United States, 1929–1933 there was the big Wall Street Crash causing defaults far beyond the United States, 1973–74 there was the oil crash causing recessions in the USA and Europe, 1987 the Black Monday, 1997–98 the Asian Crisis causing a worldwide economic slow-down and the 2008 crash with largely unknown consequences today. During the last three decades a financial crisis has appeared about every tenth year. Also, if we take a global look at the financial crisis we can conclude that during the last century there was a financial crisis every tenth year somewhere on the globe. IMF reports about 130 systematic financial crisis in the world since 1970 and most of them taking place in the developing world. So it can be argued that the current crisis was to be expected. In the next section I will disseminate closer why it happened this time.

## 3 Why Did We Have a Financial Crisis in 2008?

There are probably as many explanations for the reasons that caused the financial crisis as there are economists. But I will try to come up with a synthesized picture. In the early 1990s a political policy drive started to try to boost the global economic growth. During the last 20 years we have witnessed *tremendous global economic growth*. This economic growth was driven by *credits*, *leverage* and *deregulation* (World Bank, 2009a). The *deregulation of financial markets* started 15–20 years ago. In this process, the lender no longer had to be responsible for the risks. The loans got packed into *new*

*complex instruments*, which were traded to third parties who carried the risks. The markets got priority over the regulations (Tett, 2009). We moved into the era of *credit excesses* (Roubini, 2009). Credit fuelled loans under stable inflation and perceived macroeconomic stability the greater the excess in consumption and risk taking; *success breeds excess* (White, 2008). This generated *excessive consumption*. The *US dollar* has been *severely overvalued* since the late 1990s and the dollar value fuelled the excess consumption in the USA *causing enormous trade deficits in the US* — 6% of GDP in 2006 (Baker, 2009). The *low rate of interest* in 2001–2003 in the USA fuelled the amount of credits given. The bank interest rate was down to about 1% and inflation was well above 1% meaning that customers borrowed for free (Streissler, 2009). Thus, there was an incorrect pricing of money — money *was too cheap*. The result was that the Americans consumed far above what could be justified by their disposable income. It became *economically unsound consumption*. The American banks increased the credits to be larger than the real GDP growth + inflation and risks were built up which were bound, sooner or later, to have unpleasant consequences.

In order to keep the high rate of credits going, the borrowed *capital inflows from abroad* increased substantially. Any country that receives a huge and sustained inflow of foreign lending runs the risk of subsequent financial crisis (Wolf, 2008). Debt fuelled the US and households went on an unparalleled spending binge by the inflow of capital. High income countries with *elastic credit systems* and households willing to take on substantial debts offset the massive surplus savings made in the rest of the world, e.g., China (Wolf, 2008). The current *budget deficits* tell us that there was a need to adjust the underlying imbalances (Reinhart and Rogoff, 2009). At the same time, the *financial sector had grown too big* and had to shrink. In the USA, the financial services were taking 30% of the corporate profits, 10% of wages, and contributed by 8% to the GDP (Federal Reserve Bank of Minneapolis, 2008). Smirk (2008) speaks about a *monstrously huge* financial sector. Thus, the tail had started to wag the dog instead of the dog wagging the tail. It was not only the disproportionate size of the financial sector becoming a problem. Rothkopf (2008) has illustrated that a *few people* had hugely *disproportionate financial influence* leading to herd behavior and higher risk taking. Krugman (2008) claims that there was a failure by the regulation to keep pace with the rapidly growing financial system and that the crisis of 2008 "is like everything we have seen before, all at once". Thus the financial system didn't learn from earlier crises.

The faster the credit spiral developed, the more loans were packed into more *complex*, *toxic* and *destructive financial instruments* (Roubini, 2009). A number of authors have discussed the *failure of risk models* to keep pace with the explosive growth in complex engineered instruments. Some of the models also had obvious bugs, e.g., Moody's made a systematic over-valuation of the instruments. In July 2007 the S&P rating agency admitted that their risk models were malfunctioning. Nobody really understood how the engineered instruments functioned but they still had the highest ratings (Rajan et al., 2008; Mayer et al., 2008; International Herald Tribune, 2008). Who can understand financial instruments like "collateralized obligations of asset-backed securities" or "structured investments vehicles"? To assess the risks of those instruments takes a entire weekend on large computers. Pielke Jr. (2008) demonstrates that risk models in financial decision making break down in times of crisis. He also claims that the decision makers did not really understand the limitations in the risk models and they lacked experience with complex risk modeling. Taleb (2008) states

"no-one is more guilty of being like turkeys than financial managers and analysts who rely on computer models that don't account for rare devastating events". The financial engineers were very efficient through the megaforce of *globalization* of financial services, in distributing the complex instruments all over the world (Rouch, 2009). We had reached an unprecedented *financial globalization level*. Therefore credits had *multiplicative effects* due to the netted financial world.

The housing market was later the *vehicle* of the development and started to reach a crescendo in the crisis development with Americans dipping deeper and deeper into their *housing piggy banks*. Roberts (2008) illustrates how the American Congress already in 1992 forced Fannie Mae and Freddie Mac to increase mortgages to low and moderate income borrowers. The target in 1992 was 42%, in 2000 – 50%, and in 2005 – 52%. The economic growth increased consumption and house prices. There was a doubling of housing prices within a period of five years. Investments in new housing increased substantially. The consumption was fuelled more and more by increased unsound mortgages, the so-called *subprimes*. When subprime lending and adjustable-rate mortgages (ARM) in the USA were no longer able to sustain the *flow of new buyers* (to keep the pyramid game going), the inevitable crash could not be stopped (Gjerstad and Smith, 2009). The *housing market* and the *subprimes burst*. The losses were transmitted to the financial system. Mortgages in the USA increased from $1.05 trillion in 2000 to $3.95 trillion in 2003. The crash was the end of a massive consumption binge. The bubble started already in the *summer of 2007* (the subprime crisis) and burst completely in the summer of 2008.

But there was *not just one bubble*. The subprime bubble triggered many bubbles to burst such as real estate, mortgages and loans, credit cards, car loans, government borrowing, hedge funds, industrial loans, etc. (Roubini, 2009).

It can also be argued that there were two aggregated crashes; in the *regulated banking sector* and in the *unregulated shadow banking systems* and the latter was probably more serious.

Many have blamed the banks and financial institutions as major contributors to the crisis by a few with boundless *greed* in the financial sector. Ferk (2008) argues that *naked greed* is part of today's financial culture. Lewis (2008) states that the financial crisis was a collision of market forces, human idiosyncrasies and greed. The chairman of Raiffeisen Bank, Austria claims that the crisis was driven by *unprecedented greed* and *mismanagement* in financial business. He states that everything was concentrated on more and faster consumption and more profits (News, 2009). The excess consumption in Eastern Europe doubled the debts of households nearly every second year during 2002–2007. Key (2009) stresses that the modern financial world is greedy, cynical and self-interested. Soros thinks the market players did not reflect on objectivity but on the beliefs of the market participants (Freeland, 2009). Obama (2009) stated in his inauguration speech for the Presidency of the United States "Our economy is badly weakened, a consequence of *greed* and *irresponsibility* on the part of some but also our collective failure to make hard choices…" The British lawmakers, through its Treasury Selected Committee, blame bankers for causing an "astonishing mess of the financial system" (WSJ, 2009). The older generation of bankers look back in anger and state "today's bankers are betting on asset prices as contrasted with investing in industry." They also call for the modern banking to be put under the same regulations as the

gambling industry (Centre for the Study of Financial Innovation, 2009). There seems to be a consensus that the *financial sector* to a large extent has *acted irresponsibly* in the development of the crisis. Blinder (2009) states “few people owe millions of people an apology”. We have had *financial folly*.

Wolf (2008) has tried to summarize the overall development as follows: “The lax monetary policies/regulations facilitated the excess credits and spending, while the housing bubble was the vehicle through which it worked”.

If I am right in my rather superficial description of the development of the crisis it can be concluded that this is not just a subprime crisis but an entire *string of interacting factors* leading to the crisis. To me this is an *overall systems failure*.

If there is an *overall systems failure* there are, of course, great difficulties to identify the right measures to achieve a *recovery* in the overall economy. And it is not a question of a few measures but a *long string of actions*. A system failure also takes a *long time* to repair. The system failure discussed is presented in Figures 2 and 3.

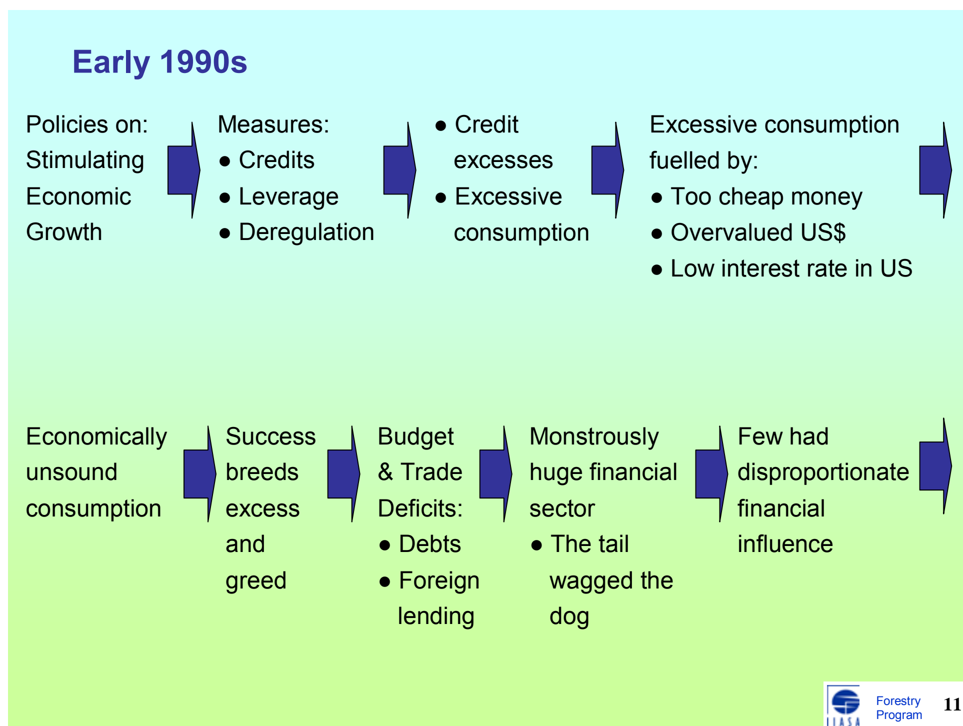


Figure 2: The System Failure.

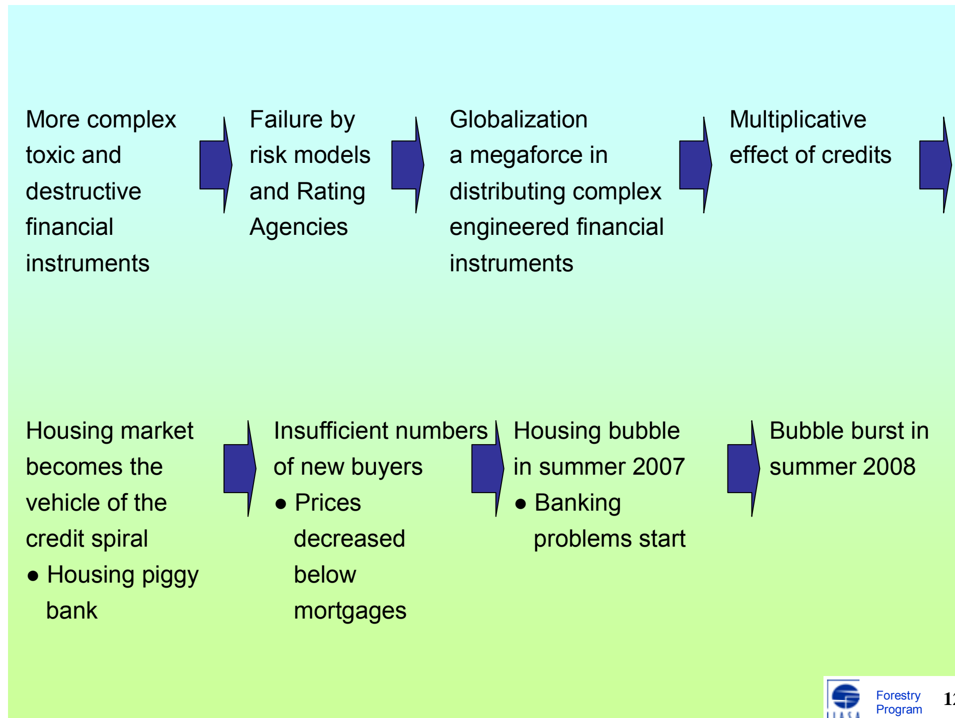


Figure 3: The System Failure.

After the bursting of the bubbles in 2008 a number of measures were taken to try to stop the global economy going into a deep recession. Most of the "financial stimulus programs" went to save banks, financial institutes, and obsolete car producers. In an article dated 16 February 2009, Laczynski (2009) has tried to estimate the magnitude of the governmental stimulus programs. His estimate at that time was around $7 trillion. But the estimate does not include all countries and after 16 February additional huge programs have been implemented. Therefore an estimate of *$10 trillion* seems to be more realistic of the cash programs until today. The stock value of the 15 largest international banks has decreased by about €1 trillion since the summer of 2007.

Several *economists* are *critical* too of the enormous *stimulus programs* to the *banks*, e.g., Stiglitz (2008), Blinder (2009). The founder of the World Social Forces, Oded Grajew (2009), criticized financial assistance to the banks strongly. Rogoff states in an interview (Federal Reserve Bank of Minneapolis, 2008) that society can not let itself get "*blackmailed by a financial system* seeking side payments and protection".

At this year's Davos meeting, economists and policy makers displayed little confidence that the *fiscal stimulus programs* in the developed world *would be effective* in mitigating the economic decline (Giles et al., 2009). The Finance Minister of South Africa stated that fiscal stimulus might "*lead to nought*" and he couldn't see any value of pouring money into the "Detroit three" (Giles et al., 2009).

A number of economists even argue that some of the measures taken helped to pull the plug of the economy. Some economists, see e.g., Blinder (2009) a former Vice Chairman of the Federal Reserves is blaming the decision to let the *Lehman Brothers go*. "The Bear was too big to fall and how could Lehman, at twice its size be letting go bankrupt". Everything seems to fall apart after Lehman's fall.

Blinder (2009) also states that the funds of the *Troubled Asset Relief Program* (TARP) in the USA misused the funds by pouring the money into banks instead of assets.

"The crisis policies so far have been to idolize banks. However, these are hardly any noble institutions" (Kay, 2008).

I am arguing that the *springboard* for today's crisis was *established already 20–25 years ago*. Faber (2009) also claims that the crisis has been built up over a period of 25 years with the help of lax regulation, loose monetary policies, naked greed, fraudulent lending and managerial failure.

If I am right that we have an overall system failure, it *is doubtful* that the *current stimuli programs* will help *mitigate the economy* and that the *policy makers* probably *do not know* what they are doing with current stimulus programs.

# 4 How Was It Allowed to Happen?

There were enough signs that the economic crisis was on its way and why were counter-actions not taken and why was this allowed to happen?

As illustrated earlier, crises occur roughly in 10-year cycles and it was time for another one. Since 2006, the American economist, Nouriel Roubini, had warned loudly of the upcoming crisis. The bubble was clearly identified already in the *summer of 2007*. But also financial players warned of a collapse of the financial system early on. The *investment banker,* Jeremy Grantham, warned years ahead of the collapse. The financial investor, Bob Rodrigues, sent market letters to his customers in *2005* with warnings that the financial market was ready for collapse. Peter Schiff warned already in *2004* of a bubble in the housing market in the USA. In his book Crash Proof (Schiff, 2007), he *predicted* the timing of the US *financial crisis correctly* as well as the *crash* of *Fannie Mae and Freddie Macs*. Taleb (2007) stated "when I look at the risks of Fannie Mae it seems to be sitting on a barrel of dynamite, vulnerable to the strongest hiccup. But not to worry — their large staff of analysts deems these events unlikely". Blinder (2009) argues that the economic crisis is mainly an effect of a *series* of *unavoidable human errors*. He also asks why the *insanity* with the subprimes was allowed to go on.

Even the politicians warned of an upcoming financial crisis. In one of his books, the former Finance Minister in Germany, Oscar Lafontaine (2005), gave strong warnings about an upcoming financial crisis.

So, why did it happen? *Banks played games* with the mortgage backed securities in off-balance-sheet vehicles. They knew about the bubble already in the summer of 2007 but they tried to profit after the bubble was identified. This is called *irresponsibility* and *greed*. Starbatty (2008) states that leading opinion leaders such as economic Nobel Laureates, media and leading economists have failed. The *economic discipline* has gone through a bubble by itself. He claims that the economic analysis has been an "enormous scientific nothing". "The economic discipline needs a bailout of its own" (Naim, 2009).

Starbatty (2008) also claims it was not the market, not the globalization, and not the neo-liberal ideology, but the *elimination of sound market principles in the financial sector* causing the crisis. Also, Taleb (2007) points out that people in common think

financial advisers and managers have super skills in understanding the financial markets but they don't. Thus, the trust is imaginary.

Frey (2009) stresses that the *nature* of the modern financial sector made the crisis happen.

The most disturbing factor that is also contributing strongly to the crisis is the arrogance of leading figures in the financial sector. Kay (2008) points out that "the titans are unable to apologize for the mess they have created". The attitude is "the crisis is a result of market turbulence and not of poor investments and bad management" (Kay, 2008).

Blinder (2009) states that he is waiting for "we have failed and we need to ensure that nothing like this ever happens again". Dowd (2009) points out that the "former masters of the universe don't seem to fully comprehend that their universe has crumbled and, thanks to them, so has ours. Real people are losing real jobs and it's obscene that close to nothing is being asked of financial institutions". Gapper (2009) demands that the financial titans demonstrate two things in order to regain trust in the financial sector: (a) stop behaving like the *18th Century French aristocracy*, and (b) to *demonstrate competence*.

Starbatty (2008) stresses that the *bonus systems* is the cancer of the financial sector "When the financial managers run into the wall thanks to a lack of competence or greed he/she is dismissed with enormous pension plans and bonuses". President Obama reacted strongly on the recent media release on the $18 billion bonuses by the Wall Street financial institutes (29 January 2009). He used strong language of *irresponsibility* and *being shameful*. Recent research demonstrates that the efficiency of bonuses is strongly overvalued and there are many reasons why the bonuses should see a rapid end. The current view is that bonus systems mainly give premium to the general economic development. Strebel and Lu (2008) ask why CEOs and top management should be compensated and get generous bonuses at the expense of current earnings and dividends from stakeholders. Flavio Briatore, team leader of Renault's Formula One team, asks "Do you think the pilots will drive slower because I am taking away the bonuses?" Taleb (2009) claims that the incentive system put in place by financial companies is the worst you can imagine: capitalism for the profits and socialism for the losses. He continues, "We trust military and security people with our lives, yet they do not get a bonus. They get promotions, the honour of a job well done and the disincentive of shame if they fail." A cultural correction has to take place.

All of this leans toward *no trust* in the financial sector.

At a hearing a few months ago England's Queen Elisabeth asked "Why did no one see the crisis coming?" The answer is that some did but no one listened to them (Skapinker, 2009). The EC Commissioner, Neelie Kroes, states that the Commission saw the signals about the upcoming financial crisis already two years ago but the signals were neglected (De Telegraaf, 21 March 2009).

## 5 Long-term Cycles

Some scientists are concerned that in addition to the system discussed above long-term Schumpeter technological innovation waves have also contributed to the economic

crisis. Schumpeter (1939) waves are very long-term and occur only every 45–50 years (long waves of innovation). According to Streissler (2009), the fourth wave appeared from 1995–2000. This wave was driven by ICT innovations. After the end of this wave in 2000, countries were looking for profitable industrial investments and not much was available. Streissler (2009) is of the opinion that the USA and the entire developed world as well as part of the emerging economies were already in a recession after the long innovation wave ended in 2000. But the recession was covered up with artificial policies. In the early 2000s, the bank interest rates were around 1% in USA and inflation well above this, meaning that the customers could borrow the money for free, which is a monetary policy failure but helped to cover up the recession. Currently we are experiencing a nearly zero bank internet rate in most countries. Have we already forgotten that the cheap money was one of the major contributors to the crisis?

Streissler (2009) thus argues that the long innovation waves together with severe monetary policy failures in the USA contributed to the current economic crisis.

# 6 The System of Systems Crash?

A number of authors argue that we are not only dealing with a crash of the financial/economic system but with a crash of the system of systems. Earlier we saw a rapid increase in energy prices and other raw materials, increase of biofuels contributing to increased food prices and poverty, etc. And then the financial and economic crisis slammed us.

Holling (2008) argues that most of these events are *interconnected*, driven by the tremendous economic growth and globalization and the vulnerabilities are tied to the domination of the world economy by oil. Holling thinks the world is moving toward a *major transformation*. The increasing interconnection leads to *increased vulnerability* of wealth and who controls it. According to this theory, we are in a *back-loop stage* leading to reorganization with possible collapse but also regeneration. The development can lead to *deep collapses* with *deep destruction*. The destruction generates new pulses, which are both frightening and creative. The scale of these impacts is such that *cooperative international efforts* are needed. They can not be solved by individual countries or any specific economic sector.

GEAB (2008) also thinks the world is moving towards a global systematic crisis due to the economic crisis and the last stage of this development will be human, social and political crisis, which we still have ahead of us.

Homer-Dixon (2006) expresses similar views as Holling. In his book he argues that the converging stresses of energy, economy, demographics, environment, and climate are driving the globe towards a collapse. The stresses identified drive towards a *"cascading collapse of systems"* vital for the society. The phenomenon of cascading system collapses he calls a "synchronous failure".

There are also bankers who think similar to Holling and Homer-Dixon. The Deutsche Bank manager, Pavan Sukhdev (Financial Times Deutschland, 2008), completed a study demonstrating that *natural capital is the scarce resource* for economic development and not financial or human capital. Dominic Waughray (2009) of the World Economic Forum Secretariat in Davos argues that there is a *deeper complex system* problem than

just the economic crises linked to the *undervaluation* of the *use of natural resources*. Waughray argues that if we can not handle this deeper systems problem we will have the perfect economic storm. Kofi Annan (2009) expressed at the World Economic Forum 2009 similar thoughts and spoke about broad approaches to the current financial crisis which he assessed to get worse. Thus, the message from these people is that we are under *transformation to a new world order*.

## 7 More Toxic Papers and Assets

There are still a lot of so-called toxic papers and assets out there. *Nobody* really *knows* how much is resting in banks around the world. In the following I will just illustrate the situation with some examples. Twenty financial institutes in Germany have toxic papers with a value of *€1 trillion*. Only about 25% has been written off so far. There are still toxic derivates out there from the bankruptcy of Lehman Brothers in the magnitude of *$400 billion*. But nobody knows where they are. McKinsey (2009) estimates that US banks currently hold $2 trillion of impaired assets and the losses from them could exceed $1 trillion on top of already realized losses. Just two banks in Sweden have *€45 billion* in uncertain loans in the Baltics. Austria has *€225 billion* in uncertain loans in former Eastern Europe. EU-15 has uncertain loans in former East European countries of *€1.54 trillion*. These toxic papers and loans will be forced to surface in the future and the losses have to be realized and the demands by banks on additional money from governments will arise. The financial industry has so far had write downs of $4.5 trillion.

## 8 Stimulus Programs and Budget Deficits

There is one strong school of thought arguing that the only way to get the world out of the crisis is by *heavy financial stimuli programs.*

The Bank of England has assessed that to reach *equilibrium* in the economy the assets and debts in the global financial sector require a write-down of *$17 trillion*. As discussed earlier, based on Laczynski (2009) the estimate on current stimulus programs is in the size of *$10 trillion* so there is substantially more needed if we believe in the Bank of England estimate. This will mean severe credit restrictions, substantially decreased economic growth, and increased budget deficits and debts. The other school of thought is that the rebalancing of spending excesses in the past and the increased budget deficits rather have to be followed by an *economic equivalent of lent*.

The federal budget deficit in the USA will approach *$2 trillion* or about 10% of GDP in 2009 due to increased financial stimuli programs. By this, policy makers are in unchartered territories. There is a risk that the USA can not pay the interest on money already borrowed from foreign friends and they will stop their old habit of lending. Among other things this will result in a devaluation of the US dollar (Washington Post, 2009a). American banks have $5.7 trillion of non-performing loans corresponding to 40% of GDP.

Romer and Bernstein (2009) claim that the multiplier effect of government stimuli programs is 1.6. Cogan et al. (2009) use more modern Keynesian macroeconomic thinking and models and conclude that the multiplier effect is only about 0.4.

The chief economist of the Commerz Bank states that “no financial stimuli program in the world can stop the crisis.” His argument is that all analysis of earlier stimuli programs in earlier crises shows that they will not help (Die Presse, 6 March 2009).

The World Economic Forum (WEF, 2009a) predicts that massive government spending to shove up financial systems will threaten the economic growth of all the major Western countries due to increased debt. The *risks for additional fiscal crisis* have already *doubled or tripled*.

In the case of America, Schiff (2009) argues that the *American economy is a bubble* and with the stimuli programs the government will only cause new and bigger bubbles. Simply the stimuli programs in the USA are destructive.

The German Finance Minister, Peer Steinbrück, stated that the debt policies in place today with huge financial stimulus programs will have *long-lasting negative impacts* on the society (Die Presse, 2009). Reinhart and Rogoff (2009) conclude that huge budget deficits need to be corrected in order to handle economic crisis.

Wolf (2009a) states that it is going to be hard to generate substantial net borrowing by households and non-financial corporations in high income countries with high debts due to the stimuli programs. There will be no return to the credit levels that were available for a long time in the past.

Increasing budget deficits due to financial stimuli programs will *increase the debts*, *slow down economic growth, effect exchange rates*, and further down the road there is a *risk of hyper-inflation*.

And the budget deficits are increasing rapidly. For example, in late November 2008 the Swedish National Debt Office assessed the budget deficit for 2009 to be SEK 25 billion. On 15 January 2009, the budget deficit was revised to be SEK 65 billion for 2009, on 3 March 2009 the budgeted deficit was revised to SEK 135 billion for 2009, and on 4 April 2009 it was revised to SEK 150 billion for 2009. The race is fast.

I think Faber (2009) very well summarizes my view on the financial stimuli programs. He states that you can’t get the economy going by adding new debts to existing high debts. His view is that the only way forward is to let the *financial markets fall* and have a *natural correction*.

# 9 Credits — Bad Banks — Good Banks — Economic Growth

The banks are not really short of money especially after the financial stimuli programs. In many cases banks take cheap money from the Central Banks and put it back into another account with higher rates of return in the Central Banks. The banks are not lending to each other due to the increased economic risks and the existing unknown stocks of the toxic papers belonging to the banks. Thus, there is no lending trust and the banks will not be engines in the recovery of economic growth (Smirk, 2008). The Austrian National Bank (2009) demonstrates that the credit policies of the Austrian banks have become much more restricted during the crisis. Similar conclusions also

exist for other countries. We have moved from reckless financial risk-taking to no financial risk-taking at all. During the telecom crisis 1997–2003 there were bankruptcies, huge job losses, replacement of management, shattered reputations, and clean-ups. But in this crisis the banks are largely still run by the same people with the same goals of piece-meal approaches and tinkering of portfolios (Economist, 2009a). There are strange things taking place in the banks. How long will they be allowed to do business with bank off-balance sheets (the shadow banking)? One of the crisis banks in Germany is estimated to have shadow banking in the magnitude of €600 billion, which takes place off the balance sheets of the bank. This shadow banking has failed. Financiers grow rich and put the prosperity of everybody else at risk. The "short selling" and the speculation on falling stock values is another misuse in the banking system. The bank bonuses to the management with multi-billion losses in the books are another factor diminishing the trust in the banking system. Washington Post (2009b) finds it very strange that a sector claiming to follow market forces can't establish bonuses based on demand and supply just like other goods and services compared to today's doldrums bonuses. I can only repeat Furedi's (2004) question "where have all the intellectuals gone" in the banking sector.

It seems to be a wide consensus that to get out of the crisis we have to get out of bad banking (but it will not be easy) (Friedman, 2009). Wolf (2009b) states that "the world's mega-banks are too complex to manage, too big to fail and too hard to restructure." But the banking system has to be fixed. The simple truth is that a sustainable capitalist economy absolutely requires a functioning banking system. The chief strategist at Charles Schwab states "we can unleash as many trillions of dollars in stimulus as we wish but if we don't fix the banking system we still have a patient in cardiac arrest" (New York Times, 3 March 2009). Romer (2009) states that everyone agrees that we urgently need good banks. He thinks the turning of bad banks into good banks is a risky way. His argument is that it is simpler and safer to start brand new banks. Roubini (2009) stresses that restructuring the banking system and the supervision and regulation of the financial system will take time.

There have been a lot of discussions on establishing so-called Bad Banks being owned by governments following a concept which was successfully used in Sweden in the 1990s. The Bad Banks should manage the existing toxic papers in the existing banks and in doing so the latter would have a fresh start and begin to lend money to each other so investments will be made, consumption increases and, by that, economic recovery would start.

Personally I think new finance will have *lower returns and be smaller, less profitable, better regulated, transparent* and *more conservative*. *Capital will be more difficult and expensive to obtain.*

## 10 How Long Will the Crisis Last?

At the time the bubbles burst in 2008, financial experts and banks stated that the financial crisis would be over within six months. This turned out to be an inaccurate assessment. The World Bank President, Robert Zoellick (Financial Times, 2009a) stated recently: "What started as a financial crisis, became an economic crisis, is now

becoming an unemployment crisis — and to what degree does it become a human and social crisis?" GEAB (2008) foresaw this development.

A number of authors have expressed their concerns that the current crisis will be deep and long. Kenneth Rogoff stated in an interview on 29 December 2008 that he expected a deep and long economic decline followed by a slow recovery. The former Chairman of the US Federal Reserve, Paul Volcker (Global-is-asian, 2009) states: "I've seen a lot of crises but I have never seen anything like this. Earlier crises were limited in space but this one knows no borders". Whatling (2008) sees the interaction of a heavily indebted economy with broken financial systems as a suggestion for a decade of poor economic growth in the USA.

The chief economist of OECD warned in an interview on March 3, 2009 that the crisis will get worse and it will be the *worst recession since 1946.* Schiff (2008, 2009) stresses that *huge budget and trade deficits, lack of investments* and *erosion of the industrial basis* have gone too far in the US so the crisis will be long-term. An apocalypse may be on its way. Warren Buffet (2009) writes in the Annual Report of 2009 of Beckshire Hathaway that the economy will be in *shambles for a long time*. Roubini (SvD, 2009b; Financial Times, 2009e) thinks the American banking system will collapse and become insolvent. He estimates a current *capital loss of $3.6 trillion* in the banking system which has an own capital base of $1.4 trillion. This is a systems crisis and he assesses the crisis to last at least until 2011. Barro and Ursua (2009) use long-term global data on recessions and stock-market crashes. They find a *28%* probability *for a minor depression* (marco-economic decline of 10% or more) and nearly 10% probability for a major depression (25% decline). The probability for the depressions causing stock-market crashes is 73% respectively 92%. Financial Times (2009b) thinks that Europe has sown seeds of *slow recovery* due to inefficient coordination in the management of the economic crisis. It looks like waiting for Godot.

Ernst & Young (2009) in the UK concludes that the UK will go through detrimental changes due to the crisis and "in 5–10 years we will have a completely different country". Dugan (2009) expresses that during the next 4–5 years we will see much lower economic growth compared to what we are used to. The Vienna Institute for International Economic Studies states that the economic crisis will last for at least five years in Eastern Europe (Financial Times Deutschland, 2008). Eastern Europe needs outside help. They can't solve the problems themselves. An economic collapse in Eastern Europe would wipe out huge capital of West European banks and force governments to implement expensive bailouts (Financial Times, 2009c). The Boston Consulting Group (BCG, 2008; 2009) recently presented new analysis and concluded an expected "long and deep global recession". They also conclude that the current financial stimuli programs will not be sufficient for turning the economy. According to Reuters (2009), President Obama expects multi-year downturn in the economy. Schiff (2008) thinks that the American economy will return to some order first in 2012. Giles et al. (2009) assess that the rebalancing of the economy will take a number of years followed by slow recovery.

There is another financial risk ticking which prolongs the crisis, namely the so-called Alternative A-loans in America. These are something between high risk and low risk loans. It is estimated that there is a magnitude of $600 billion-trillion A-loans issued in the USA. The customers were recruited with careless credits and at teaser rates. Much

of the A-loans should be refinanced within 30 months, which will be a financial check for many and may contribute to the second-wave crisis.

The crisis in banking and financial sectors is in full bloom and now signs are strong that the insurance industry will go in the same direction. The life insurers especially in America show familiar symptoms; collapsing stock prices, opened up credit-spreads and downgrading by credit-rating agencies (Economist, 2009d).

At the beginning of the crisis some people assumed that the emerging economies such as India and China would help the world to pull out of the crisis. But now we can see that countries like Russia, India and China will probably add a new role of instability to the global financial system instead of helping it (Giles et al., 2009). Many developing countries do not have the financial muscle to get out of the crisis — they need transfers of financial resources from outside.

There is the risk of a hard landing for China with an economic growth below 6% (WEF, 2009b). The news agency *News* reported on 22 January 2009 a future economic growth in China of 5–6%, which is below the magical 7% assumed to sustain the development in this country. Roubini (2009) assesses the economic growth in China to be around 5% in the coming years. China is more susceptible to social disruption due to the economic crisis and tensions will grow in the Politburo as they attempt to mitigate the economic downturn (Stratfor, 2009a; Friedman, 2009). The Times (13 January 2009) states that with the crisis in the Chinese economy the Chinese government is at crossroads. The government has to make the choice between supporting the rich and industry and risk a popular uproar or support the poor and companies and the bureaucracy will revolt against the government. The Times estimates the rate of unemployment already to be 20% in urban areas.

Friedman (2009) estimates that there are already *non-performing loans* in the magnitude of *$600–900 billion in China*, which is about 25–30% of China's GDP. This is going back to the structure of China's economy, which is not a real capitalist economy. China is not concerned about profits but about cash flows. The economy is a mixture of family, social, banking and political ties concerned with the cash flow. Friedman (2009) points out that non-performing loans will escalate with the financial crisis. He also points out that the historical Chinese economic growth is breathtaking. But growth is only one factor to examine and questions *how profitable this record growth really is.* He asks is the Chinese economy a *paper tiger?* Stratfor (2009b) clarifies that there are *struggling interests* in the Chinese Party with respect to assessment and handling of the economic crisis. The struggle is in reality about the coast versus inland.

The consumer price index in China fell by *1.6% in February 2009* compared to February 2008 and the export slumped to 26%. These are warnings for deflation.

Stratfor (2009b) assesses that there will be a much more severe crisis in *Western Europe* in the long run compared to the USA due to contradictory policies in Europe and the economic problems are deeper and more complex than in the USA. *East Asia* is at extreme risk with the declining trade with the USA and Europe. The Economist (2009c) states that the Asian economies are troubled with strong decline in GDP. HSBC claims that Asia is hit by two interacting crises: a domestic one (demand) and an external one (trade). Asia can not reduce employment without risking social riots. The following regional outlooks are based on Stratfor (2009b). The impact of the global recession in the *Middle East* is the substantial drop in oil prices and Iran will suffer

most. The long-term outlook for *Russia* is, at best, very poor. Alfa Bank of Russia estimates that *nearly 20%* of all loans in Russia will be in default. *Russia, Central Asia*, the *Balkans*, and *Eastern Europe* face the most dire economic situation since 1998. *Latin America* is doubly hit by the recession. The region is primarily producers of commodities and demand and prices plummet in crisis times. Also the region is harder hit than any other region due to its huge dependence on external capital. If there is no capital available the region is left severely vulnerable. OECD's leading indicators in March 2009 suggest that the outlook for Brazil has deteriorated strongly and is now in recession. Also, China, India and Russia are in strong slowdown. *Sub-Saharan Africa* is heavily dependent on external capital for development. With dried up external capital the countries are at huge risk.

The Pan-European Institute (2009) reports a deepening crisis in the economies of the *Baltic States* and that the fall is getting deeper every quarter with a grim outlook.

The Western countries of the EU will be forced to help the Eastern members of the EU. If the EU does not provide help, the EU system will start to crack. This will add to the financial burden in the Western EU countries.

The current recession has been compared with the Great Depression in the US and the conclusion is that the current recession is far from the Great Depression. Although a recent paper by Eichengreen and O'Rourke (2009) concludes that this comparison is rather meaningless. The comparison has to be made at the world economy level. The result of this comparison is quite sobering (See Figures 4a, 4b and 4c).

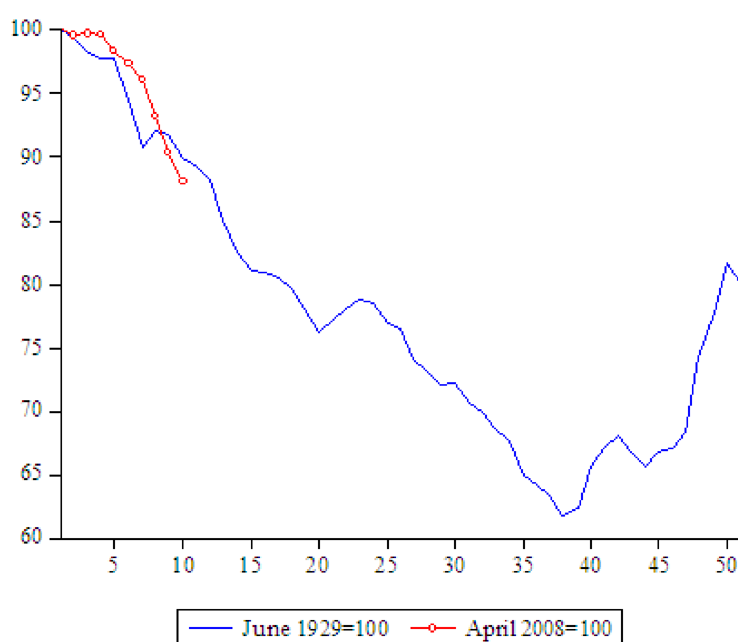


Figure 4a. World Industrial Output, Now vs Then
*Source: Eichengreen and O'Rourke (2009) and IMF.*

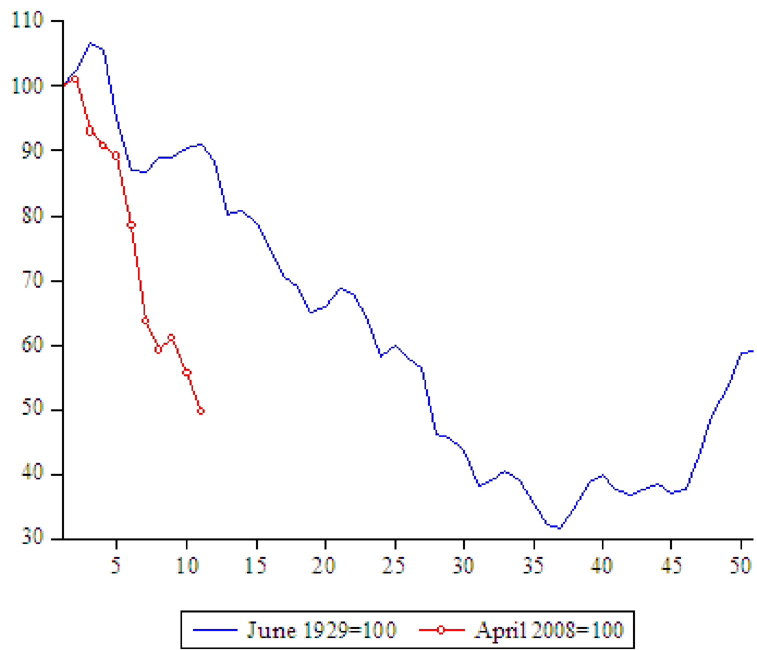


Figure 4b. World Stock Markets, Now vs Then
*Source: Global Financial Database.*

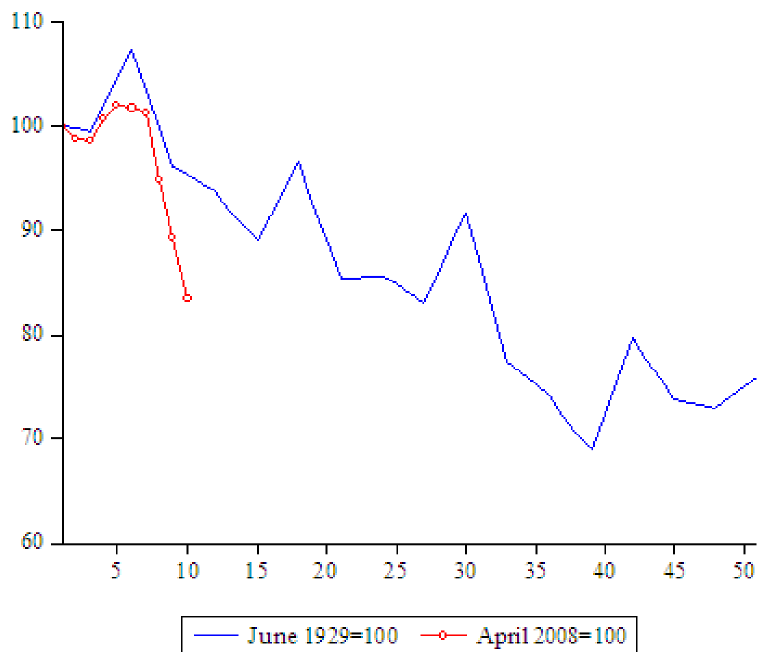


Figure 4c. The Volume of World Trade, Now vs Then
*Sources: League of Nations Monthly Bulletin of Statistics,*
*http://www.cpb.nl/eng/research/sector2/data/trademonitor.html*

Thus, globally this recession is doing worse than the Great Depression for individual production, exports, and equity values. Hopefully we know better and have more efficient policy making today.

It can only be concluded that the crisis is a *worldwide crisis.*

Professor Gerten (2009) states that it will *take years* of work by governments and business leaders to get the world *back on the globalization train* after economic nationalism developing during the crisis. Akerlof and Schiller (2009) stress the time needed to get consumers back spending and businesses to be willing to hire people and invest. The rebuilding of *trust in the financial system* will take years.

The interaction of increasing debts, a system failure as discussed earlier, insufficient stimuli programs, and no borders for the economic crisis will cause a *long lasting economic crisis*. We are speaking about years instead of months and there is a risk that the *crisis will last for 4–5 years*.

## 11 A Second Wave Crisis — When?

As stated by Robert Zoellick (Financial Times, 2009a), we have gone from a financial crisis to an economic crisis and we are now hit by an unemployment crisis and are heading to a human and social crisis. We are seeing a dramatically decreased economic growth and the estimates on future growth are revised downwards from month to month. By that we have unsatisfying profitability with an increased number of bankrupt companies. In Sweden, there were 85% more bankrupt companies in March 2009 compared to March 2008. This is also causing substantially increased unemployment. ILO (2009) estimates that the crisis in 2009 will cause a loss of 50 million jobs. China alone estimates a current loss of 26 million jobs among migrant workers (The Independent, 2009). About 4.4 million jobs have been lost in the USA since December 2007. The monthly loss is currently about 650,000 jobs (New York Times, 2009). The job losses pose a threat to worldwide stability. The rate of investments has declined and there are big difficulties to free up needed investment capital in order to stimulate the economy. Money Morning (2009) speaks about the established stimuli programs being time bombs and everyone is going to lose something at the explosion. Many countries are forced to increase their budget deficits to levels never seen before which bring the countries into unchartered waters. A number of countries are on the brink of state bankruptcy (Estonia, Latvia, Ukraine, Hungary, etc.).

Earlier in the text I have expressed strong concerns about increasing debts and exploding inflation. The chief economist of Deutsche Bank expresses "raising public debt is a medication with serious side effects (Walter, 2009)". He suggests the need to install debt ceilings in the Basic Law. The German Finance Minister expresses strong concerns that the stimuli programs made around the world, financed by enormous amounts of debts, will pave the road to a series of crises (Financial Times, 2009f). There must be a balance of doing too little and doing too much in stimulating the economy.

There is also a lot of psychology involved. With increased unemployment, debts, bankruptcies, etc. *the fear* will develop in societies. Kindleberger (2000) stresses that financial instability feeds additional instability. There is also a lot of lost trust in the current financial system.

All of this can only result in *a second wave of economic crisis*. The question is only *when will it appear?*

## 12 Green Shoots and Glimmers of Hope

The Federal Reserve Chairman of the US sees *green shoots* in the economy while President Obama sees *glimmers of hope*. Krugman (2009) stresses the need to be cautious. He points out that some of *the good news are not that convincing*. The biggest positive news comes from banks demonstrating tremendous profits in Q1, 09. Funny things are in the bank reports (unknown value on toxic assets, unknown amounts set aside for future losses). Goldman Sacks changed its definition of quarter and the fiscal year and excluded December in the balance sheet. There are also green shoots reported in companies with respect to stock improvements. Thus, these shoots are based on stock-cycles and do not take into account that we are facing a *synchronized balance-sheet recession around the world*. Things *are still getting worse*. Industrial production is at a 10-year low, housing starts remain low, and housing prices fell by nearly 19% in February compared with a year before in the USA. The US economy has shrunk four quarters in a row. Bernanke (2009) assessed long-term damage to housing prices and the household economy in the US on 17 April 2009. A rising tide of loan losses still threatens the bank industry. IMF estimated on 21 April 2009 that the toxic debt in the global system is $4.1 trillion and that e.g. European banks need an additional injection of up to $1.2 trillion to gain long-term stability. On 4 May 2009 the EU slashed its earlier economic outlook and stated that the economic downturn will be deeper and last longer. Wolf (2009c) estimates that the current funding of banks is $9 trillion, which is about a third of what's needed to get sustainability in the banking system. Wolf (2009d) points out that it may be that the rate of economic decline is decelerating but this doesn't indicate there is a turnaround. Bottoming is not recovery. He points out "this recession is different from any other since the second world war. Its salient characteristic is uncertainty." Altman (2009) claims that by studying the balance sheet damage it can only be concluded that it will take time before recovery and that it will be slow. He expects a second stimuli program would be needed in 2010 and a strong snap back in the consumer sector cannot happen before 2012.

IMF presented its Economic Outlook 2009 at the same time as the "Green Shoots" and the "Glimmers of Hope" were launched. IMF states that the world has fallen into deep recession and illustrates that the crisis is everywhere and IMF has fire brigades all over the place. The recession will be long. The recovery will be slow and painful.

The recovery will probably not be linear. During the Great Depression there were five rallies at the stock market of 20% or more between 1930 and 1932.

## 13 Future Financial System

Taleb (2009) has listed the Ten Principles for the future financial system (See box).

## Ten principles for a Black Swan-proof world

1. *What is fragile should break early while it is still small*. Nothing should ever become too big to fail. Evolution in economic life helps those with the maximum amount of hidden risks – and hence the most fragile – become the biggest.

2. *No socialisation of losses and privatisation of gains*. Whatever may need to be bailed out should be nationalised; whatever does not need a bail-out should be free, small and risk-bearing. We have managed to combine the worst of capitalism and socialism. In France in the 1980s, the socialists took over the banks. In the US in the 2000s, the banks took over the government. This is surreal.

3. *People who were driving a school bus blindfolded (and crashed it) should never be given a new bus*. The economics establishment (universities, regulators, central bankers, government officials, various organisations staffed with economists) lost its legitimacy with the failure of the system. It is irresponsible and foolish to put our trust in the ability of such experts to get us out of this mess. Instead, find the smart people whose hands are clean.

4. *Do not let someone making an "incentive" bonus manage a nuclear plant – or your financial risks*. Odds are he would cut every corner on safety to show "profits" while claiming to be "conservative". Bonuses do not accommodate the hidden risks of blow-ups. It is the asymmetry of the bonus system that got us here. No incentives without disincentives: capitalism is about rewards and punishments, not just rewards.

5. *Counter-balance complexity with simplicity*. Complexity from globalisation and highly networked economic life needs to be countered by simplicity in financial products. The complex economy is already a form of leverage: the leverage of efficiency. Such systems survive thanks to slack and redundancy; adding debt produces wild and dangerous gyrations and leaves no room for error. Capitalism cannot avoid fads and bubbles: equity bubbles (as in 2000) have proved to be mild; debt bubbles are vicious.

6. *Do not give children sticks of dynamite, even if they come with a warning* . Complex derivatives need to be banned because nobody understands them and few are rational enough to know it. Citizens must be protected from themselves, from bankers selling them "hedging" products, and from gullible regulators who listen to economic theorists.

7. *Only Ponzi schemes should depend on confidence. Governments should never need to "restore confidence"*. Cascading rumours are a product of complex systems. Governments cannot stop the rumours. Simply, we need to be in a position to shrug off rumours, be robust in the face of them.

8. *Do not give an addict more drugs if he has withdrawal pains*. Using leverage to cure the problems of too much leverage is not homeopathy, it is denial. The debt crisis is not a temporary problem, it is a structural one. We need rehab.

9. *Citizens should not depend on financial assets or fallible "expert" advice for their retirement*. Economic life should be definancialised. We should learn not to use markets as storehouses of value: they do not harbour the certainties that normal citizens require. Citizens should experience anxiety about their own businesses (which they control), not their investments (which they do not control).

10. *Make an omelette with the broken eggs*. Finally, this crisis cannot be fixed with makeshift repairs, no more than a boat with a rotten hull can be fixed with ad-hoc patches. We need to rebuild the hull with new (stronger) materials; we will have to remake the system before it does so itself. Let us move voluntarily into Capitalism 2.0 by helping what needs to be broken break on its own, converting debt into equity, marginalising the economics and business school establishments, shutting down the "Nobel" in economics, banning leveraged buyouts, putting bankers where they belong, clawing back the bonuses of those who got us here, and teaching people to navigate a world with fewer certainties.

Then we will see an economic life closer to our biological environment: smaller companies, richer ecology, no leverage. A world in which entrepreneurs, not bankers, take the risks and companies are born and die every day without making the news.

In other words, a place more resistant to black swans.

*Source: Nassim Nicholas Taleb, Financial Times, 7 April 2009*

## 14 Currencies

The economic crisis is a major driving force for changed currency values. Largely changed currencies impact the competitiveness of the countries and also change trade patterns. We have seen dramatic changes in currencies as a result of the economic crisis. Currencies are especially important in the forest sectors where the products are mainly traded in US$ and €.

I will illustrate the rapid changes with the relations between the Brazilian Real and the US$ (see Table 1).

Table 1: Exchange Rates, Real/US$.

| | **2003** | **2004** | **2005** | **2006** | **2007** | **Sept. 2008** | **Jan 2009** |
|---|---|---|---|---|---|---|---|
| Real/US$ | 3.08 | 2.93 | 2.44 | 2.17 | 1.95 | 1.59 | 2.45 |

For example, if Brazil is exporting pulp in US$ in 2003 they would get 3.08 Reals per dollar exported, but in September 2008 only 1.59 Reals. This is crucial for exporting countries. After the crisis the currencies of emerging economies and developing countries have lost value of 30–50% but also substantial losses in countries like Sweden. This has dramatically changed the competitive positions of exporting countries in these regions and will influence trade patterns.

The future value of the US$ is of course of key concern. The financial crisis attracted more and more institutions and people from countries with decreasing currencies to escape into the US dollar as a safe haven. This has kept the value of the US dollar at an *artificial high level*. Sooner or later these investors will lose confidence in the American economy. As soon as the investors start to sell US dollars, the dollar value will *drop like a stone*. Faber (2009) points out that the current stimuli programs in the USA are increasing the federal debt to some $2 trillion, which has to be paid by printing more money, which will lead to *hyper-inflation* and *decreased value of the dollar*.

The US dollar may temporarily increase in value in 2009 when the capital flight from countries like Russia, Brazil, Mexico, etc., will increase, escaping their own failing currencies but later they will start to ask questions about the American economy and the dollar value will decrease.

Nouriel Roubini stated in a video interview with the Financial Times (22 December 2008) "If I look ahead I see a US dollar weakness. I see a dollar weakness because the Fed is *printing money like crazy*". Money Morning (2009) assesses that the Fed has expanded the monetary base by about *$11 billion per day* since September 2008. The increase of dollars in circulation is soaring by 369.92% annually currently. This is *unprecedented in history*. The American "Bailout Bombshell" will flood into the global economy and torpedo the value of the US dollar. Baker (2009) states that with the continued crisis China will be less interested *in propping up the US dollar*. Whatling (2008) concludes that the US dollar's position becomes weaker and weaker with the US rapid growth of debts. Therefore the outlook for *the US dollar is poor*.

There does not seem to be any safe haven with respect to currencies in the economic crisis. The euro has been a successful currency and much better than many expected.

But there is now a high risk that the euro will deteriorate in the economic crisis (Economist, 2008).

There are already signs that the euro value has started to decline severely as illustrated in Figure 5. The major reason for the uneasiness about the euro rests in the fact that the individual economies within the eurozone are dramatically different. Some call the euro a *financial Frankenstein* in the current situation.

Figure 5: Euro Against the Dollar.

## 15 Demand and Prices of National Resources/Commodities

For the first time since the 1930s there is real destruction on the demand for commodities. McKinsey (2008a) demonstrates that the demand for some commodity groups will return to 2007 demand levels first in 2014. The Saxo Bank (Press release 16 December 2008) assesses that the commodity demand will decrease by 30% until the crisis is over. The World Bank (2009a) assesses that prices for non-energy raw materials will decrease by 15% in 2009 and an additional 3% in 2010. Roubini (2009) makes similar estimates and states that non-oil commodities will decrease by 15–20% in 2009. Sawlog prices fell by 5–12% worldwide in the 3Q/08 (WRI, 2009). Eucalyptus pulp prices on the European market fell from $840/ton in August 2008 to $540/ton at the end of February 2009. This is a price drop of over 35% in six months. Wood fiber prices declined in 4Q/08 between 10–20% worldwide. Lower commodity prices will deter new investments in natural resource sectors in developing countries (G-20, 2008). Commodity producing regions like Australia, Canada, Brazil, Russia, and Africa will face difficulties with declined demand and prices (Rouch, 2009).

## 16 Other Impacts of the Crisis

As pointed out earlier, the demand in *emerging markets has dropped much faster* than anybody expected and emerging markets will not save Western economies. The financial crisis will have long-term implications for the *developing world*. The World Bank (2009b) reports that 99 out of 116 developing countries have experienced a *slow down in economic growth*. The bank also reports that developing countries face a financial shortfall of $270-700 billion. A shortfall which cannot be taken care of by the countries themselves. IMF (2009) reports similarly that the financial crisis first hit advanced economies, and second the emerging economies and now the poorest developing countries. In the developing world the foreign reserves were already depleted by the food and fuel crises preceding the economic crisis. The dramatic fall in commodity prices is affecting the developing countries seriously. Thus, a *perfect global crisis* with the *poorest countries suffering most.* The developing world shows anger that the world's financial system is being run by gamblers from the same powerful countries that have always tried to lecture them. "The poor countries are innocent to the global credit collapse" (Economist, 2009e). Due to the financial crisis, the former Foreign Minister of Germany, Joschka Fischer, is questioning the Western global financial dominance and demands global policies adjusted to a global market (Fischer, 2008). The financial crisis *will speed up the transfer of influence to emerging countries/powers*. This is valid both for economic and political influence. We will see a *new order of the world*. The World Bank President Zoellick (Financial Times, 2009a) speaks about "currently being at the end of the end of the G7 and the start of G20". The rate of *globalization* will slow down and some are speaking about the risk of *deglobalization* taking place.

There is a high risk that the crisis will pull millions of *people back into poverty* in the developing world. The World Bank (2009b) estimates that there was an increase in poverty by 46 million in 2009. Contributing to this development is a substantial decrease of migrant workers' remittance flows (in 2008 $305 billion).

Throughout Europe there have been *riots* over how governments and financial institutions have been handling the crisis; riots have so far occurred in, e.g., Iceland, France, Greece, Estonia, Latvia, Lithuania, and Bulgaria (Dumbs et al., 2009). There have also been riots in other parts of the world like China and Russia. Fedosov (2009) warns that with a further decline of the Russian economy there is a high risk for large-scale social uproar. There has also been *management kidnapping* taking place. All of this may have *political changes* as a result. There is a risk that *certain political powers* will use the crisis situation to substantially change the political direction. There is also a risk for middle-class collapse of the morale in emerging economies.

There is high risk that countries will start to introduce *trade barriers* and *economic nationalism* which will hold back the economy even further. Tariffs and quotas are probably not the worst measures of protectionism. Gerten (2009) points out that *economic nationalism* is more insidious than just tariffs and quotas. It is much broader, more subtle and subject to few legal constraints. Gerten claims that it is the *frame of mind* which is dangerous. This mind setting casts doubts on the assumption that we live in a single international market. The same mind thinks nations can do it themselves and be better off compared to being a player in the global market. The Economist (2009b) expresses the view that the economic nationalism is most expressed in *banking*. The

Swedish industry expressed similar views (Financial Times, 2009d). So far *78 trade protection measures* have been implemented after the crisis started (World Bank, 2009b).

After experiencing worldwide write offs and credit losses sooner or later there will be *a disintegration of the current financial system*. The sector will be forced to *reformulate* its *visions* and define what will be its *future core business*. The financial sector will have to operate in a brand *new environment* of slow economic growth, tight credits, slowed down globalization and increased governmental interventions. The World Economic Forum (WEF, 2009b) demands the banking back to basics — The Piggy Bank approach — and *that a new regulatory financial framework be established*.

But the financial crisis will not only effect money issues but many other aspects of society. Schliff (SvD , 2009a) assesses that there will be a fundamental change in the *living standards* due to the economic crisis. The pensions are at risk. Burton and Stewart (2009) point out that there will be a number of *security implications* of the global financial crisis. The Director of the National Intelligence in the USA claims that the economic crisis is the *biggest short-term threat* to US national security. The downturn is everywhere, lawyers are booking fewer hours, retail spaces go begging, tourism is down, airline bookings decline, art markets crash, restaurants closing down, sick leaves increase, drinking habits change, Hollywood reduces gages, remigration takes place, etc. Even the *love life* shows signs of a 25% decline due to the crisis (IHT, 2008). The *dating industry* reports similar decline (Jacobs, 2009). Who knows what the societal impacts will be of these developments. These are just few examples of societal impacts of the financial crisis. Grattin (2008) demonstrates how earlier financial crisis have changed the society with respect to innovations, institutions and attitudes.

## 17 Summary – Crisis Features

The current crisis is a *long-term phenomena* going back 20–25 years in time. Many factors have contributed to the crisis and the crisis is a result of *systematic failure* of the financial system. The failure may have been further pushed by *long-term innovation waves* and a crash of the *system of systems.* The downturn is a result of a *globalized synchronized recession* that *coincides* with a *huge financial crisis* that stems from the core countries of the world economy. This is a recipe for *a long recession* and *weak recovery* (Wolf, 2009b).

There are still huge amounts of *toxic papers* and *assets* sitting in financial institutions with losses not yet realized. Given the fact that we have a systems failure of the financial system it can be *doubted* that the current *stimuli programs are the right* medicine. So far there are no signs of the stimuli programs having had *any effect on the crisis.* The only impact is increased *budget deficits.* The budget deficits are in many countries *unchartered territories.* The *financial/banking system* has *failed.* A *Great Restructuring is needed* and so far we have not seen this happening. The crisis has no borders, it is a *worldwide crisis.* It started as a *financial crisis, became an economic crisis, became an unemployment crisis* and is *now a human and social crisis* all over the world. All of this will create a *second wave crisis.* The *globalization* has *derailed* and it will take a long time to get it back on track. The *currency rates* will be *volatile.* The *economic nationalism* has got a solid grip and to overcome this is a long-term affair.

The slump development has had an *unprecedented speed.* The global stock markets have *lost roughly 50% of their value within 18 months* and it continues to decline. Asian Development Bank estimates since the bubble in mid 2008 there has been a *total loss of $50 trillion* in the economic system of the world, which is nearly one year of the world GDP ($55 trillion in 2007).

It will take several years to rebuild *trust* in this system. Therefore the *crisis and recovery* is *bound* to be *long-lasting,* probably in the magnitude of *4–5 years*.

## 18 Blame the Economic Crisis!

Many economic sectors blame the economic crisis for the problems they are facing. This is probably correct in many cases but there are also cases which can be challenged on this claim.

The collapse of the American car industry is blamed to be a result of the economic crisis by the industrial representatives. But in fact, a large part of the collapse is caused by earlier mismanagement by this industry, which is illustrated in Figure 6.

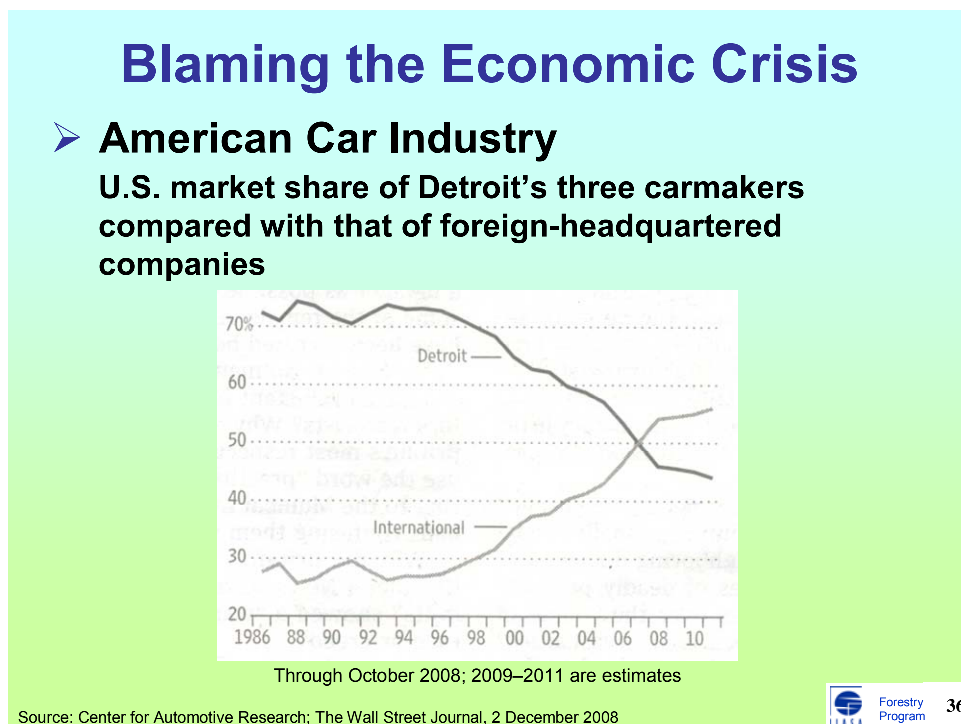


Figure 6: US Market Share of Detroit's Three Carmakers Compared with Foreign-Headquartered Companies in the US.

Since about 2000, it is obvious that American carmakers dramatically lost market shares to foreign cars produced in the US. Simply, American car producers have produced cars not wanted by the market a long time before the economic crisis started.

In a recent book, Rantala (2008) stressed that the current crisis in the Finnish forest sector can not only be blamed on the economic crisis but also that the Finnish (and Nordic) industry lacked clear visions for a substantial period of time. Nilsson (1996a,

b) stressed the same already in the mid 1990s with respect to the Swedish forest sector and that this lack of vision would have severe impacts further down the road.

There are a number of signs and I will illustrate only a few, which should have triggered the forest sector to *think in new directions a long time ago*.

The global consumption of paper and paperboard per unit of real GDP has change substantially over time (see Figure 7).

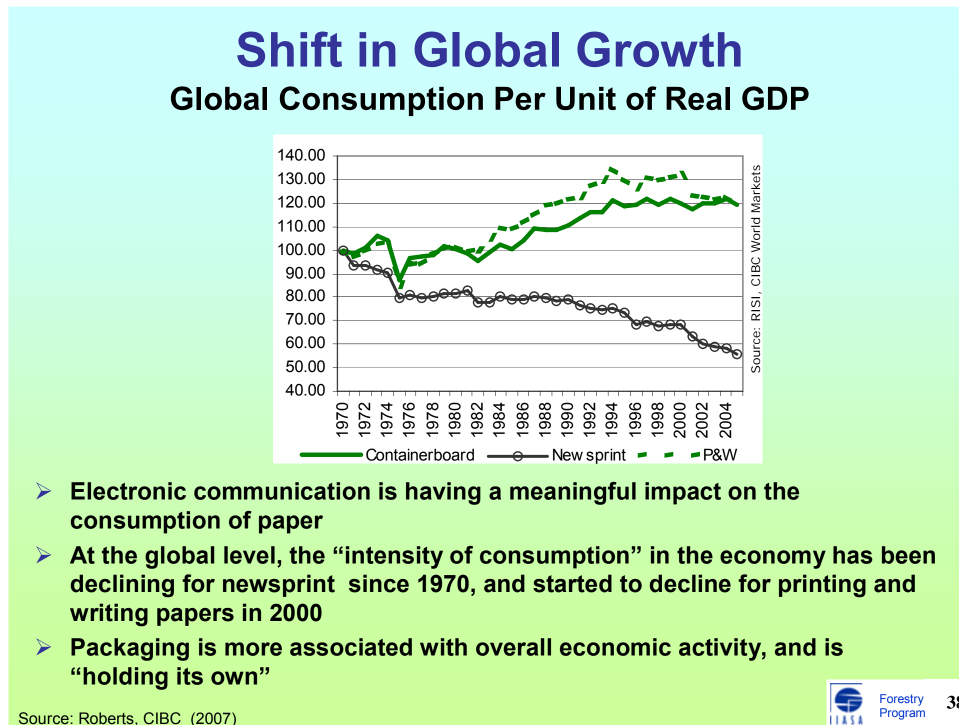


Figure 7: Shift in Global Growth.

There has been a rather constant decline in the newsprint consumption since 1970 and an accelerated decline in consumption since 1996. The printing and writing papers experienced a substantial drop in consumption in 2000, which has continued to decline since then.

For a number of years PricewaterhouseCoopers (2008) has investigated the Return on Capital Employed (ROCE) of the 100 largest forest, paper and packaging companies in the world. The rate of return has been miserable during the 2000s — in the magnitude of 4–5% in spite of the fact that we have experienced the longest and strongest commodity boom during this period (see Figure 8). This is far below the costs of the capital.

There has been a substantial over-capacity in the industry at a global level. For a long time it has been necessary to restructure the industry due to the obsolete technical age and size of capacities. But the restructuring that has taken place has not been sufficient. Many of the mills/machines that are on "death row" are still there. This is illustrated by printing/writing machines in Europe (see Figure 9).

## Return on Capital Employed %

**The 100 Largest Forest, Paper and Packaging Companies**

| 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|
| 4.2 | 5.3 | 4.9 | 4.6 | 4.8 |

Source: PricewaterhouseCoopers, 2008

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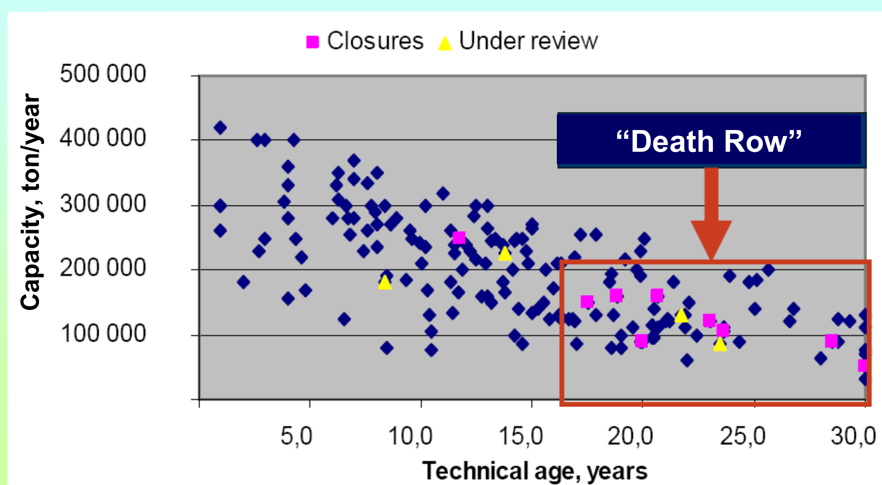
Figure 8: Return on Capital Employed.

## Printing/Writing Machines in Europe




Source: Sundin (2008)

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Figure 9: Printing/Writing Machines in Europe.

If the industry had dealt with these trends and similar ones at an early stage the industry would have been in a different position today.

McKinsey (2008b) investigated how the major industrial companies in general acted on the global trends. They concluded that some 70% of the executives say that global trends have been important and they are increasingly becoming important but *very few companies* are addressing them successfully. The reasons for not acting are other priorities, lack of skills, lack of resources, can not decide what to do, etc.

## 19 Crisis — Time for Rebuilding, Reconstruction, and Renewal

A crisis is a terrible thing to waste. A crisis clears the mind. A crisis is a catalyst for strong structural changes. An economic crisis has important cleansing effects in helping to facilitate painful restructuring. It is probably the case, that if the financial crisis would not have happened last year we would have had to invent it otherwise the magnitude of reconstruction would be overwhelming. Thus, out of the economic crisis new ideas will flourish.

In the following I will discuss some of the restructuring and renewal needed in the forest sector. As stated before *the time for restructuring and renewal is now*.

## 20 Two Crises in One

There was a crisis situation in the forest sector in the 2000s long before the financial crisis erupted. There has been declining consumption/per real GDP for different industrial products, impacts of ICT development, unsatisfactory profitability, overcapacity, tight wood supply, increased competition about raw material with the energy sector, land competition with agriculture sector, climate policies and carbon markets, etc. The forest sector worldwide didn't try to tackle these issues and a crisis situation was perceived in many parts of the world.

With the financial/economic crisis erupting in 2008 the crisis turned into being a double crisis. Thus, now we have *two crises in one* in the forest sector.

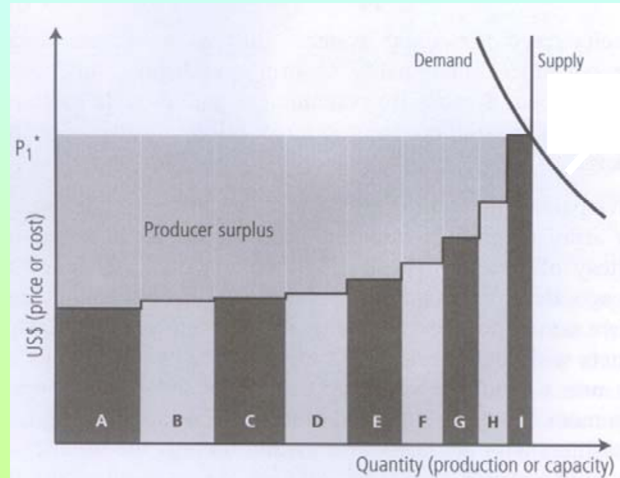
## 21 Restructuring of the Forest Sector

The economic crisis has affected the forest sector in the form of decreased demand, decreased prices, lack of profitability, and decreased investments. This causes temporary and permanent closure of mills. This is not necessarily a bad thing because prior to the crisis the global forest industry probably had an over-*capacity of some 25%.* As illustrated earlier, there are also many capacities still in use that are probably economically obsolete due to technical age and size of capacity. Thus, if these capacities disappeared it would help the global forest sector to rebuild into something stronger. This requires the obsolete mills to disappear. But it is not at all sure that this will happen, it will depend on the credit facilities of the individual companies. It may also bring in new fresh players and owners to the sector, which will contribute to a successful reconstruction of the sector. The financial crisis has also had other effects. Some companies have shot themselves in the foot during the crisis. Six News Agency (20 January 2009) reports that the cover-page company of the forest industry for many years — Aracruz in Brazil — lost $2.13 billion in a few months speculating on dollar currency derivates and it will take about 10 years to recover from this loss.

I will try to use a stylized static equilibrium model to try to illustrate how different aspects of the economic crisis will affect the forest industry (sector) and what principal directions these crisis factors will drive the sector (see Figure 10).

**Static Equilibrium Model of the Forest Industry for Different Regions** (letters) **having Varying Capacity** (*x* axis) **and Production Costs** (*y* axis)

- **Demand: 25–30%**
- **Prices: 25–30%**
- **Currencies**
- **Inflation**
- **Capital**
- **Cash**
- **Social unrest and political upheaval**




Source: IUFRO, 2005

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Figure 10: Static Equilibrium Model of Paperboard Industry.

In Figure 10, A to I describe different forest industry producing regions. The accumulated capacity is presented over the x-axis and the total supply from these regions is presented by the supply line after I. There is a given demand at any given point of time. The production costs for the different producing regions are represented by the bars. Thus, with more accumulated capacity, the higher the production costs (y-axis). At any given time, there is a price $P_1$ for the produced product. The difference between the price and production costs is the producer surplus.

So far we have concluded that the economic *crisis will be a long-term affair*. We are seeing *demand decreases* in the magnitude of 30%. In a stylized situation, it means the *demand curve* is pushed downwards and some *30% of high cost producing capacities* will *become obsolete* and close down. The decrease in demand is also pushing prices down with a similar magnitude. Usually, the price decreases on the final product will be compensated by *decreased costs for input factors,* but not fully. Thus, the extent of *obsolete capacity* will increase also by the decreased prices for the final product. This is quite straight forward and it is merely to check the 30–35% high cost producers and conclude that these producers will be closed down. But reality is more complicated than this. I discussed earlier, changed *currency values* due to the economic crisis which is changing the game. We have seen dramatic devaluations in the developing world, which has increased the competitiveness strongly in these regions when the final products are traded in US$ and €. Sweden is an example of a relatively high-cost producer but has improved its competitiveness by some 20% due to the devaluation of the SEK versus US dollar and euro caused by the crisis. Another example is that the euro has also lost some 20% against the US dollar. We have also concluded that there is a *risk of hyper-inflation* further down the road. This will mainly impact *indebted countries*, meaning countries like the USA as well as several regions in the developing

world. If we have a hyper-inflation or strongly increased inflation in these countries, the production costs will increase substantially and thereby work in the *opposite direction* in comparison to decreased currency values. Under normal conditions, regions and companies *invest* with the objective to move downwards on the cost curve through improvements, capacity increase, etc. But due to the financial crisis, *investment capital* has dried up so this option seems to be limited currently. Also, under normal conditions, there are *investments in new* capacities. These new capacities are normally coming into the left part of the figure as *low-cost producers*.

During the last decade, the dominating part of these investments has taken place in *the emerging economies and the developing world*. These countries are, to a large extent, very dependent on *capital from outside*. Due to the crisis, this *capital inflow has dried up*. Therefore, we can *not expect any new capacities and forest plantations in low-cost producing countries* coming on stream for a substantial period of time. In an *extended economic crisis*, companies must have sufficient *financial conditions and cash flow* in order to survive the crisis. Many companies will have challenging credit conditions in *refinancing upcoming maturities* of loans and by replacing of bank facilities. How successful the companies will be in this will depend on the magnitude of financing, time frames, cash flow and liquidities. Companies may also get a different (lower) credit-rating and that leads to substantially higher credit costs. All of this is very company specific but the refinancing of maturities may be very expensive in the current crisis situation (CIBCa, 2008). Lack of cash and financial stability can very well affect *low-cost producing regions* and throw them overboard. The current debacle with currency speculation in Aracruz is one example of financial instability which will limit future operations. Earlier, it was pointed out that there is a high risk that an extended economic crisis will throw countries into *social uproar* and *political upheavals*. If this happens the production picture illustrated in Figure 10 will be flipped around in different directions and the landscape will be changed.

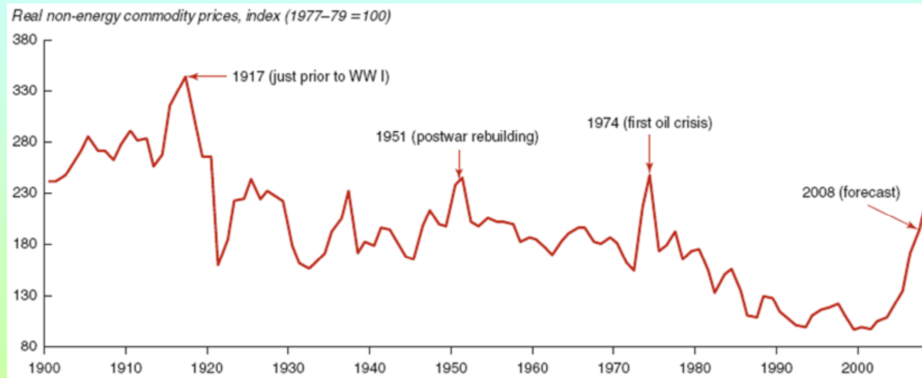
Thus, the static equilibrium model discussed in Figure 10 is too simple to explain what is going to happen. The reality will be much more dynamic and chaotic. However, the conclusion is that *hardly anyone* can say today what will happen with the future industrial structure.

Faber (2009) states that it is impossible to make *any meaningful projections* in the current situation especially with governments and central banks intervening in the economy. It seems like a *rolling scenario planning* is a must under these conditions.

## 22 Boom — Bust — Boom?

The latest commodity boom ending in the summer of 2008 was the largest and longest since year 1900 (see Figure 11).

**Recent Commodity Boom was the Largest and Longest since 1900**




Source: Grilli and Yang, 1988 (for 1900–1947); World Bank for 1948–2008

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Figure 11: Recent Commodity Boom.

However with the collapse of the financial market in mid 2008 the commodity market bust within a few months. The Reuters-Jefferies *commodity price index* nose dived from *475 to 200* within this time frame. It looks like the booming oil price also had something to do with the collapse. Roberts (2009b) illustrates that oil price spikes preceded four out of the last five global recessions.

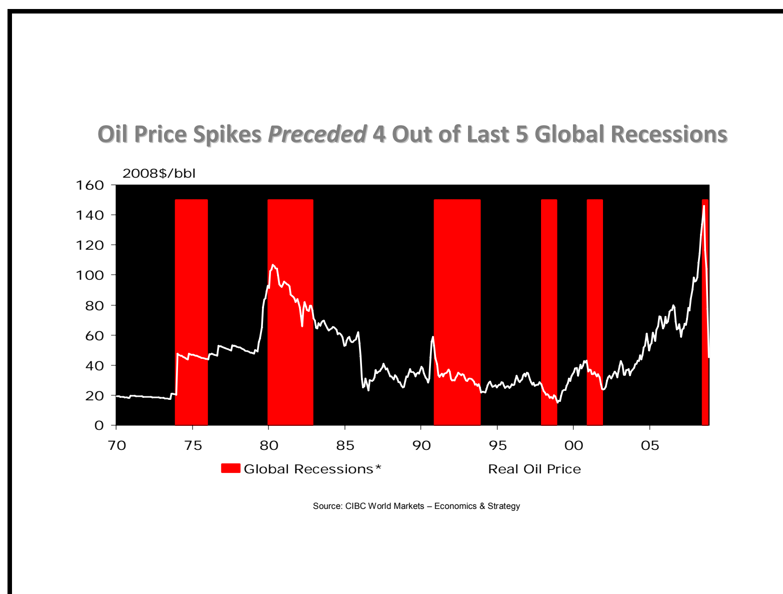


Figure 12: Oil Price Spikes Preceded 4 out of Last 5 Global Recession (Source: Roberts, CIBC, 2009).

What will the commodity market look like after the economic crisis? One day there will be a recovery. Will the commodity prices stay at a low level or will the recovery lead to substantially increased commodity prices? This question is difficult to answer because it will depend on how much of the *market was destroyed* during the crisis period and how much the world has changed. Let us look at the commodity boom abrupted in the summer of 2008. The 2008 boom was driven by a tremendous *global economic growth* never witnessed before. As concluded earlier this economic growth was driven by *excess credits, excess consumption,* and an unprecedented *rate of globalization.* Up to 2008 the development of the global forest sector was 90% driven by the emerging economies. The rest of the global forest sector was convinced that it didn't have any future. The *only future existed in the emerging economies.*

Claudio-da-Silva (2007) identified threats/developments to the emerging forest industry/sector and identified among other factors the following; climate change, water scarcity, land availability/land costs, wood availability, social pressure on monocultures, energy availability/costs, currency appreciation, long-distance transportation costs, capital availability and capital costs, fast changes in consumer demands, production costs, and product substitution (see Figure 18). If we look into the development of some of these factors we can see that the *land costs* increased dramatically in the south between 2002 and 2007. This was a result of increased competition for land by *food, bioenergy, forest plantations* and land prices sky rocketed (see Figure 13).

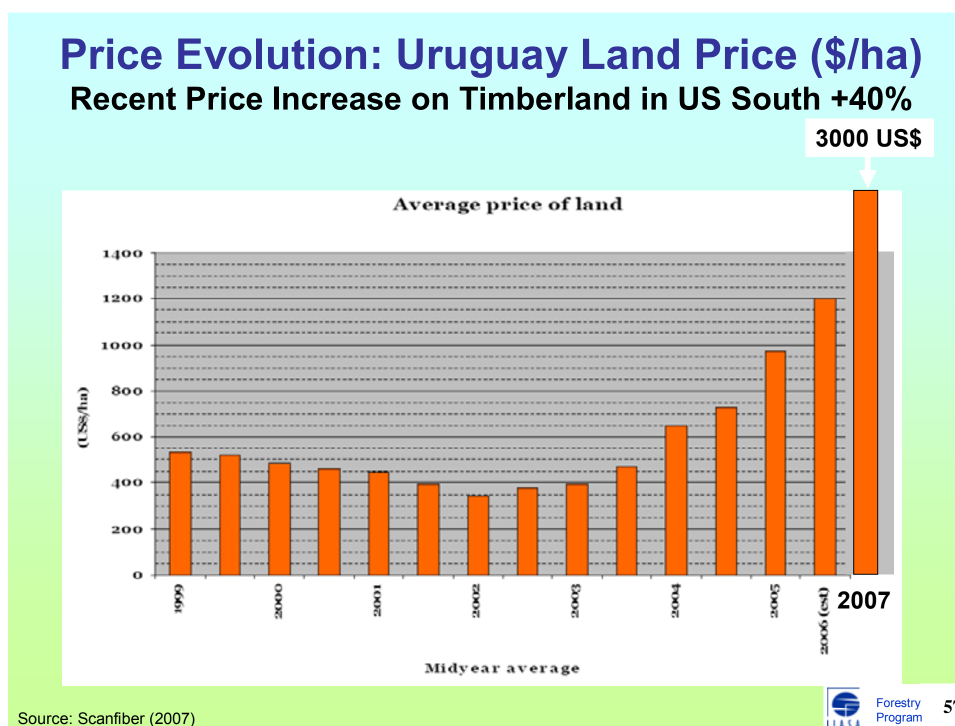


Figure 13: Price Evolution: Uruguay Land Price.

There was an explosion in the *Asian wood deficit* and constrained *wood/fibre supply* for *most of the world* (see Figure 14).

## Globalization of Fiber Markets

### Future Scenario on Wood Fibers

| Region | Accessibility of Wood Fiber | Demand Forest Industry Products | Wood Fuel | Balance Supply/Demand Wood Fibers |
|---|---|---|---|---|
| Nordic | Slight increase | Slight increase | Strong increase | Reduced |
| EU15 | Slight decrease | Slight increase | Strong increase | Reduced |
| Former East Europe and CIS | Slight decrease | Increase | Strong increase | Reduced |
| Russia | Slight increase | Strong increase | Strong increase | Unchanged |
| Africa | Unchanged/Increase | Slight increase | Increase | Reduced |
| China | Slight increase | Strong increase | Increase | Strongly reduced |
| India | Strong decrease | Strong increase | Increase | Strongly reduced |
| SE Asia | Strong decrease | Strong increase | Increase | Strongly reduced |
| Oceania | Increase | Slight increase | Slight increase | Improved |
| USA | Slight decrease | Unchanged | Slight increase | Reduced |
| Canada | Strong decrease | Slight increase | Strong increase | Strongly reduced |
| Latin America | Increase | Strong increase | Increase | Reduced |

Source: Nilsson (2007)

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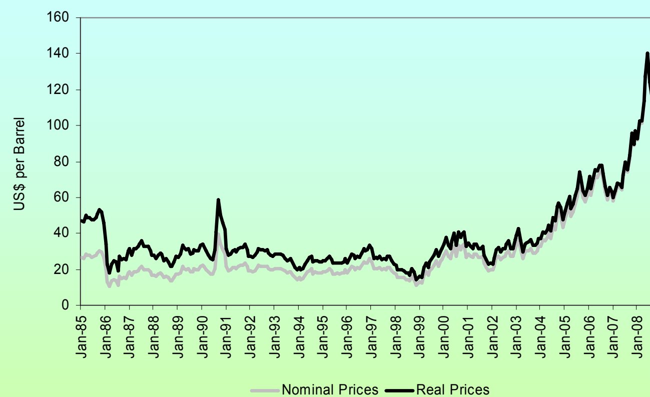
Figure 14: Globalization of Fiber Markets.

The oil prices increased dramatically due to *exploding demand, economic scarcity of oil,* and *speculation* (see Figure 15).

## Historical Oil Prices




**Oil prices have been a major casualty of the crisis due to decreases in actual (and expected) demand**

Sources: Roberts/CIBC, 2009; Bloomberg and CIBC World Markets Inc.

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Figure 15: Historical Oil Prices.

This price development kicked off a substantial increase in *bioenergy consumption* (from wood for heat and electricity to biofuels). This development is illustrated by the biofuel investments in North America (see Figure 16).

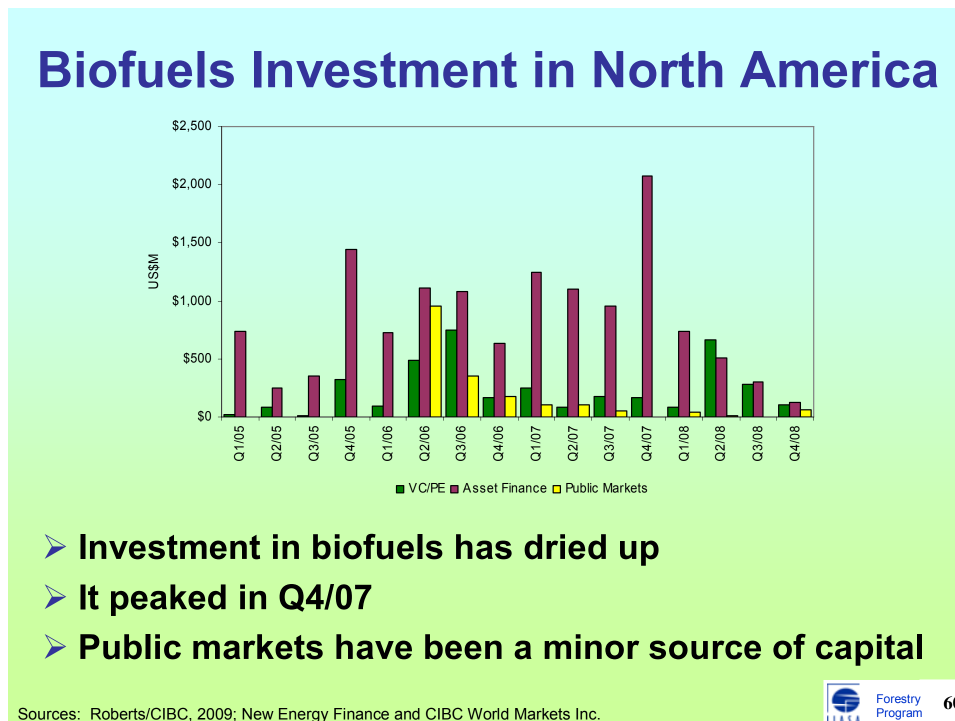


Figure 16: Biofuels Investment in North America.

The above conditions *increased demand on wood* costs in most of the world and the process of *convergence of wood prices started* between *different wood producing regions in the world* (see the grey bars in Figure17).

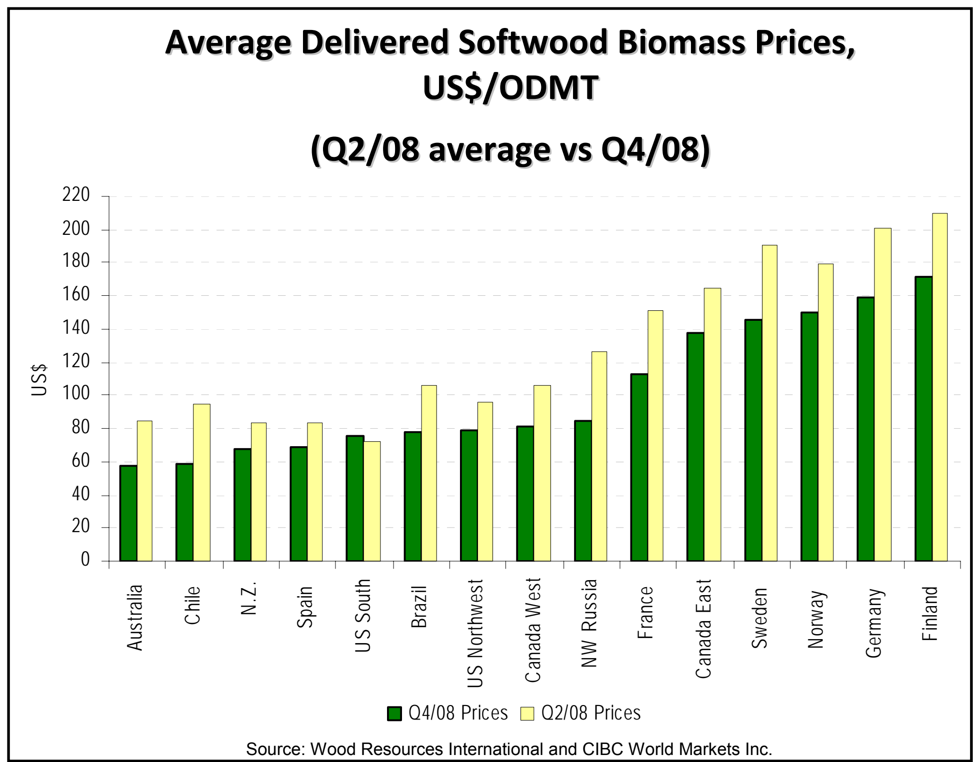


Figure 17: Average Delivered Softwood Biomass Prices, US$/ODMT.

The *freight rates increased* by about *10 times* during the period 2002–2008 (see Figure 18).

Figure 18: Cost of transporting dry goods.

The *currencies appreciated* strongly in emerging economies during this period. Using Brazil as an example the Real/US$ relation went from 3.08 on average in 2003 to 1.59 in September 2008 meaning nearly a *doubling of the Real value* during this period. This has major implications for the export if traded in US dollars and euros.

The factors discussed by Claudio-da-Silva (2007) as threats to the southern forest industry *were all in place in 2007/early 2008*. This is summarized in Figure 19.

**Threats to the Southern Forest Industry**

| | 2007/08 |
|---|---|
| **Climate Change** | **Yes** |
| **Land Availability/Land Costs** | **Yes** |
| **Water Scarcity** | **Yes** |
| **Social Pressures on Monocultures** | **Yes** |
| **Energy Availability/Costs** | **Yes** |
| **Currency Appreciation** | **Yes** |
| **Long Distance Transportation Costs** | **Yes** |
| **Fast Changes in Consumer Demands** | **Yes+** |
| **Product Substitution** | **Yes** |
| **Production Costs** (inflation, wood, energy, water, logistics) | **Yes** |
| **Capital Availability and Capital Costs** | **Yes** |

Source: Modified from Claudio-da-Silva, Jr., 2007

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Figure 19: Threats to the Southern Forest Industry.

*Between 2000 and 2008 there was a declining spread in total production/delivery costs of forest industrial products across regions. Other factors increased in relative importance when assessing location of investments in the forest industry. This development fully follows theories on the impacts of globalization.* Thus, there was a life and opportunity for the forest sector also outside the emerging economies.

With the economic crisis in 2008 the picture above flipped completely. Threats from *climate change* and *water scarcity* are still valid. But *land availability and land costs* have changed dramatically and CIBC (2008b) warns of a roller-coaster ride with sharp declines in coming years in land prices. The *social pressure* on monoculture plantations has more or less disappeared. People have other concerns in times of economic crisis. The *demand on energy and oil* has dropped substantially and there is no longer a perception of *oil scarcity*. Instead we experience strongly *declining oil prices*. The bioenergy demands for heat and electricity production are still substantial but with *declined prices in most places*. The *biofuel market* has more or less *collapsed*. The *biofuels* are now substantially *more expensive than fossil fuels*. Biofuel producers are going bankrupt. It appears that there is sufficient political will to push through minimum renewable energy standards and that will be the primary driver of demand for bioenergy over the next 3–4 years. The *food demand* has declined and with that

competition on land, although food prices have remained high. All of this has resulted in a *disappeared wood scarcity* situation. The earlier currency appreciation in emerging economies has now turned into substantial *currency depreciation* and the currencies are back at value levels from 3–4 years ago. The long-distance *transportation costs* have also collapsed. They are now back to levels from the 1980s. There have been dramatic changes in *consumer demands* on forest products. For example, Roberts (2009a) reports substantial decline in different paper grades between November 2007 and November 2008. The decline ranges from 15–35% depending on grades. CEPFINE reports that in January 2009 fine paper production in Europe fell by 26.5% and export to outside Europe by 56%. Between 2000 and 2008 the *emerging markets* had a *yearly growth rate* in consumption of forest products of some 4%. As stated earlier, during this time period, the total *production costs* had increased substantially in the emerging economies but have now dropped again due to currency change, reduced inflation, lower wood, energy, logistic costs, etc. The emerging economies were dependent on outside capital for their investments in most cases. Earlier there was no lack of capital. Today there is *no capital available* for investment. Thus, there is now a completely different situation with respect to the Claudia-da-Silva factors (see Figure 20) and now the *bust is perfect.*

**Threats to the Southern Forest Industry**

| | 2007/08 | 2009 |
|---|---|---|
| Climate Change | Yes | Yes |
| Land Availability/Land Costs | Yes | No |
| Water Scarcity | Yes | Yes |
| Social Pressures on Monocultures | Yes | No |
| Energy Availability/Costs | Yes | No |
| Currency Appreciation | Yes | No |
| Long Distance Transportation Costs | Yes | No |
| Fast Changes in Consumer Demands | Yes+ | Yes- |
| Product Substitution | Yes | Yes |
| Production Costs (inflation, wood, energy, water, logistics) | Yes | No |
| Capital Availability and Capital Costs | Yes | No |

Source: Modified from Claudio-da-Silva, Jr., 2007

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Figure 20. Threats to the Southern Forest Industry

Today it is impossible to say how the market will develop after recovery from the crisis. Will there be a *rapid boom following the bust*? A lot will depend on how severe the *destruction of the market/demand* will be as a result of the crisis. There are assessments indicating that there will be hangover effects of current low oil prices in the form of *exploding energy* prices after the economic recovery. There are analysis indicating similar developments for *food prices.* All of this speaks of a *high inflation race* after the recovery.

The only thing which can be stated with *certainty* is that one day we will recover from the crisis. Thus, it seems plausible *not to* count on a *rapid boom* after the crisis is overcome and the world will *not be the same as before the crisis*.

Beyond the crisis we will see a different forest sector compared to that before the crisis.

1. The industrial *sector will be slimmed down and restructured* due to closed down capacities during the crisis.
2. As a result it will be difficult for the forest sector *to borrow investment capital* and the *capital will be more expensive*. This will *slow down* the *rate of investments* in the sector especially greenfield investments.
3. We will probably witness a *destruction of certain forest product markets* as a result of the crisis. "The World economy cannot go back where it was before the crisis, because that was demonstrated to be unsustainable (Wolf, 2009)."
4. The crisis will be the catalyst for *sweeping changes* in the *financial sector* which will also affect the forest sector. These changes will extend further to greater regulation in general with an emphasis on *corporate governance*. It means more scrutiny, oversight and bureaucracy. Governments will play a bigger role than they have in recent years. In doing so, the problem of quality in human capital employed in the public sector around the world will be further stressed.
5. The *maturing debt* in the forest industry will be a crucial parameter for change in the industry for the next few years. With courtesy to Don Roberts, CIBC, I have analyzed data on the maturing debt in the global forest industry for the coming years. From this dataset it can be seen that nearly all big forest industry companies have maturing debts in the range of $4–8 billion. It can be concluded that AbitibiBowater, Canada, is in the worst shape of all and has in fact by now filed for bankruptcy protection. StoraEnso is the big European company most vulnerable. Hansoi of Korea belongs to the same category. Some of the larger players in China such as Nine Dragons, Lee & Mann and Chenming are under considerable financial stress. Many midsize and small Chinese companies will go under. Some Indian companies are facing the same problems as in China. In South America the majors look better than expected (with the exception of Aracruz). Some of the major players in Mexico such as Durango and KC Mexico are under stress.
6. As discussed earlier the *exchange rates* will play a crucial role with respect to the future structure of the forest industry, especially the *value of the US dollar*. It is reasonable to expect, taking the US economic conditions into account that the US dollar will continue on a *longer-term slide in value*.
7. Linked to the exchange rates is the *development of inflation rates.* There are many signs indicating we can expect high to super inflation at the recovery of the crisis. This inflation will be most expressed in high-debt deficit countries, high degree of foreign debts and raw-material based economies. The inflation rates will drive the restructuring of the forest industry.
8. The earlier discussed financial *stimuli programs* include a substantial amount of so-called "green packages." The G7 countries have allocated some $80 billion to these packages although only a fraction is devoted to bioenergy. However, the allocations push the research front which probably results in a full range of new *bio-based*

*products including bioenergy*. As further discussed in the next section, the most interesting developments will be in the area of *bio-chemical* and *bio-material areas.*

9. Prices of yesterday were perhaps artificially high, swelled by excessive leverage (Sender, 2009), and we may see lower prices in the future that will be difficult for the forest industry.
10. Earlier in the text I stressed that the forest industry has two crises in one. It means it is *not enough* to *recover from the economic crisis.* The basic crisis in the sector also has to be solved. Analysts remain skeptical on the *ability of the sector to return to strong growth even when the recovery comes* (Pulp and Paper Net Letter, 2009). More change is needed.
11. In a downturn situation of this magnitude it is important to *restructure boldly* and *sooner rather than later* (Strebel, 2008). The recession will change the *fundamental economics* of the industry. The old "*rules of money*" will not work any longer. It means finding *a new game*, which will make real changes to "*what*", "*who*", and "*how*" (Strebel, 2008).

## 23 Overall Change Must Happen

The present crisis in the forest sector is not only caused by the current economic crisis (although it has helped to make the crisis in the forest sector more acute) as discussed earlier – two crises in one. The real causes go further back in time. I think Tom Lindström (2008) has described the situation in an appropriate way. He brings up an old concept launched once upon a time by Prof. Börje Sternberg, Sweden, namely the Joint Product Industry concept. In this concept Lindström (2008) compares the forest industry with the pig farm/slaughter house. Both industries use the "filets" from the tree respectively the pig. The forest industry uses the "filets" of *sawlogs* and *pulplogs.* The pig farm uses the loin chops, ribs, etc. The problem with the forest industry going back in time is that, bluntly expressed, the forest industry has used the "filets" to produce the *same principle products.* For several years it has now been demonstrated that these *"filets" are not "filets" any longer* – the industry has, as presented earlier, unsatisfactory profitability. The industry has not invested enough in analyzing how to better use the "filets" and all the possible byproducts possible from a tree. This long-term neglect has shown up in the economic results for the forest industry. Also the pig farm is not making enough money from just the "filets" but I will return to this somewhat later.

I think there is awareness in the forest industry that the standard use of the "filets" (sawlogs and pulplogs) is *no longer sufficient* from an economic point of view. *Something more is needed* in the future. But *nobody has a clear idea* of what this "more" constitutes.

The pig farm can not economically survive on merely "filets". But in comparison to the forest industry the pig industry has developed an extensive use of the pig byproducts. The pig is nearly 100% used for value added products. In addition to meat the byproducts are used to produce some 500 value-added commercial products. Examples are water filters, insulation, rubber, chalk, antifreeze, plastics, floor waxes, crayons, fertilizers, enzymes, toothpaste, crafting supplies, phosphorus, gelatin, sweets, chewing

gum, biscuits, cornflakes, canned foods, food additives, medications, cosmetics, insulin for diabetes, valves for human heart surgery, human skin operations, suede for shoes and clothing, buttons, glass, brushes, glue footballs, biofuels to mention some. These are products used by many people hence the market is enormous. This type of *value added product development has not happened in the forest sector.*

However, it should be pointed out that there is a big difference between the pig farm and the forest industry within Joint Product Industry concept. The pig industry is substantially more subsidized than the wood industry. There are subsidies for pig feed, breeding, slaughter, packaging of meat, and export and land stewardship all over the world. OECD (2002) and RIRDC (2003) estimate that there are subsidies corresponding to 16–40% the value of the pig prices at the farm gate. They also estimate that Western Europe, Japan and Korea supported pig farmers in 2001 with $3.7 billion. Thus, if we *take the lipstick off the pig it's a different swine.*

In the debate on "What more is needed in the forest sector" a couple of issues are returning. *Ecosystem services* and *ecotourism* from the forests is one option repeated in the debate. It can only be concluded that this will *not save* forestry or the forest sector. The market is too limited and the prices needed are not there. The other option heard frequently, especially in connection to climate change and energy security, is *bioenergy.* Bioenergy is important and makes a contribution. It can be concluded from work at IIASA (e.g. Rokityanskiy *et al*., 2007) that the magnitude of *biomass production for bioenergy production will take place in the southern hemisphere due to economic reasons.* In addition this development will probably be *taken care of by the energy industry* and *not by the forest industry*. The former has tremendously larger financial resources available. There is at present special interest in biofuel production from cellulose. But again the argument against this development is the same as before. It will mainly take place in the southern hemisphere and be developed by the energy sector. Thus, *bioenergy will make a contribution to the forest industry/sector but it will probably not be the economic savior of the forest industry.* Lindström (2008) is of a similar opinion. It can also be concluded that the forest industry was late to look into the bioenergy option. The industry worked rather against the bioenergy option for many years and in doing so lost position to the energy industry. The *biorefinery* approach is currently, with all rights, regarded as an opportunity for the forest industry. However, it will only work if the *refineries* are *producing many products* based on cellulose fibres (compare the pig byproducts above), *using existing industrial structure, creating synergy effects* and *utilization of the rest flows* (Lindström 2008). And we are not there yet.

What must happen? It is the right time in severe crisis times in the sector to really systematically analyze what detailed components are available in the fibres. The next step would be to take this mapping to try and identify which *possible materials* can be *produced* from these *components* and what new exciting *value added commercial products* can be produced within the current or restructured forest industry.

This work should probably have the majority of the people involved coming from disciplines like biotechnology, physics, material science, chemistry and nanotechnology. The industry and governments are challenged to take a bold step in creating huge programs investigating what *new and exciting value-added commercial products* can be produced from wood *within a restructured forest industry.*

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