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Mechanisms of Financial Crises in Growth and Collapse: Hammurabi, Schumpeter, Perez, and Minsky.

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Abstract. This paper provides a historical and theoretical overview of the mechanisms leading up to financial crises and financial bubbles. It suggests that the potentially explosive growth of the financial sector at the expense of the real economy fed by compound interest has – since before Ancient Mesopotamia under the rule of Hammurabi – represented a real threat for such crises. A more modern and additional factor that builds up crises is Joseph Schumpeter’s observation of the clustering of innovations. Carlota Perez has more recently developed Schumpeter’s vision into a theory of techno-economic paradigms which – about midway in their trajectory – produce the build-up to financial crises. The theories of Schumpeterian economist Hyman Minsky, describing the mechanisms producing the collapse of financial bubbles complete the overview. The paper ends with recommendations to bring the West out of the present crisis by –once again – putting the real economy rather than the financial economy in the driver’s seat of capitalism.

Keywords: Financial crises, innovations, Hammurabi, Joseph Schumpeter, John Maynard Keynes, Hyman Minsky, Carlota Perez.

Introduction

Financial crises occur when the relationship between the *real economy* (the total production of goods and services) and the *financial economy* (money in the widest sense) comes out of balance in such a way that the financial economy no longer primarily supports the real economy, but takes on an independent life of its own in such a way as to damage the real economy. Today’s economics (*neoclassical economics, standard textbook economics, mainstream economics*) accepts such an imbalance between the real economy and the monetary sphere when it comes to inflation (rising price levels) and deflation (decreasing price levels), but not when it comes to financial crises. This is in sharp contrast to other kinds of economics – the experienced-base type of economics I refer to as The Other Canon – which traditionally have understood and still understand crises, but which have been marginalized.

Financial crises represent imbalances which – in contrast to inflation and deflation – are not immediately visible in the consumer price index as rising or falling prices, but rather in the form of *asset inflation* and *debt deflation*, which in sum have very important impacts on income distribution. The assets in which massive incomes from the financial sector are invested, will experience an *asset inflation*. On the other hand, the falling levels of prices and wages that result from the crises, will result in *debt deflation*, a continually rising real quantity of outstanding debt.

The transfer of income and assets from the real economy to the financial economy is the most important long-run effect of a financial crisis. If these imbalances are not addressed by making big investments in the real economy, any recovery – in that case by definition weak – will be driven by demand from the financial sector, and the losses in the real economy may be permanent. This is now what is happening in the US and in Europe, where the EU's 'internal devaluations' in the Baltic in some places have reduced real wages by up to 50 per cent, while at the same time unemployment is alarmingly high.

If the financial imbalances in the EU periphery had been addressed by a traditional formula of debt cancellation and devaluation – which was successfully done in Argentina about ten years ago – this would have penalized the financial economy, but in the long run supported the wage level. In the case of the Baltic countries this would have meant letting the (mostly foreign) banks and the financial (real estate) side of the economy take the losses, while saving the production economy. Instead Europe made the decision to 'save' the financial economy in the short run, which is likely to permanently destroy the wage level. This is why Martin Wolf of the *Financial Times* is of the opinion that a possible recovery will be a 'yacht and mansion' recovery. This paper argues that the way the problems of the financial crisis is being solved – under the general heading of austerity – will lead to a permanent domination over the economy by the financial sector at the expense of the real economy, citing examples of this development in Latin America in the 1970s and in the former Soviet sphere in the 1990s.

Financial Crises were understood from left to right – but unlearned all along the political axis

The interesting thing is that once upon a time financial crises were a well known and well understood phenomenon along the whole political axis.¹ Karl Marx wrote about them (volume 3 of *Das Kapital*), and Lenin said that control of the financial economy represented the last stage of capitalism. In the theories of the Austrian social democrat Rudolf Hilferding²,

¹ An extensive bibliography and brief overview of previous theories of financial crises is found in Reinert, Erik S. & Arno Daastøl, 'Production Capitalism vs. Financial Capitalism - Symbiosis and Parasitism. An Evolutionary Perspective and Bibliography', *The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics*, No. 36, 2011 (original 1998). This paper is an edited version of the author's report to the Norwegian Parliamentary Commission on the Financial Crisis. The origins of this paper go back to the 1990s and is influenced by the scholarship and friendship of Jan Kregel and Carlot Perez.

² On Hilferding, see Smaldone, William, *Rudolf Hilferding. The Tragedy of a German Social Democrat*, DeKalb, Ill, Northern Illinois University Press, 1998.

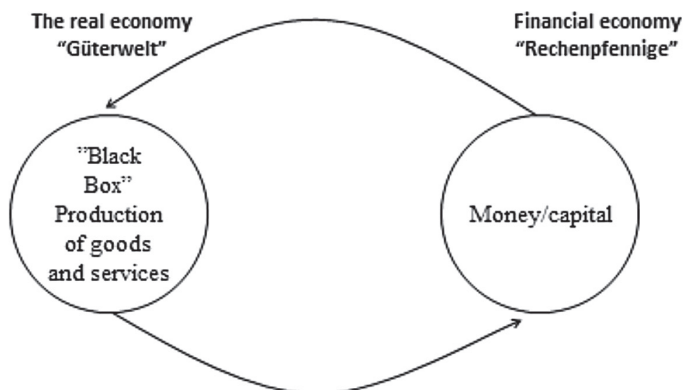
financial crises were once a social democratic strongpoint. Joseph Alois Schumpeter and John Maynard Keynes – possibly the most important theoreticians on financial crises – were politically conservative, and the most important Norwegian representative, Torkel Aschehoug, was head of the conservative party. Even though the present loss in the real economy in favor of the financial sector ought to be extremely important for any government, it is still barely visible on the political agenda. Today's economics – compared to in earlier times – has important blind spots as regards the role of the financial sector, and these blind spots also transfer to the perspective of politicians.

Earlier terminologies, which understood and described the mechanisms of crises, are now largely lacking. Lately some economists, particularly Americans, have 'rediscovered' some of the old theories, Irving Fisher's 'debt deflation' being one of them. However, as this paper argues, many more basic mechanisms and insights are up for rediscovery.

To understand financial crises a terminology distinguishing between the financial economy (what Schumpeter called 'die Rechenpfennige', the 'accounting units') and the real economy (the production of goods and services, Schumpeter's *Güterwelt*) is necessary (See Figure 1). The family tree of today's mainstream economics, originating in the late 1700s with Quesnay and the Physiocrats, and continuing with the English economics of David Ricardo (1817), does not have a monetary or financial sector and is therefore generally blind to financial crises, abstaining from studying the relationship between the financial sector and the real economy. In the alternative tradition, The Other Canon in my terminology, this difference has always been important. Starting with the Anti-Physiocrats, who tried to stop the free trade and resulting speculation leading up to the French Revolution, The Other Canon type of economics – where distinguishing between the financial economy and the real economy is a key feature – dominated after the 1848 revolutions. However, as this historical and fact-based economic theory virtually died out after World War II, with it the crisis theories also disappeared along the whole political axis. Under the assumption of perfect competition and in the absence of any conflicts between the financial sector and the real economy, neoclassical economics models the market economy as machinery where friction is absent: a machinery creating automatic harmony. The theories handed down from Ricardo do not contain the categories to make possible the understanding of crises.

Figure 1. The Real Economy and the Financial Economy as Different Spheres.

The Circular Flow of Economics



The Hammurabi Effect and 'Debt Deflation'

The simplest model for understanding the disproportion between the real economy and the financial economy originated in Mesopotamia³ under Hammurabi (2030-1995 BC). Claiming that the roots of civilization were found here is indeed more than an empty phrase.

Hammurabi's economists calculated that due to compound interest the financial economy would increase far more than the real economy would be able to absorb. After normal bookkeeping principles the assets of the financial economy would have their counterparts as debt in the real economy. Thus did English economist Richard Price (1769) express the force of compound interest:

'A shilling invested at 6% interest at the birth of Christ would ... have increased to an amount (gold) larger than could be contained in the whole solar system, if this is constructed as a sphere with the diameter of Saturn's bane around the sun'.

As someone must obviously have invested 1 shilling at the time of the birth of Christ, this means that any system permitting compound interest necessarily must break down at intervals. Hammurabi and his descendants

³ For an account of debt dating back to the Sumerian Kingdoms, see Graeber, David, *Debt. The First 5,000 Years*, New York, Melville House, 2011. I am grateful to Michael Hudson for having introduced me to the Hammurabi mechanisms in the early 1990s.

took the consequences of this, and irregularly cancelled all debt (except short run commercial debt) to avoid the death of the real economy due to ever increasing debt. In the Old Testament we still find references to this system. The years when debts were cancelled were called *Jubilee Years*.

Money and gold are then conceptually different from the goods and services that can be acquired with their help. History is filled with warnings against what has been called *chrysohedonism*, confusing money with what money can buy. The legend of King Midas, who was granted his wish that whatever he touched should be turned into gold – and then later discovered this to be a curse – is a brilliant example of the danger of confusing riches of money and gold with riches of ‘goods and services’. Without *Jubilee Years* the financial sector would end up as a King Midas, with loads of money and gold, but with a real economy extremely weakened – or dead – because of the debt burden. This is the track we are on now.

The Bible (Matthew 25, 14-30) tells us that the coins – the ‘talents’ – should not be buried, but invested. In the mid 1300s the early money theorist Nicolas Oresme complained about too much money ending in treasure chests instead of being productively invested. This is not why we created money, he writes. Around 1600 Francis Bacon writes that money is like manure, only useful when spread. Through the whole history of Civilization we find as a red thread that the ‘financial sector’ is only useful when invested in the real economy.

The Muslim prohibition against interest – *riba* – and the Christian prohibition against charging interest up until the 1600s must be seen in this perspective. Amassing fortunes without lifting a finger was seen as qualitatively very different from earning money by ‘honest work’, commerce and production. That Judaism – as opposed to Christianity and Islam – accepted lending against interest is a historically important point. At the same time Jews were not permitted to own land.

When Western Christianity in the early 1600s started collecting interest, this was with a view – as Francis Bacon’s – of the importance of innovation. Innovations required risk capital, and the acceptance of lending out capital against interest seems to have coincided with the discovery of the role of innovations.⁴ Capital became, in the words of Keynes, ‘a bridge in time’, something financed today may last for a very long time.

⁴ For a discussion on the changing view on innovations and the growth of Europe, see Reinert, Erik S. & Arno Daastøl, ‘Exploring the Genesis of Economic Innovations: The religious gestalt-switch and the **duty to invent** as preconditions for economic growth’, in *European Journal of Law and Economics*, Vol 4, No. 2/3, 1997, pp. 233-283, and in *Christian Wolff. Gesammelte Werke*, Illrd series, Vol. 45, Hildesheim, Georg Olms Verlag, 1998.

Here it is important to understand Schumpeter's theory of capital: if nothing new happens in the world (innovations) capital is theoretically without value. If we again look to the bookkeeping perspective – which is absolutely necessary to understand financial crises – all investments in a world without innovations could be covered by depreciation. The innovations give value to capital. Capital in itself is sterile (cf. King Midas/the buried talents).

Financial crises occur when the financial sector stops functioning as a bridge in time for the real economy, and starts earning money on itself in pyramid-scheme type constructions. We shall discuss this in the section on Hyman Minsky. In the inter-war period German discourse sharply distinguished between *schaffendes Kapital* (capital employed in the creation of goods and services) and *raffendes Kapital* (capital that only accumulates more capital without creating anything). Today American economist Bill Lazonick differentiates between wealth creation and wealth extraction. In his *Treatise on Money* (1931) Keynes sees depression approaching when money goes from being in industrial circulation to being in financial circulation. Some years later, in 1936, another conservative Englishman, later prime minister, Harold Macmillan, complained that his own party was dominated by casino capitalism.

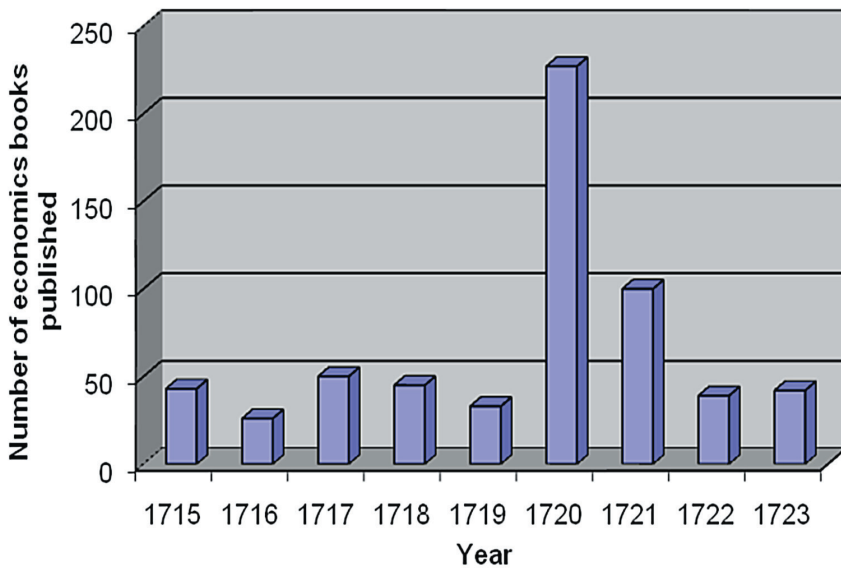
Even if Lenin, as above mentioned, concluded that financial capital taking command over the system would mark the final stage of capitalism (it would presumably collapse for lack of demand, as we presently witness in Greece), skepticism towards the financial sector – the whole banking system – has been great also among conservatives. Thomas Jefferson, the most conservative of the US founding fathers, was also the one most critical towards banking and finance. To be conservative (rightist) for Torkel Aschehoug meant that he wanted to protect the real economy from devastating speculations; to be a neo-liberalist (rightist) now means to believe that the market cannot be wrong. For conservative think-tanks to act as claque for the financial sector is a completely new phenomenon. Neoclassical economics and neo-liberalism have replaced the conservative voices that traditionally have acted as a bulwark against the excesses of the financial and speculation economies. This will most likely make the present crisis both deeper and longer lasting.

Conclusion: History has shown that to have a system permitting compound interest makes financial crises a certainty. Historian Reinholdt Mueller at the University of Venice describes how the Venetian State in the 1200s had to step in and save the whole financial system only few years after the first financial center had been established. Capitalism had to be saved by the state right at the start! Since then financial crises have

been frequent in capitalism, and – as illustrated in Fig. 2 – are easy to find by checking the quantity of books published about economics and when. The first international financial crisis in 1720 - which simultaneously hit the large financial centers Paris, London, and Amsterdam – shows the same pattern as today’s crisis.

The book *This time is different. Eight Centuries of Financial Folly* by Carmen Reinhart and Kenneth Rogoff⁵ gives us an historical perspective on financial crises. However, the book contains more data than it contains theory and analysis.

Figure 2. Number of Economics Books Published (1715-1723).



Source: Own calculations from the holdings of Kress Library, Harvard University.

A symbol-filled illustration from one of the many books published in 1720 – Fig. 3 – shows a typical trait of a financial crisis: a stock exchange project artificially kept up by speculators. These are named ‘wind merchants’ because they buy and sell merchandise which can only be bought and sold in a fantasy world, not in the real economy.

⁵ Princeton, Princeton University Press, 2009. The fact that neither Schumpeter, Keynes, Minsky or Veblen figure in the name index of this 463 page book is remarkable, and certifies to the tendency of present economics to ‘reinvent wheels’ and not learn from the theories (as opposed to the facts) that grew out of similar experiences in the past.

Figure 3. Speculative Stock Exchange Projects That Cannot Keep in the Air Without Artificial Help.



Source: *Het groote tafereel der dwaasheid* ('The Great Mirror of Folly'), Amsterdam 1720.

Hyman Minsky

In contrast to Hammurabi's model with two sectors, the real economy and the financial sector, the American Schumpeterian economist Hyman Minsky (1919-1996) had other sectors: households and non-financial activities + financial intermediaries and government. Recently US economists have contributed a more precise definition of what we can call the enlarged financial sector: Finance, Insurance, and Real Estate: the FIRE sector.

Hyman Minsky built his theories on earlier insights from Thorstein Veblen, John Maynard Keynes and Joseph Schumpeter. A *leitmotif* in his carrier was that 'it' (i.e. another financial crisis like the one in the 1930s) 'can happen again'. Minsky's two important books were *John Maynard Keynes* (1975) and *Stabilizing an Unstable Economy* (1986). Both were, because of the financial crisis, republished in 2008.⁶

Like Schumpeter, Minsky says that innovations in the financial sector differ from innovations in the rest of the economy, and that economies that have financial innovations (which are both useful and necessary) will necessarily have crises because, a) financial innovations make debts grow faster than the ability to repay these debts (cf. Hammurabi). In other words the capacity of the financial sector to generate funds through new innovations exceeds the ability of the real economy to absorb these funds in a profitable way, and b) such crises move income and wealth to a class of *rentiers* whose tendency to spend is lower than in the real economy (cf. Martin Wolf's yacht and mansion recovery). This way the demand that is needed to help the countries out of the crisis is not created. A typical example is the US today. Real wages are roughly at the level they were in the mid 1970s, which means that most fruits of economic growth since then has gone to the FIRE sector. Any stimulation packages will not work well unless the balance between the FIRE sector and the real economy is adjusted.

One of Minsky's important contributions was the understanding of the 'destabilizing stability', a point we see clearly already in Torkel Aschehoug's writings: As the good times seem to go on, the banks will take increasingly greater risks. Finally they will finance projects so speculative that they will not even be able to serve the interest on the debt. Minsky called such loans Ponzi schemes, and the subprime crisis matched this description perfectly. Loans were granted to home owners who could not

⁶ For an overview of Minsky, see Papadimitriou, Dimitri & L. Randall Wray, *The Elgar Companion to Hyman Minsky*, Cheltenham, Elgar, 2010.

even pay the interest on the loans. This creates a bubble in the economy – an imbalance between the financial economy and the real economy – which is bound to burst. Understanding Minsky’s model it was fairly clear that the Terra scandal – a scandal virtually bankrupting several Norwegian municipalities – might be the start of a serious financial crisis (e.g. my article in newspaper *Dagbladet*, November 26, 2007).

As Minsky wrote in 1964: ‘At present real estate assets seem to be a more important source of financial distress than stock exchange assets... real estate assets are collateral for an extensive amount of debt, both of households and of business firms, owned by financial institutions... If the price of real estate should fall very sharply, not only will the net worth of households and business firms be affected, but also defaults, repossessions, and losses by financial intermediaries would occur.’

This 1964 paragraph is still an adequate description of what happened during the last financial crisis. It is important to note that in this perspective financial crises are no ‘black swan’ – something happening surprisingly and very seldom. Such crises are endogenous to the technological selection mechanisms of the capitalist system, forming an integral part of the relationship between the innovation cycles in the real economy and the innovations in the financial sector.

Minsky’s idea was that anyone can create money, the only problem is to get that money accepted. Minsky imagined a hierarchy – a pyramid – of different kinds of money, organized by solidity and confidence. Before the last financial crisis there were financial innovations that – probably literally – no one understood, like mortgage-based securities (MBS), collateralized debt obligations (CDO), and credit default swaps (CDS). These financial innovations, securitization, created a systemic risk, they created a debt that was larger than the system’s capacity for paying back the debt. When the confidence in the less secure financial instruments collapses during crises, people tend to seek the more secure ones, cash, and finally gold (which Keynes called ‘a barbaric relic’).

My Chilean colleague Gabriel Palma (University of Cambridge) has quantified the increasing imbalance between the real economy and the financial economy in a paper.⁷ Figure 2 of this paper shows the increase in the balance between financial assets and GDP in the period 2002 to 2007, before the financial crisis. Here Schumpeter’s and Minsky’s point is clearly illustrated: financial assets increased heavily compared to the

⁷ ‘The Revenge of the Market on the Rentiers. Why neo-liberal reports of the end of history turned out to be premature’, *Cambridge Journal of Economics* 33(4), July 2009, pp. 829-869.

size of GDP. In a country like Spain financial assets as a percentage of GDP increased from a little over 300% to more than 550% from 2002 to 2007.

Palma's Figure 3 shows growth in GDP and growth in the debts of households and non-financial business firms in the US from 1950 to 2007. He shows that debt growth and economic growth more or less kept pace until 1982, debt grew with 3.8% annually while GDP grew with 3.4%. In the period 1982 to 1987 debt grew with 4.7% annually, while GDP still had a growth of 3.4%. In the period 1988 to 2007 debt grew with 0.5% annually, while GDP only had a growth of 2.8%. This could not possibly go on for long.

The moment when the market realizes that the financial economy is a non-sustainable pyramid game is now often called 'The Minsky Moment'. Another name is 'The Wile E. Coyote Moment' after the cartoon figure who has rushed over the edge of an American canyon and – in the moment he starts falling – realizes what has happened.

Carlota Perez: Financial Crises and Technological Change

In his three-volume *Social-Oeconomik* (1905-1908) Norwegian economist Torkel Aschehoug points out that financial crises have their origins in technological changes. Venezuelan scholar Carlota Perez has developed this reasoning in a way which in my view is convincing, in her 2003 book *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*⁸. As Perez herself points out in the introduction, The Other Canon conference in Oslo in 1998, referred to in footnote 1, was important for the development of the theory. Her theories build on the works of Russian economist Nicolay Kontratief (1892-1938) and Joseph Schumpeter (1883-1950).⁹

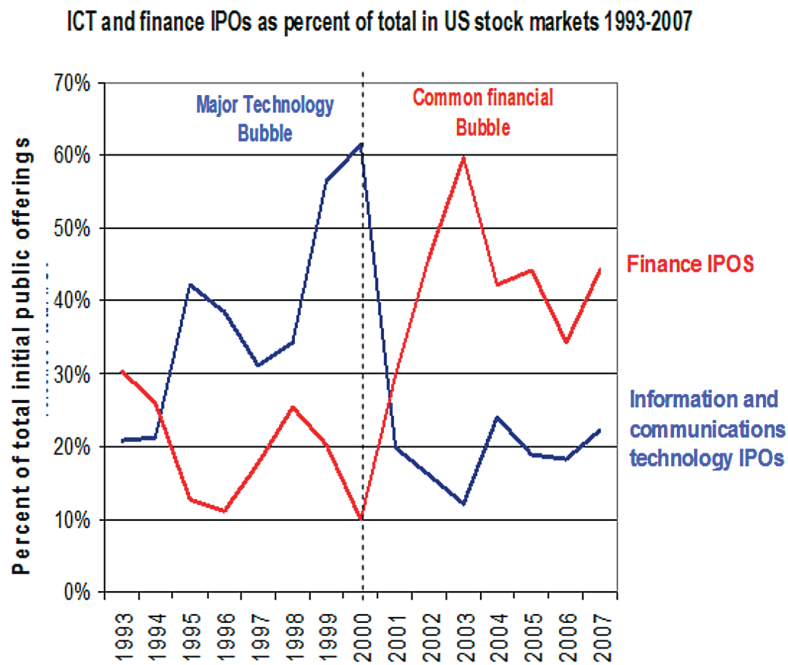
A main point in her theory is that technological revolutions create new firms with high stock exchange value. Through several hundred years such technological revolutions have created financial bubbles, the canal bubble, the railroad bubble etc. Lastly the IT bubble which burst in 2000. Such bubbles that are a result of a new and revolutionary technology are useful, they seem to be a necessary part of the dynamics of capitalism, and serve to upgrade the whole production system of the real economy. But what we saw after the burst of the IT bubble was bubbles that did

⁸ Cheltenham, Elgar, 2003.

⁹ In particular his *Business Cycles*, 2 volumes, New York, Mc-Graw Hill, 1939.

nothing for the real economy, on the contrary they weakened it. Figure 4 shows that before the IT bubble burst 60% of new companies on the US stock exchanges were (IPO = Initial Public Offering) technological companies (ICT = Information and Communication Technology), while only 10% were companies from the financial sector. In 2003 the roles were changed: 60% of all new companies on the stock exchange were financial ones, while only 10% were from the IT field.

Figure 4. Technology Bubble ('Useful Bubble') vs. Finance Bubble ('Useless Bubble').



Source: Carlota Perez.

To Perez the rational increase in stock prices of companies with new and revolutionary technologies will spread irrationally also to hopeless projects and to pyramid schemes in the financial sector (see figures 3 and 5). In times when capitalism functions well the financial sector and the real economy live in a kind of symbiosis - they support each other - while in times of crisis the financial sector becomes a parasite weakening the real economy. What was rational (investing in new technology) gradually becomes irrational (investing in pyramid games).

An early contribution to this literature was the book 'Extraordinary Popular Delusions and the Madness of Crowds' by Charles Mackay, published in 1841. The former head of the Federal Reserve, Alan Greenspan,

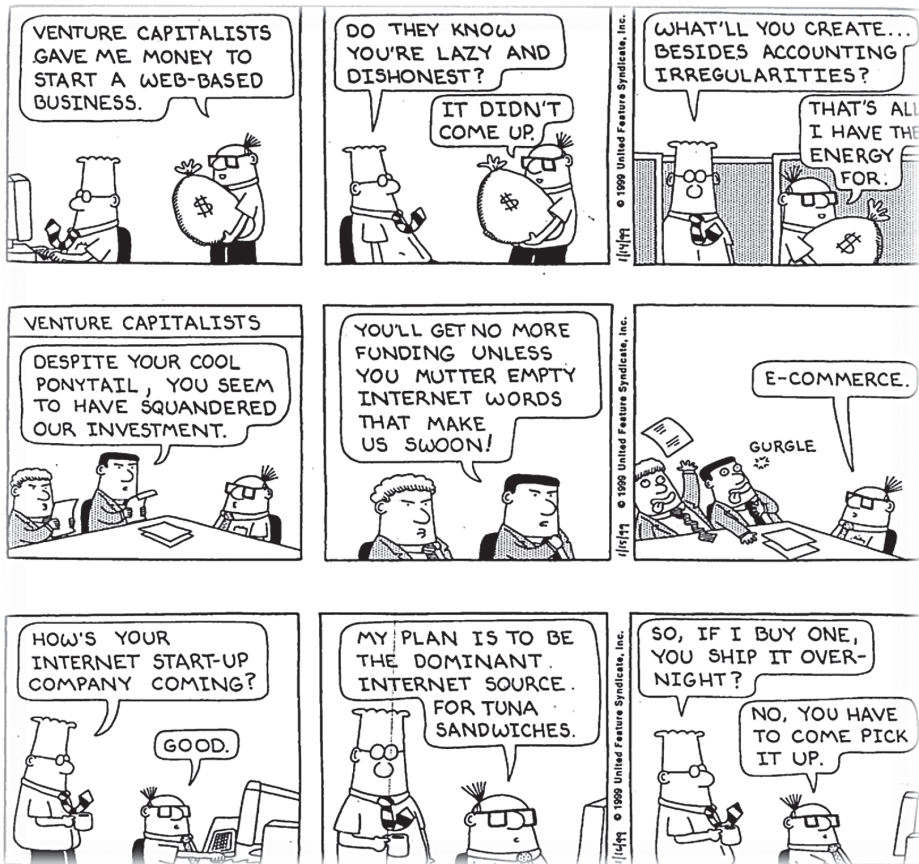
described this phenomenon as 'irrational exuberance'. Fig. 5 shows how a cartoon author (Dilbert 1999) understood the irrationality of the stock exchange bubble a year before the burst of the bubble. Note the similarity of this to the idea behind the drawing in Figure 3.

Defending capitalism as by definition being 'rational' has been a serious hindrance for the economics profession's understanding of financial crises. The present Chairman of the Federal Reserve, Ben Bernanke, wrote a book about the 1929 crisis and the Great Depression. There he mentions Hyman Minsky once, but just in order to dismiss him because Minsky 'had to depart from the theory of rational economic behavior'¹⁰. To be a 'mainstream' economist the last 30-40 years has meant not to accept mechanisms that doubtlessly are very important in a financial crisis because they were in conflict with the fundamental assumptions of standard economic theory. In this way even the people with the main responsibility for handling the crisis have been isolated from the most relevant theory of crisis.

It is quite clear that for a single individual earning money in the financial sector without at the same time creating real economy values, the speculative build-up towards a financial crisis is rational. The important thing is to be close enough to the door to get out before the rest when 'the Minsky Moment' strikes. That this should be rational from the viewpoint of society is something completely different. Here the markets fail, and regulations are needed. During Clinton's presidency, and with Ayn Rand pupil Alan Greenspan at the Head the Federal Reserve, the very wise and well-built institutional defenses against financial crises that had been erected after the crisis of 1929 (Glass-Steagall Act) were removed. A main argument for dismantling the defenses was that there were no crises, so the defenses were not needed. The obvious fact is that the regulations that were removed were indeed the very reasons that there had been no crises!

¹⁰ Bernanke, Ben S. (editor), *Essays on the The Great Depression*. Princeton, Princeton University Press, 2000, page 43.

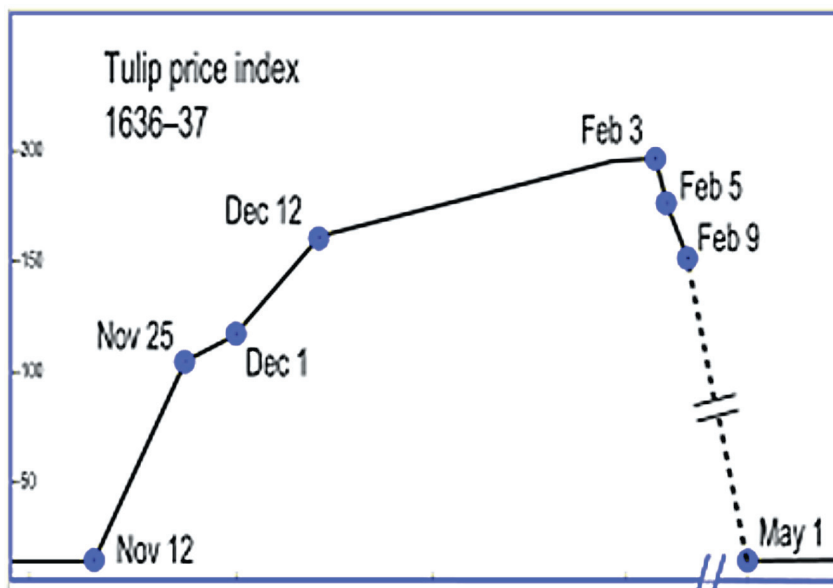
Figure 5. Finance Capital Goes Berserk During a Techno-Economic Paradigm Shift.



Source: Dilbert cartoons, 1999 (the year before the stock market collapse).

The tulip bubble in Holland in 1636-37 was also such a bubble, where the tulip bulbs from far countries – this was indeed an innovation – played the role of ‘new technology’ (see Figure 6).

Figure 6. The Anatomy of a Bubble. The Tulip Bubble in 1636-37.



Save the Financial Economy or Save the Real Economy?

Joseph Schumpeter was of the opinion that governments should not intervene in a financial crisis, as such a salvage operation would strengthen the very forces which had created the crisis in the first place. The crisis should burn out by itself. Today we see the wisdom of that. But the crisis became so serious that governments had to do something, as Keynes suggested. But we see that Schumpeter's intuition on one level was correct: it is hard to do this without encouraging new speculative bubbles. The huge financial packages that were made to save the real economy by saving the banks, in effect in many countries fail to reach the real economy. At the moment (2012) both banks and large corporations are left with huge cash balances, while lacking demand and consequently lagging investments are preventing a healthy recovery.

Financial crises both create and are results of imbalances. During the Bretton Woods-discussions Keynes suggested a 'tax on imbalances'. As the world's imports must equal its exports, Keynes suggested an international tax on export surpluses over a certain amount. This would avoid international imbalances and prevent some nations from savings glut while others built up enormous debts. It would also serve as an incentive for nations not to keep their exchange rates artificially low, as China has been doing. The suggestion was blocked, mainly by the US, but if Keynes

had had his will, the United States would today have been saved from their own irresponsibility, saved from building up such enormous debts to the rest of the world as they have done.

Classical crisis theories operate with the terms 'overproduction' and 'underconsumption'. An important part of today's financial crisis is the Global Savings Glut (GSG). 'Real' saving may be said to occur when it is matched by a dis-saving in form of investment or consumption as a book-keeping counterpart in. In the absence of investment or consumption, without a dis-saving, saving becomes unproductive hoarding. The Quantitative Easing – the creation of huge amounts of money – on both sides of the Atlantic, matched with austerity policies simultaneously reducing demand, are creating the conditions that the Bible (idle 'Talents'), the Midas legend, Oresme, and Lenin all warned against. These all represent a wisdom which cannot seemingly be captured by today's mainstream economics, unable as it apparently is to conceive of the financial economy being something other than the mirror image of the real economy.

The lack of balance between the financial economy and the real economy can only be solved by one part – or both – being adjusted. One can choose to protect the inflated financial sector, or protect the real economy. Often, as during the Asia crisis, production units are left to go broke to save the banks. The Argentine crisis at the end of the 1990s ended up reducing real wages by more than 40%.

EU's handling of the crisis shows us the choices. The deficits in the PIIG countries (Portugal, Italia, Ireland, and Greece) would traditionally have been solved by the countries devaluating, so the local production systems would restore their competitiveness. At the same time the debt, traditionally often in local currency, would be reduced, leading to a loss for foreign creditors.

The alternative to this is what is called internal devaluation. This means that wages are pressed downwards, without touching the exchange rate, while at the same time even larger loans are taken up, to service the debt. This will let the real economy take the whole loss, while downward spirals of lessened buying power and lessened national production start.

The Estonian example shows that these are mechanisms that can be started also without the country in question being in debt. The country has had an internal devaluation reducing wages with more than 20%. Wages have fallen for 9 quarters in a row, and unemployment is high. What gives food for thought is that such internal devaluations now seem to be the model also for the larger countries in the EC periphery. It seems

likely that the downward adjustment of people's buying power – the buying power of whole nations – may be permanent.

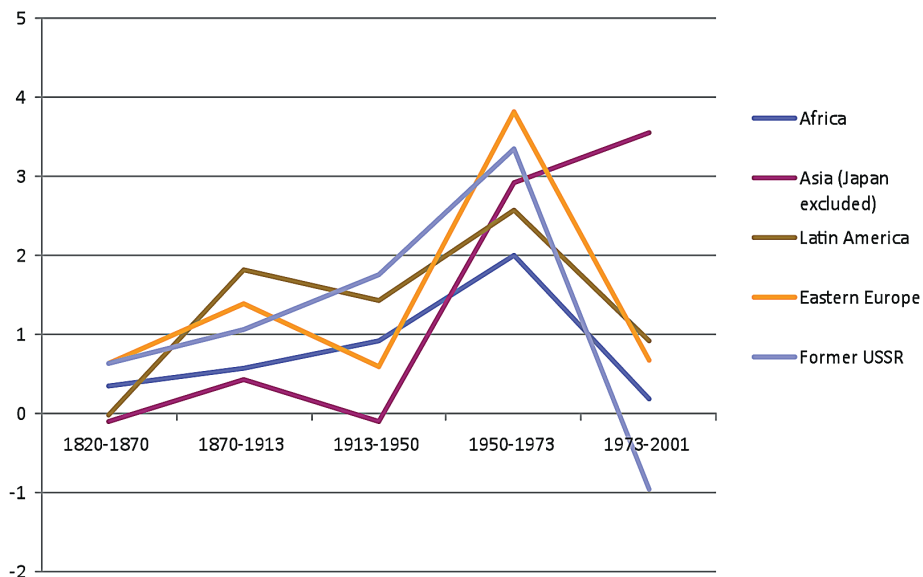
Traditionally it has been possible to differentiate between two models for economic adjustments, the European model and the American one. The European model had adjusted exchange rates. In the US the whole country of course has the same currency. When one of the states has an economic crisis, like Michigan with its car industry, the adjustment mechanism is that people move to other states. By not giving up the Euro to let countries in crisis devaluate, Europe has in effect chosen the American model. Greeks will have to move to Germany, even though neither Greeks nor Germans see this as an optimal solution. Europe is probably not prepared for the demographic movements which will be the result of the ongoing crisis.

The Growth of the FIRE Sector Displaces the Real Economy

We have earlier referred to Gabriel Palma's article, which shows the disproportionate growth in the financial economy over the real economy. This is a phenomenon that started already in the 1970s in the economic periphery of the world. The period from 1950 to 1973 registered the highest economic growth ever in the world, but after 1973 there was a change in political economic ideology that (consciously) led to a market and free trade shock which again led to the FIRE sector taking over a larger part of the total value of GDP at the expense of wages and the income of the self-employed. Figure 7 shows the changes in GDP growth rates in certain countries in the Second (ex communist) World and the Third World.

Asia in general, but particularly China and India, avoided this development because of what can be called ideological inertia. While shock therapy and free market logic became the fashion in the rest of the world, China and India stuck to the same conscious industrial strategy they had had since the end of the 1940s. The markets opened, but slowly.

Figure 7. Economic Growth Falls Drastically, Except in Asia.



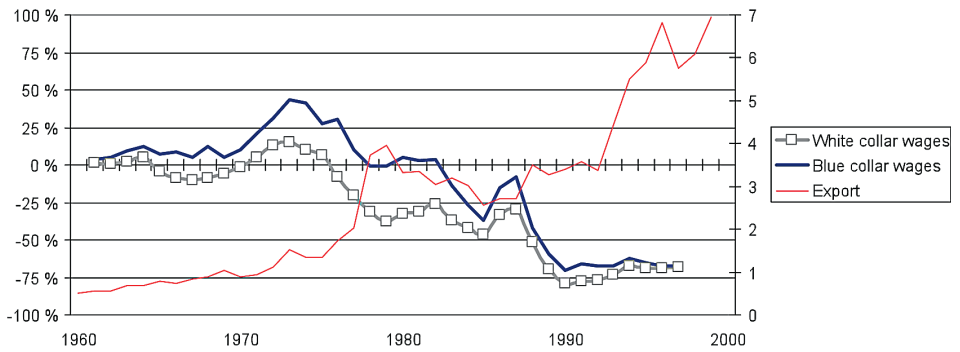
Source: Rainer Kattel, Tallinn University of Technology

The FIRE Sector Takes Over: The Third World

From the mid 1970s Latin America and Africa were the victims of a so called structural adjustment policy. In several of these countries real wages were more than halved in a very short time. We shall take Peru as an example. The structural changes led to a rapid fall in wages, as a very quick opening up for free trade killed the industry and weakened the unions.

Real wages were more than halved, but on the other hand exports increased rapidly (see Figure 8).

Figure 8. Peru: Deindustrialization, Falling Wages and Increasing Raw Materials Exports.

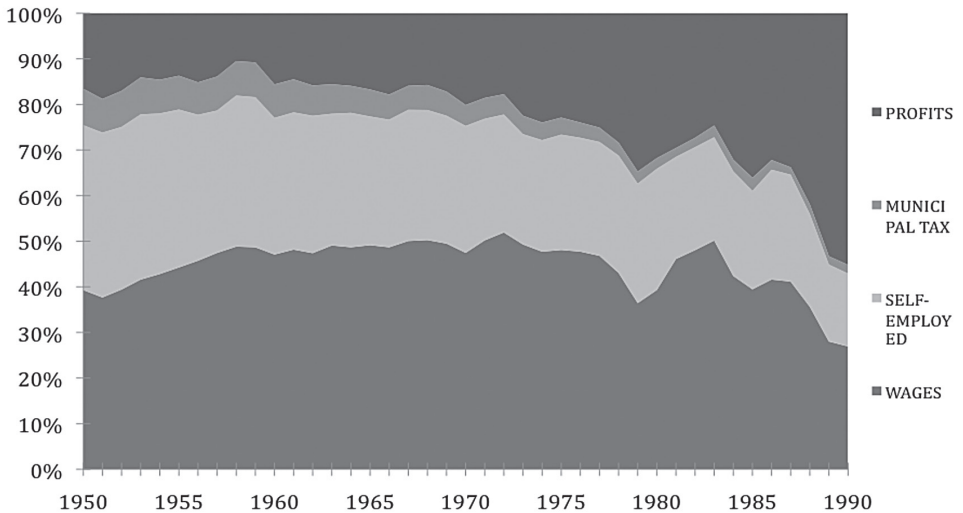


Source: Reinert 2007, p. 162.¹¹

The interesting thing here is that just looking at GDP, things do not seem too bad in Peru. But looking at the composition of this GDP, it has changed very much: the FIRE sector has taken over an ever larger percentage of GDP.

Figure 9. Composition of GDP in Peru: The FIRE Sector Takes Over.

Peru 1950-1990, Composition of GDP



Source: Banco Central de Reserva del Perú. These data have not been published after 1990.

¹¹ Reinert, Erik S., *How Rich Countries got Rich...and why Poor Countries stay Poor*, London, Constable, 2007.

The data from Peru's central bank show that in 1972 wages represented 51.2% of GDP, and the income of self-employed 26.5%, total 77.7%. Figure 9 shows how this percentage fell with deindustrialization. In 1990, the last year Peru's central bank produced these statistics, the wage part of GDP was almost halved, while the part of the self-employed had fallen to 15.9%. In total wages and income of the self-employed had fallen by 45% from 77.7% of GDP to 42.4%.

I spent much time in Peru in those years when wages were halved, and saw poverty increase dramatically. My wife commented that the same children outside the Lima supermarket, who had usually begged for sweets, now begged for canned milk and other food. To me it has always remained a mystery that this development was not regarded as interesting, and why such a dramatic theme has not shown up on an academic or a political agenda.

With Europe's internal devaluations these same dramatic mechanisms have started in Europe. We get a permanent fall in wages and self-employed income as part of GDP and in absolute numbers. In the short run this can look good for industry, as wage costs fall. But still industry as a whole will suffer, as demand contracts dramatically. In Peru the halving of wages led to a brutal closing down of newspapers (before the age of internet). High wages are in many ways very important for development, not only do markets grow through higher demand, high wages are also driving technological development. With the wage reductions Europe now experiences, we risk Hyman Minsky's 'financial fragility' creating a 'technological fragility': Cheap labor makes for less investment in new technology.

The FIRE Sector Takes Over: The Second World

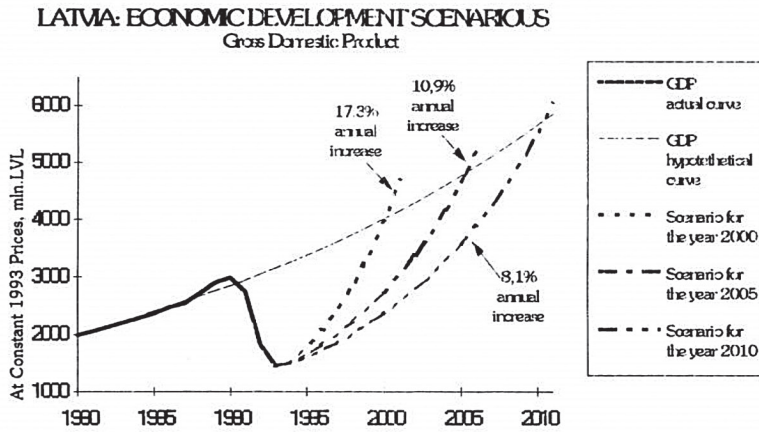
In 2000 I was invited to a conference in Parliament in Mongolia's capital Ulaanbaatar, and was asked to prepare a report on the economic development of the country. Again I found the same pattern as in Latin America: real wages were more than halved. The real interest level was 35%, which made it virtually impossible to start any production, while there was much gain in moving money into the country. This money was not invested in the real economy. I was told that the high real interest was necessary to avoid a financial crisis.

Figure 10 shows the fall in production in a typical ex-Soviet republic, Latvia. Production was more than halved, but when this graph was made, in 1994, everybody believed growth would return rapidly. Time has shown, though, that most of the growth in the Baltic really has been housing bubbles. Growth after 1994 has had the same pattern as in Latin America: the wage part has fallen.

Figure 10. The Latvian Economic Collapse after the Fall of the Iron Curtain.

20

Figure 3.1.

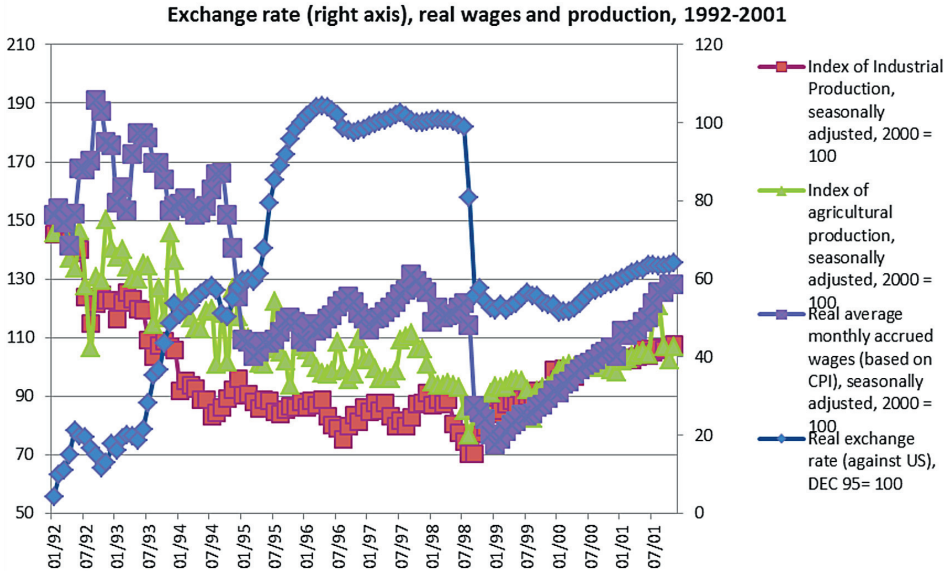


Source: Latvian Ministry of the Economy, 1994.

Also Russia shows the same kind of development (Figure 11). Real wages were halved, but as Russian GDP now gets closer to the 1989 level, income distribution is totally different. Particularly interesting is the observation that a strong overvaluation of the Ruble in the mid 1990s is closely connected to the fall in production and in real wages.

It is worth noting that democracy arrived in Russia at the same time as real wages were halved. The 'oligarchs' who had the economic power earned their money in the financial sector, while the real economy plummeted. A revaluation of the Ruble made it easy to transfer the oligarch's booty from financial speculations abroad at a very high value in dollars or pounds. But this reevaluation at the same time weakened the production economy even more, as Russian produced goods became very expensive and imports cheap. As in many other instances, the financial sector and the real economy have opposite interests.

Figure 11. Russia: Halving of Production and Wages.



Source: Reinert & Kattel 2010¹²

The FIRE Sector Takes Over: The First World.

The finance sector’s taking over an ever larger part of GDP started in Latin America in the 1970s, hit the earlier Soviet sphere in the 1990s, and is now badly hitting USA and Europe. The destroying effect of overrated currencies is a common element for them all. The Euro as a straightjacket sets off the same mechanisms in Greece and Spain now as they did in Russia in the 1990s (see Figure 11), but now through internal devaluations.

Carlota Perez sees this as cyclical movements: during financial crises income is badly distributed, while in times when technological development hits the real economy income distribution improves (see Figure 12). Before the financial crises (1928 and 2006) the wealthiest 1% of the tax payers had about 25% of USA’s total personal income. In times when technology and the real economy are seen as important, this number falls to about 10%. This will not happen without strong political pressure, as with Roosevelt and his economists’ New Deal in the 1930s. It is hard to find anything like that economic and political strength today.

¹² Reinert, Erik S. & Rainer Kattel, ‘Modernizing Russia: Round III. Russia and the other BRIC countries: forging ahead, catching up or falling behind?’, *The Other Canon Foundation and Tallinn University of Technology Working Papers in Technology Governance and Economic Dynamics*, No 32, 2010. <http://tg.deca.ee/files/main/2010090707562222.pdf>

Figure 12. Part of Total Income in USA Earned by the Top 1% of the Tax Payers.

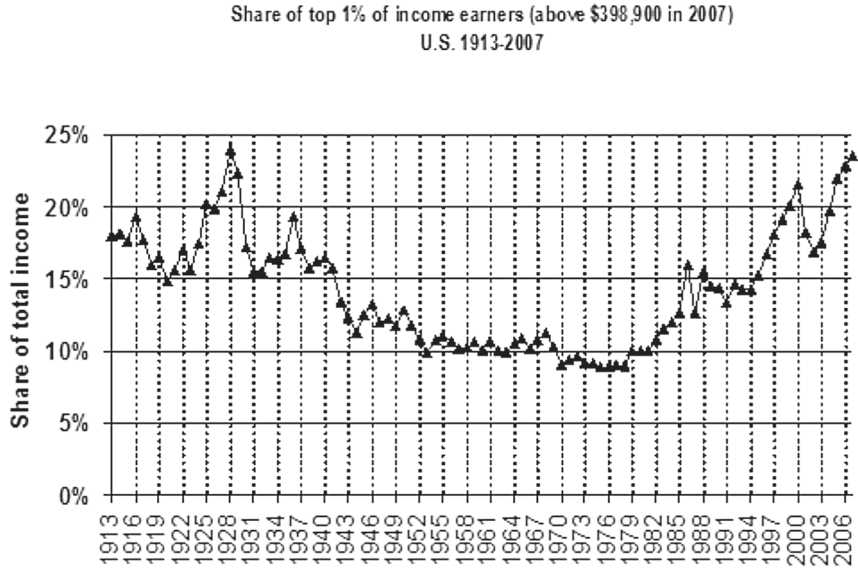


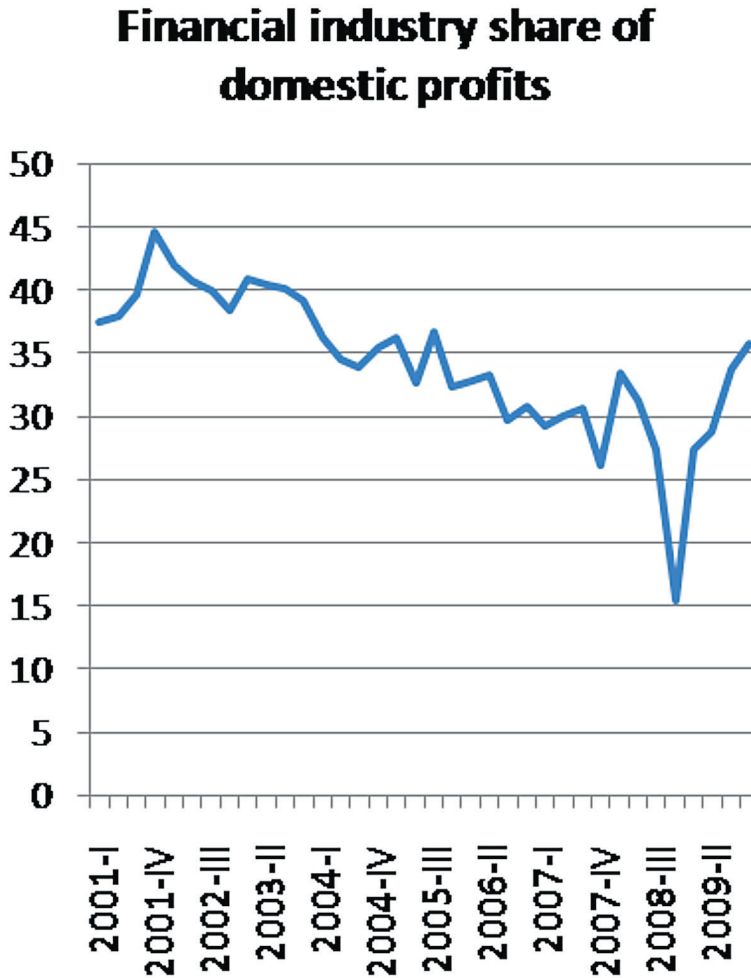
Figure 13 shows that the financial sector's part of GDP in USA is under 10%, while Figure 14 shows that measured by total income in USA the financial sector's part has at times reached 45%.

Figure 13. The Financial Sector as Part of US GDP.



Source: Philippon, 2008

Figure 14. The Financial Sector's Part of Total Income in USA.



Conclusion: The Mentality that Created the Crisis, its Consequences and possible remedies.

The crisis was made possible by an economics profession that no longer differentiated between financial economy and real economy. Influential economists even came to think that financial economy was the real essence of the economy. One of Obama's main advisor Larry Summers's favorite expressions is 'Financial markets do not just oil the wheels of economic growth. They are the wheels.' Summers is then getting close to what we have called *chrysohedonism*, to confuse money itself with what money can buy. The financial economy became more real than the real economy. Important economists' close connection and common

vested interests with the financial sector have become a theme in the discussions about the financial crisis, e.g. in the documentary film *Inside Job*. Another documentary movie on the crisis, *When Bubbles Burst* (2012), bases its understanding on the tradition emphasized in this paper: Schumpeter, Keynes, Veblen, Minsky and Perez.

The counterweight to this understanding is found in a German and American tradition from before World War II. This tradition was cross-disciplinary and covered economic theory and money theory, finance, law, philosophy, and political science, all within the same volumes. Examples are Georg Friedrich Knapp's *The State Theory of Money* (1905)¹³, Georg Simmel's *Philosophy of Money (Philosophie des Geldes)*¹⁴, and Karl Elster's *The Soul of Money (Die Seele des Geldes)*¹⁵. Schumpeter contributed to this debate with an article from 1917 ('Das Sozialprodukt und die Rechenpfennige', roughly 'GDP and the Accounting Units')¹⁶ and his book *Das Wesen des Geldes* (The Nature of Money) written in the late 1920s, but not published until 1970¹⁷. Schumpeter draws the line between financial economy (the *Rechenpfennige*, accounting units) and the real economy (The *Güterwelt*, 'the world of goods and services'), concepts that are required in order to understand financial crises (Figure 1).

The old American institutional school of economics, founded by Norwegian-American Thorstein Veblen, also made important contributions to the study of business cycles and crises. Veblen – who predicted the crisis of 1929, but died a couple of months before it started – sharply differentiated between people in 'industrial activities' ('engineers') and speculators who quite peripherally contributed to production. He saw these speculators as the last remnants of the pirates and robber barons of earlier times. In his classic bestseller *The Theory of the Leisure Class* (1899) Veblen ridicules what he sees as a completely unproductive class, and its rituals, which he compares to the rituals of primitive races.

The US institutional school literally produced massive volumes on financial crises. Veblen's student Wesley Clair Mitchell work *Business Cycles* weighs in at 4 kilos of solid scholarship. Joseph Schumpeter had moved

¹³ Knapp, Georg Friedrich, *The State Theory of Money*, San Diego, Simon Publications, 2003 (reprint of 1924 English translation).

¹⁴ Simmel, Georg, *Philosophie des Geldes*, Munich & Leipzig, Dunker & Humblot, 1920.

¹⁵ Elster, Karl, *Die Seele des Geldes*, Jena, Fischer, 1923.

¹⁶ Schumpeter, Joseph Alois, 'Das Sozialprodukt und die Rechenpfennige: Glossen und Beiträge zur Geldtheorie von heute', in *Archiv für Sozialwissenschaft und Sozialpolitik*, No. 44, 1917-1918, p. 627-715.

¹⁷ Schumpeter, Joseph Alois, *Das Wesen des Geldes*, Göttingen, Vandenhoeck und Ruprecht, 1970.

to the US and Harvard in the early 1930s, and his *Business Cycles* fills two heavy volumes. Mitchell's student Arthur F. Burns was the last representative of the old US institutional school to head the Federal Reserve, from 1970 to 1978. His presidency was dominated by a financial crisis – the so-called oil crisis – and under Burns' chairmanship this crisis was typically solved by saving the real economy, production and real wages, at the expense of the financial sector (through inflation and negative real interest rates). The negative real interest rate forced money out of banks and into productive investments.

In his 1949 book *The Veil of Money*, Cambridge professor Cecil Pigou described the seesaw of sequential domination of the financial economy, with corresponding crises, and the real and productive economy: 'During the 1920s and 1930s ... money, the passive veil, took on the appearance of an evil genius; the garment became a Nessus shirt¹⁸; the wrapper a thing liable to explode. Money, in short, after being little or nothing, was now everything... Then with the Second World War, the tune changed again. Manpower, equipment and organization once more came into their own. The role of money dwindled to insignificance.'¹⁹. This tradition of qualitative understanding in economics disappeared with the mathematization of economics after World War II. The fact that it had disappeared made the coming crisis so much harder to see, and the consequences so much harder to understand and to remedy.

In this old tradition money was seen as created and regulated by society's law and order (German: *Das Geld ist ein Geschöpf der Rechtsordnung*). The business cycles of capitalism were seen as needing continuous adjustments, not only of the interest, but also of the reserves of the banking sector in relation to its loans. My 1970s textbook from the University of St. Gallen in Switzerland²⁰ teaches the students how the economy must be fine-tuned through the business cycles i.e. by increasing or decreasing the reserve requirements regulating the banking sector. Under the ideological influence of neoliberalism, these adjustments were stopped. The reserve requirements were set very low, and the leveraging and the risks of the global financial system became correspondingly higher. The Basle process is now readjusting this somewhat. But the reserve requirements are still low, and do not have to be fully adhered to until 2019, so 'we'll manage to have a couple of financial crises before that time', as Martin Wolf says.²¹ Even if regulations tighten a bit, it is very clear that the finan-

¹⁸ The poisoned shirt that killed Hercules.

¹⁹ A. C. Pigou, *The Veil of Money*, London, Macmillan, 1949, pp.18-19.

²⁰ Schneider, Erik, *Einführung in die Wirtschaftstheorie. Vol. III. Geld, Kredit, Volkseinkommen und Beschäftigung*, Tübingen, Mohr (Siebeck), 1969.

²¹ Martin Wolf, 'The Mouse that did not Roar', *Financial Times*, September 14, 2010.

cial sector is still directing capitalism. As long as this situation remains, it is hard not to expect the crisis to go on, and deepen.

If we take a look at how the crisis which started in 1929 was solved, it is clear that several theoretically radical – though often politically conservative – economists, not only Keynes and Schumpeter, played an important part. It could be said that Schumpeter delivered the theory explaining the crisis, while Keynes delivered the cure. American economist Rexford Tugwell (1891-1979) was an important adviser to Roosevelt and his New Deal. No economists of that kind have any power today. There is no conspiracy, but it seems clear that there exists a powerful political group in the US with the goal to reverse the New Deal reforms. The vested interests of this group overlap with the interests of financial capital. If this group/fraction is successful – as it seems to be – financial capital will take over for a long time, and the fall in real wages will be permanent, also in the developed world.

The process of falling wages and an increasing FIRE sector as a percentage of GDP described in this paper, which started in the economic periphery in the 1970s now has world coverage. The processes in the periphery have been totally neglected and now, as the Americans say, *the chickens are coming home to roost*. The West is itself being overtaken by mistakes made long ago and far away. The crisis theories presented in this paper based on observations of historical facts – what I refer to as The Other Canon of Economics – have now been marginalized by theories which tend to treat the financial sector as a mere mirror image of the real economy. Instead, in the Other Canon tradition, the financial sector may abruptly change from being a faithful servant to the real economy – living in symbiosis – to a parasitic monster feeding on possibly permanent cuts in wages, production, and human welfare such as Greece is experiencing at the moment. Capitalism needs purchasing power, and to remove so much purchasing power from the majority of the population as is now done – with Greece leading the pack – will sooner or later destroy capitalism as we have known it since World War II. What we may be creating in its place is a kind of post-industrial feudalism.

This paper is written from the point of view of oil-rich Norway. The financial crisis will probably force Norway to reconsider the strategy behind the oil fund. Already when visiting Oslo in 2008 Martin Wolf was of the opinion that the Norwegian oil fund was part of GSG, *The Global Savings Glut*. Our first Nobel Prize winner in economics, Ragnar Frisch, once wisely wrote something which is not obviously understandable except in the setting of a financial crisis, as experienced in the 1930s: 'Savings from the point of view of an individual and from the point of view of society as a whole are

two entirely different concepts. They ought to be distinguished by using two different labels, not the same as now. This just causes confusion. Society as a whole can only save through productive investments'.²²

This is because financial savings in times of financial crisis will easily lose much of their value. Norway's first reserve fund for a rainy day was established in 1904 and invested in government bonds – which everybody thought was the safest investment. Most of the investments were lost during the crises following World War I. Particularly during times of financial crisis, Ragnar Frisch's advice should be followed: More should be invested in productive investments and less in financial markets. When, sooner or later, the financial sector will receive 'a haircut' through nations defaulting on their debts, while at the same time share prices fall because of diminishing purchasing power (a result of falling wages), part of the Norwegian oil fund will be lost. If the mechanisms of financial crises are properly understood, it is also easy to see that in the long run the oil fund has an aspect of 'Monopoly' money. There are times when savings are counterproductive in all their aspects, and the wisest thing to do is to spend money fast before they lose too much of their value.

The crisis in Europe will probably pass through the same stages as the one in Argentina in the 1990s. Right now we are at the stage of rigidly holding on to the currency exchange rates, while wages are falling (in Argentina this was an exchange rate at 1:1 with the dollar.) Sooner or later the nations of the European periphery will have to do as the Argentinians did, default and at the same time devalue. When the crisis in Argentina was over, real wages had fallen by 40%. The longer one waits, the worse it gets, because with time the productive sectors of the crisis economies are gradually destroyed. Markets dwindle and machines physically rust while the best brains leave the crisis countries.

During the crisis of the 1930 selective protectionism – so called Trade Wars – prevented a very uneven outcome of the crisis among the developed countries. This policy measure prevented a winner-takes-it-all outcome: that the developed world avoided being split into one camp of winners and one camp of losing nations. The Marshall Plan after World War II completed this work, before Europe again could start growing under a symmetrical free trade regime (among industrialized countries at similar levels of development). Today the mistaken idea that protectionism caused the crisis is widespread, and instead of Trade Wars the world is embarking on Currency Wars. An important difference between Trade Wars and Currency Wars is that while the former primarily creates jobs,

²² Ragnar Frisch, *Noen Trekk av Konjunkturlæren*, Oslo, Aschehoug, 1947, pages 41 and 42.

wages, and income in the real economy, the latter primarily creates rents to the financial sectors from bids and speculations. "Trade Wars" aiming at symmetrical industrial development are infinitely superior to Currency Wars. This financial crisis may represent a permanent blow to Western economies, with Asia being the winner that takes it all.

The last period of big shifts in the economic ranking between European states was the 1700s, when small city states were forced to yield economic power to strong nation-states. Venice and Amsterdam declined, while England and France rose. Faced with a growing real economy in Asia and, at home, a vicious circle of financial-sector growth and productive-sector decline, the West now basically has to choose between declining like Amsterdam – relatively, but keeping a healthy productive sector – or declining like Venice – declining absolutely, first losing the productive sector and then the financial sector – in order to become a museum. The former will require the resurrection of policy instruments which went out of fashion in the 1970s, and started the trend of falling real wages, first in the Third World, then in the Second World, and now in the First World: the West.

Capital in itself – without possibility for investments – is sterile. If the possibilities for investment are lacking, amassing of capital will be counterproductive and prolong the crisis. The world economy is – as it was in 1929 – a pyramid game or Ponzi scheme, which collapses under increasing debt deflation if we do not maintain and increase the speed of innovation in the real economy. In the US the GDP level from 1929 was not reached again until mid World War II. The US stock market did not regain its 1929 level until the early 1950s. War is the ultimate Keynesian machinery for investment and consumption because it creates a situation where political and economic worries about inflation disappear, and enormous amounts of money are invested and spent in the real economy. The world does the opposite of oversaving, it dis-saves. War is also an important driver for technological change, because the state wants and demands products at the limit of what is technologically possible, thus advancing the frontier of knowledge.²³ If these mechanisms are properly understood, it is possible to invest more in the real economy by declaring war against environment pollution and old fashioned energy forms, and obtain the same economic boom that has always been the result of conventional wars. Such massive investments in renewable energy and green technology in my view represent the only way out of the present crisis.

²³ Werner Sombart's 1913 book on War and Kapitalism explains this and other mechanisms (*Krieg und Kapitalismus*, Munich & Leipzig, Duncker & Humblot 1913).

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The Other Canon Foundation, Norway, and the Technology Governance program at Tallinn University of Technology (TUT), Estonia, have launched a new working papers series, entitled "Working Papers in Technology Governance and Economic Dynamics". In the context denoted by the title series, it will publish original research papers, both practical and theoretical, both narrative and analytical, in the area denoted by such concepts as uneven economic growth, techno-economic paradigms, the history and theory of economic policy, innovation strategies, and the public management of innovation, but also generally in the wider fields of industrial policy, development, technology, institutions, finance, public policy, and economic and financial history and theory.

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