An Economic Paradigm for Robust Sustainable Progress

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1. Abstract

1. Reality has revealed dangerous flaws in the economic and financial systems. Most countries in the world have at times suffered serious damage as a result of these flaws. Sometimes the flaws in the systems have caused world wide harmful side effects.

2. Many markets are suffering from instability problems. Real estate markets have often been afflicted by time periods when the prices have been rising at a faster rate than the rate of consumer price inflation, followed by time periods with falling prices and sometimes so severe credit losses that the whole financial system has been threatened.

3. Despite centuries of experience and accumulated knowledge neither the mainstream monetary nor fiscal policy have been able to prevent the economic system from being fundamentally unstable, unreliable and even harmful.

4. This paper advocates a change of the prevailing economic paradigm and a radical improvement of the economic system and the creation of a new economic incentive structure with sound rules which harmonize private interest and common long-term interest and private good and common long-term good in the economy.

5. This paper claims that with a, properly designed, stabilizing economic feedback it is possible to maintain a sufficiently strong, balanced and sustainable, demand in the economy so that the rate of investment, the resource utilization, the employment and the sustainable progress can be optimized.

6. The paper shows that a high or increased rate of consumption and employment does not have to be tantamount to a high or increased rate of depletion of natural resources and increased environmental damage. With properly applied economic control fees even an increased rate of consumption can be made long-term sustainable and be guided towards goods and services resulting in reduced consumption of natural capital.

2. Introduction

1. Markets can be efficient instruments for resource allocation in the economic system. However, without a proper set of rules markets can become destructive and cause damage to the real economy.

2. In this paper a method is described to stabilize markets and financial systems. The method can prevent economic imbalances and crises and can create high employment and sustainable growth.

3. The basic principle of the method is the creation of an incentive structure in the economy resulting in a societally beneficial behavior of people and firms. A first step in this direction is the introduction of rules harmonizing private interest and common long-term interest.

4. One way of applying the principle in a market economy is to introduce a stabilizing economic feedback in those markets which have the potential to destabilize and harm the economic system. Such a feedback will make destabilizing speculative behaviors unprofitable and will, automatically and objectively, reward stabilizing economic behaviors. The feedback system can, in the long run, be made autonomous and be designed as an integral part of the market itself. Such an enhanced and improved market can be described as a self-conscious, reflecting and internalizing 'meta market'.

5. Reality has shown that conventional economic theory and policy and in particular conventional monetary policy, well represented and expressed by the majority of the authors in the literature list, repeatedly has failed to maintain the stability of the economic system.

6. A sufficient knowledge of the use of the interest rate and its effects on the economy and on people seems to have been lacking in macroeconomic theory. This has, among other things, resulted in a world wide use of a psychologically misleading and financially destabilizing monetary and currency policy, often combined with a misguided and ineffective fiscal policy – a risky combination posing a serious threat to

people and to the whole economy.

7. The knowledge about the disadvantages with suboptimal currency areas, like the Euro Zone, encompassing countries in different stages of development and with different languages, labor productivity, tax systems, et cetera, has shown to be insufficient and there is an acute need of new insight and practical solutions.

8. Fortunately, properly designed economic control fees can give the countries within the Euro Zone almost the same benefits and free agency as countries with their own sovereign currencies and Central Banks.

9. One of the purposes of this paper is to reveal and eliminate some of the macroeconomic knowledge gaps and myths still existing – knowledge deficits resulting in monetary and fiscal policy measures which inevitably will cause severe problems such as; harmful imbalances in budget and trade, growth and collapse of speculative bubbles, financial crises, recessions, depressions, involuntary unemployment, environmental problems, et cetera.

10. This paper also describes a method to create a balanced sustainable development through the use of sufficiently high control fees on harmful emissions and on the use of natural resources. The most efficient control effect can be achieved through a repayment of the fees, in equal amounts to all individuals. An important political and psychological advantage with such a solution is that a majority of the population will always get more money in return than they pay in fees.

11. The author makes no claim that this paper is comprehensive or complete and asks the reader to receive this message with an open mind and as an inspirational source to an improved economic theory and to a further development of the principles which are described.

12. The words; sufficient and sufficiently, which are frequently used in this paper, mean, in this context by definition, sufficient for the intended or desired effect or result to be achieved.

3. Some fundamental financial facts

1. Without expenses and debts the present financial system ceases to exist. Despite this, words like expense and debt often give rise to mistrust, negative thoughts and even fear, especially in times of economic crisis, due to a widespread ignorance of basic financial facts and of the difference between financial economics and real economics and between financial (symbolic) assets and real assets.

2. Every financial expense is also a financial income and every financial debt is also a financial asset, by definition. Say's Law for a monetary economy is based on these obvious facts. The essence of Say's Law is that the expenses for the production are also exactly the incomes needed to make it possible to buy everything that has been produced.

3. Expressed in such terms Say's Law is valid, by definition. However this does not guarantee that all the incomes in the economy are actually used for consumption or that all the goods which are produced are also demanded. Consequently Say's Law is not necessarily valid when expressed in its most common form; "The supply creates its own demand".

4. Even if the important difference between the potentially possible demand and the actual demand has been recognized the monetary and fiscal policies are still both inefficient and potentially dangerous due to the absence of a sound incentive structure in the economy.

5. Despite the ever present problem of unemployment and lack of jobs, it is a fact that both the amount of work and the number of societally profitable work tasks are always unlimited.

6. Furthermore, money and other financial assets are symbols which can always be created at will, to match all produced real value, so that it becomes possible to pay for all work that can be done.

7. Finally, there is no law of nature preventing the rules in the economic system to be designed in a way that rewards sustainable consumption resulting in a demand, which is sufficiently high to facilitate full em-

ployment, and at the same time reward production, supply and competition sufficiently so that consumer price inflation is avoided.

8. One step in the right direction could be the introduction of a stabilizing feedback control, for example of the market price of the stock of real assets, as a means of harnessing the rate of credit expansion and securing the financial system.

9. Recessions and depressions resulting in increased, involuntary unemployment are just as unnecessary as they are harmful, in the light of the financial and logical facts mentioned above. However, due to an unsuitable, unpsychological and ineffective economic policy which has created a more or less harmful incentive structure in the economy, there has almost always been an unnecessary waste of capital, both of real capital and of natural capital but worst of all of human capital, sometimes reaching absurd levels.

10. It is possible to achieve a societally, and for the majority, beneficial redistribution of purchasing power in the economy through payments, in equal amounts to all. These payments can, with advantage, be financed through an equal percentage fee on every wage income and/or with fees on harmful emissions and consumption of natural capital.

11. The simple facts above ought to be sufficient to guide every honest economist to a reassessment of the prevailing economic policy which, despite the accumulated experience of many generations, is still based on insufficient knowledge to be able to solve one of its most elementary tasks; namely to prevent the origination of self-inflicted economic imbalances and endogenous crises. Crises which are completely unnecessary and can cause vicious circles of decreasing demand and increasing unemployment, resulting in a blatantly unfair suffering, where those who are the least guilty of the origination of the crises often are the hardest afflicted by their harmful effects and where those who have the power to control the economy seem to be totally devoid of accountability.

4. Market instabilities and speculative bubbles

1. The debate about the causes behind the recent major financial crisis with worldwide harmful repercussions has revealed that the main problems almost exclusively are man-made and, in fact, unnecessary and avoidable. A large part of the problem-laden development of the monetary, financial and currency policy has been a process driven by a need to counteract problems caused by paradigms, measures and rules which are the results of previous processes driven by the same need. This symptom treatment of self-inflicted problems in the economic system has continued for hundreds of years.

2. When the economy is analyzed in a systemic perspective it is obvious that many of the rules and regulations in the current economic system contribute to the creation of an incentive structure which in practice guarantees the origination of harmful instabilities, unnecessary costs and unfair suffering.

3. As a result of the latest global financial crisis the theory about rational behavior and efficient markets has, not surprisingly, been subject to renewed criticism. However, there still seems to be a general lack of knowledge about the fact that a rational microeconomic behavior does not necessarily result in a rational macroeconomic outcome or in efficient markets.

4. On some markets the time constants and the costs for correcting price imbalances can be so long and high that the economy will be afflicted by severe damage before the adjustment process is completed. One of the reasons for the controversy about efficient markets may be that the crucial differences between the natural time constants and costs, for correction of speculation driven, unsustainably high or low, prices on different markets has been ignored.

5. Markets where the products manufactured have a long life expectancy and where the production process takes a long time and/or

requires large investments in real capital and human capital, for instance in the form of education, tend to cause a large damage or in other words; tend to cause a large societal loss, at market imbalances. Especially when these imbalances occur as long-term rising or falling price trends. For natural reasons all the above mentioned conditions and the resulting effects are relative and the ability to break a harmful price trend is strongly correlated to how fast and cheaply the supply of the products and/or services on the market can be adjusted to the demand.

6. To let unharnessed price trends, with self-reinforcing effects, persist for a long time on large markets, with large inertia and high costs in the adjustment to the demand, results in an accumulated warping of the structure of both the real capital and the human capital and are often accompanied by high adjustment costs for society.

7. The negligence to remedy these harmful market imbalances becomes even more difficult to explain when experience shows that a strong and long lasting rising price trend, for example on a real estate market, almost always ends in a falling price trend which surprises the majority of the actors on the market and almost always results in the demand for production capacity on the market dropping far below the long-term average – ironically enough the collapse often starts when the maximum (over)production capacity on the market has been reached. This results in an excessive waste of capital – both in the form of real capital and in the form of human capital. Concerning the human capital it is not only the question about a monetary cost burdening the budget but also about a human suffering which it is hard to put a price on.

8. There is a widespread and tenacious conception that unemployment, to a large part, is due to lack of personal responsibility, initiative, effort and will to search for and to get a job. This is a fundamental misconception about the real cause of the problem and has often resulted in both ineffective and discriminating measures.

9. People, in general, are quite rational in their behavior. There is usually a time preference discounting future rewards and profits to a varying degree but this is also rational and strongly influenced by the level of the effective real interest rate, which is strongly coupled to the rate of increase of the average labor productivity in the economy. Even if the behavior of people is individual and subjective it is still strongly influenced by the general state of mood in society.

10. Cattle in a herd also behave rationally to a high degree and it would be irrational, and even lethal, for a single animal to stop or to try to move in the opposite direction in a stampeding herd of cattle.

11. Analogically it is rational for a single bank to continue to lend on a real estate market which is in a long-term rising price trend. A bank which decides to consistently 'act in counter-phase' against all other banks on such a market will forfeit revenues and/or make losses as long as the price trend lasts and will expose itself to the risk of not surviving economically until the trend expires since no-one knows exactly how long a trend will last.

12. Since a generally accepted reference for the 'right' price level on a real estate market has been lacking it has been a rational behavior to buy when the prices on the market are showing a rising trend which is expected to continue.

13. With the same logic it can be an equally rational behavior to sell when the prices on the real estate market are showing a falling trend which is expected to continue .

14. The combination of these natural and fully legal behaviors can cause market instabilities which, in severe cases, will harm the financial system and the whole economy.

15. The self-evident fact that the main reason for most major financial crises, harming the real economy, are endogenous systemic errors, or more correctly; natural systemic features, which are relatively simple to

remedy, seems to have escaped both politicians and economists.

16. The free market has shown an ability to allocate resources effectively and to create conditions conducive to investment, production, development, growth and prosperity. Furthermore, neither theory nor practice has so far been able to prove that there is a better alternative.

17. Despite the consensus about the merits of the free market there are some serious problems. One of these is that the combination; free markets and natural human behaviors, is unstable since there are destabilizing feedback mechanisms which can cause non-fundamental price fluctuations making the efficient market all but efficient. In other words; the market has been lacking a functioning 'sense of balance'. This disability, which sometimes can cause extreme damage, has never been remedied. However, a cure has been proposed in a bachelor thesis by Bjorkman, V and Hoglund, S (2003) with the title; "The Feedback Market – a New Way to Handle Skewed Asset Prices".

18. Continued large scale investments and/or speculation in assets whose prices are rising faster than the rate of consumer price inflation may give rise to dangerous financial and harmful structural imbalances in the economy. Furthermore, trade imbalances, which are allowed to accumulate for a long time, will also cause wasteful financial and structural imbalances. Sooner or later these, for the most part self-inflicted, unsustainable imbalances in the economy will be corrected – always at a real cost which sometimes may become very high and impose a burden on the next generation which can be perceived as unfair.

19. When a real estate market has shown growth for many years there may evolve a general feeling that everything is under control. Most real estate owners and creditors then feel confident that the value of real estate, even though it undoubtedly is inflated, is more than sufficient as a security for both mortgage loans and top-up loans.

20. Typical of such a situation is also that banks and credit institutions

are generous in their lending and only demand a relatively small down payment on mortgage loans. To these unsuspecting feelings and behaviors can be added that economists and politicians who warn about the risks associated with inflated real estate markets often lose credibility – especially if the rate of consumer price inflation remains low.

21. The ideologically controlled focus of the Central Banks on the consumer price inflation has been an important contributing factor to the many cases of speculation-driven unsustainable growth with subsequent collapse which have afflicted real estate markets.

22. This narrow focus results in the interest rate being too low when a bubble is growing and too high when a bubble is collapsing. The fact that banks and credit institutions typically make a complete reversal of their strategy and become very restrictive in their lending, when prices begin to fall is also a factor worsening the collapse of real estate prices.

23. What is a too low respectively a too high interest rate is, of course, always relative. However, it has been of crucial importance for the result of the monetary policy that the influence of the interest rate, on the behavior of companies and individuals, on the economy in general and on the real estate market in particular, to such a high degree is controlled by expectations which the Central Banks have not been able to control.

24. An interest rate, even at a considerably higher level than the sum of the rate of consumer price inflation and the rate of increase of the average labor productivity in the economy, will not have a sufficiently restrictive influence on the rate of credit expansion, if the dominating expectation in the economy is that the rate of price increase on the real estate market will be even higher than the interest rate.

25. The same expectations have also created conditions for unsound credit expansion where adjustable rate mortgage loans have been granted real estate buyers whose economic resources have been insufficient to pay the whole interest cost and where private budgets have been

based on the expectation of a continued increase in the market value of the property and a successive increase of the loans or a sale with profit.

26. The communication problem is worsened by the historical behavior of the Central Banks and their reluctance and inability to control the rate of credit expansion and asset price inflation effectively.

27. A radical cleanup of the real estate market can be achieved through an active stabilization with some form of trustworthy economic feedback control, for example based on the replacement cost of the stock of real estate. This can eliminate both harmful, destabilizing speculation and unsound credit expansion spontaneously without any need for new laws, complicated rules or bureaucracy costs.

28. Another important positive effect of a stabilized real estate market, with a replacement-cost-controlled credit volume, is that the interest rate then, on the average, can be kept at an optimally low, investment-stimulating, employment-creating, production-increasing, inflation-dampening and sustainable level reflecting the rate of increase in the average labor productivity in the economy.

29. There has, so far, not been any generally accepted definition of a real estate bubble. One reason could be the traditional textbook claim that any price level whatsoever on the market always is a trivial balance between supply and demand. This narrow and simplistic view of the market price may explain the unsuspecting acceptance of an unsustainable growth of the credit volume with a laissez-faire attitude which has allowed markets to fluctuate arbitrarily without any stabilizing feedback or sense of balance.

30. There are theories that speculative bubbles are essential prerequisites to market collapses. However, if uncontrolled psychological effects are allowed to dominate a real estate market may crash from any price level and cause an economic crisis, undermining the financial system – even if an inflated price level obviously increases the risk.

5. Financial derivatives and asset pricing models

1. Ignorance, unsound rules and a lack of stabilizing feedback in the financial system have created conditions for an excessive growth of questionable financial derivatives. Sometimes these derivatives have, intentionally, been designed to be practically unanalyzable. The claim that all such 'advanced' economic instruments have been created to offer the market actors better possibilities to hedge against risk, and therefore are beneficial, has lost all credibility.

2. Since major economic crises occur relatively seldom, a majority of traders are victims of a false sense of security that their risk and pricing models are useful and reliable. For example; asset pricing models which are not based on fundamental, resource-limited, economics are self-defeating. This is true no matter how well these models seem to perform when they, seemingly, can be validated with historical data. They are bound to be faulty and misguiding if they become fully accepted and universally applied, since the collective behavior of the market actors then inevitably will drive the asset prices, with a positive, destabilizing, feedback, and violate the unrealistic assumptions which the models are based on.

3. A common assumption in the models is that no individual actor is able to affect the price level of the market. But if the prices on a market have risen, at a rate considerably higher than the rate of consumer price inflation, for many years then it is natural that a majority of the actors on the market will display a herd-like behavior driving the prices upward. If there, simultaneously, is no coupling or anchoring of the price level and the total credit volume on the market to some 'deflated value' then it is only a proof of ignorance to claim that such a market is effective and that it will function best if left alone.

4. A cynic may claim that it is beneficial to allow markets to inflate and then crash so that the actors will learn a lesson for life. But to let

generation after generation repeat the same mistakes, with high costs and serious damage to individuals and to the whole economy, is neither necessary nor beneficial even if a minority of the population always has the means and the ability to take advantage of economic turbulence and excessive price fluctuations. Such recurring economic disturbances are no natural phenomena beyond human control – only signs of a badly organized and mismanaged economy.

5. The credit rating agencies seem to either on purpose have concealed or been suspiciously ignorant about the serious, but obvious, systemic risk. This corrupted the information in the credit system, paved the way for perverse, 'toxic', paper assets and contributed to an accumulation of dangerous financial imbalances. It is strange that the legal system allows this kind of institutional behavior, which is so damaging to the real economy and causing so many innocent people to suffer, while simultaneously accepting that those individuals who have caused the damage are neither harmed themselves nor subject to any liability.

6. During economic crises there is a tendency to put the blame on the conspiratory, fraudulent or criminal behavior of companies and individuals. But although such factors contribute to and can worsen the problems, they are by no means essential to create a crisis – recurring economic imbalances and crises have in fact for a long time been the hallmarks of traditional monetary policy.

7. Few, if any, major financial crises have come as a surprise to those who have a basic knowledge of the long-term effects of and the risks associated with a poorly managed credit expansion. When the price of real assets and the corresponding credit volume are allowed to be disconnected from fundamental real values and costs then all conditions, to create arbitrarily large damage to the economy, are present. Of course, greed and fear can contribute to amplify the problems but such are not necessary to create a crisis.

6. Common, ineffective, measures in economic crises

1. It is a common misconception that an economy in crisis cannot afford full employment and that it is necessary to cut down on the expenses in order to increase the rate of saving so that the economy can be lifted out of the crisis. But a behavior, private as well as public, focused on reducing expenses and debts, combined with a strong urge to save, does not automatically increase the rate of investment and the real rate of saving – especially not during an economic crisis.

2. The problem when such a behavior spreads in the economy is that it results in a reduced rate of consumption which, sooner or later, results in a reduced rate of production which, sooner or later, results in a reduced rate of investment which, by definition, means a reduced rate of saving. In other words; the more a savings mania is allowed to spread in the economy the lower the actual saving rate and the higher the unemployment rate. This is a vicious circle and exactly the opposite of what is needed in an economic crisis or depression.

3. Reducing the interest rate, reducing taxes and increasing the money supply in order to stimulate the demand and the consumption in times of financial crisis, economic recession or depression is not an effective measure either and can often be just as effectless as pushing on the end of a rope. The main reason for this ineffectiveness is that such measures, although they increase the money available within the private sector, do not reward the consumption per se. Therefore they are misguided and ineffective when the propensity to consume is seriously weakened due to a widespread crisis mentality, often fueled by a continuous flow of bad news about the problems in the economy.

4. Simply stated; it is never a general lack of money that is the problem in an economy, not even in times of crisis or depression – it is the lack of will to use the money. If those who have money do not want to spend it to a sufficient extent then serious problems will inevitably

arise, due to a harmfully low demand in the economy, commonly in the form of decreasing sales, decreasing incomes, an increasing rate of credit losses, an increasing rate of bankruptcies, an increasing rate of unemployment and an increasing budget deficit.

5. To let those who have money in abundance lend money, at interest, for consumption use, to those with little money is a way of short term concealing and long term exacerbating the problem of purchasing power imbalances and under-consumption in the economy.

6. Since the rate of employment in the economy is strongly and positively correlated to the aggregate demand and the rate of consumption, then political admonitions to the unemployed, to be more engaged and aggressive in their search for work, are pathetic – especially when such admonitions are combined with deluding measures to conceal the real rate of unemployment and its causes. It is an expression of political desperation to pursue an economic policy with the intent to coerce firms to offer employment with negative marginal return.

7. Stimulus packages in the form of politically controlled projects financed by increased budget deficits may sometimes do some good, but since such stimulus packages often are both rather inefficient emergency actions and unmistakable signs of a failure they also become a constant reminder of the bad state of the economy – discouraging and delaying consumption, investments and production.

8. Furthermore, measures increasing an already large budget deficit pose a serious risk of becoming counterproductive by undermining the trust in the economic policy, further warping the structure of the economy and retarding the recovery.

9. One deterrent example of the mismanagement of a harmfully low demand in the economy, after a real estate market collapse, is found in Japan. The budget debt per capita in Japan has become the largest in the world after two decades of serious economic problems and a large

number of massive, ineffective stimulus packages.

10. The failure in the Japanese economy is even more spectacular when considering that the budget was in excellent shape when the real estate market began its descent.

11. Countries who end up in acute problems with a large debt, after a long period of accumulating deficits will of course face an even more difficult challenge. A typical scenario in such a situation is that the market rate of interest soars and that the problem of refinancing the debt becomes acute. To borrow on the financial market under such conditions is an embezzlement of the taxpayers' money and may result in a financial collapse and to bankruptcy for a country in a currency union.

12. Another common measure in such a situation are more or less brash reductions in the budget expenses with little regard to negative psychological effects and rising unemployment. This will, of course, worsen the acute problems and may result in serious economic disturbances and social unrest which may further worsen the problems.

13. To let the economy slip into recession or depression is doubly wasteful since valuable production resources and production capacity will be lost despite the need for more production resources and greater production capacity to meet the pent up demand for goods and services when the crisis is over. The damage inflicted on the production structure in the economy in times of low demand and high unemployment is a real loss and will incur a cost in the future when the damage must be repaired.

14. The reduction of the ability to produce will also create problems with the recovery in the economy. Then bottlenecks, due to loss of production resources, loss of competent labor force and loss of organizational capital, will result in an inflationary pressure which the Central Bank, by tradition, will fight with interest rate hikes – with accompanying well-known harmful side effects.

7. An obscure and misguided message

1. For many years the message from the Central Banks to the actors in the real estate market has been obscure. During periods of strong credit expansion and asset price inflation, often far above the rate of consumer price inflation, the Central Banks have been reluctant to increase their interest rates sufficiently rapidly to eliminate the problem due to a fear that such measures could slow the economy, increase the rate of unemployment and make the real estate market collapse.
2. A common opinion has been that if the prices on the real estate market begin to drop sharply then little or nothing can be done, to restore the confidence and the price level, by using the monetary policy. It is a well established fact that a collapsing real estate market can have a negative influence on the whole economy for several years.
3. It has been claimed that as long as the rate of consumer price inflation is relatively low, and under control, the best approach is to take no action and not let the real estate market have any direct influence on the monetary policy.
4. History has shown that this approach has harmed the financial system, the human capital and the whole economy on many occasions and caused involuntary unemployment and real economic losses.
5. Furthermore, economies and markets stimulated by strong price increases and excessive credit expansion tend to create incentives leading to human behaviors and economic decisions which cause damage and result in an unbalanced and unsustainable resource allocation.
6. The strong and excessive demand on a rising, price inflated real estate market is seldom dominated by any strong and fundamental (physical) need since the excessive demand can be replaced by an equally excessive lack of demand after a relatively short time when the price trend has reversed.

7. Allowing real estate markets to overheat is both unnecessary and strange since one of the major responsibilities of a Central Bank is to provide an economic climate conducive to a robust, high rate of investment and employment with stable, sustainable growth. The the overly passive behavior of Central Banks, towards fluctuations in the price level of real assets, is well-known and seems to be ideologically conditioned since it can hardly stem from any fundamental difficulty to detect excessive and unsustainable credit expansion or harmful speculation often continuing for several years.

8. Allowing the prices on the real estate market to inflate considerably faster than the rate of consumer price inflation for many years and ignoring the underlying credit expansion in that market, fueling the asset price inflation, is irresponsible and can in extreme cases create conditions for an 'economic tsunami'.

9. If those in control of the monetary policy of the Federal Reserve did not understand the extreme danger threatening the US economy, as a natural consequence of an unbridled credit expansion, an uncontrolled asset price inflation and a runaway trade deficit, long before the severe financial crisis became a reality in the year 2008, then the question arises; were they the right persons to control the monetary policy?

10. Alternatively, if they understood the gravity of the situation and yet willfully abstained from applying a sufficiently effective stabilizing economic control, then the same question arises; were they the right persons to control the monetary policy?

11. Are these economic imbalances and destructive forces with accompanying capital destruction and human suffering of gigantic proportions acceptable? Are financial crises with a magnitude threatening the existence of the financial system an unavoidable feature of the market economy? Is it impossible to organize and manage the economic system so that it becomes stable and reliable?

12. The answers to the questions above is of course – no! One of the main reasons to the serious problems in the economy is the simple fact that many markets are inherently unstable as a result of natural human behaviors. The good news is that the problems can be eliminated with a properly applied stabilizing economic feedback control.

13. The main problem in an acute financial crisis usually is the collapsing value of the underlying securities in the financial system, where the value of real estate is dominating. However, such a value collapse, usually the consequence of a prolonged accumulation of unsustainable imbalances in the economy, can quickly be reversed and the value of the securities can be restored with a well-aimed economic reward system.

14. In practice such a reward system can be constituted of a variable percentage selling fee (which can be positive or negative) and a corresponding and equally large buying percentage subsidy. If the fee and the subsidy are paid and repaid through a market control fund then the system can be made cost neutral to both market and budget.

15. To reduce the interest rate, even down to zero, is seldom an effective measure in a financial and real estate crisis, especially not if the real estate market is falling at a two digit annual percentage rate.

16. The idea of trying to create beneficial conditions in the economy through interest rate cuts, income tax cuts and other liquidity increasing measures to achieve a certain desired behavior misses the target by not effectively addressing the negative psychological effects in an economic crisis. To counteract a real estate market collapse, which can result in a financial crisis, economic control measures are required which sufficiently strongly reward the desired behavior per se.

17. Of course, it is always possible to let the crisis run its course and pretend that what is happening is an economic purging process and a weeding out of excesses. But such an approach disregards the uneconomical waste of valuable resources in the economy and the individual

suffering, with an allocation which often can be extremely unfair.

18. To use a regular bankruptcy procedure in order to separate bad credits from good ones does not solve the fundamental problem; to let an unstable, market freely determine the value of securities in the financial system. What is accepted by the market as a perfectly good security today can be a bad security in a month or a quarter from now depending on the whims of the market. If the real estate prices were to continue to fall after a financial reconstruction such a bankruptcy procedure could become a very costly mistake.

19. A common knee-jerk reaction in the wake of a financial crisis is the demand for a higher capital adequacy ratio in the financial system. But an unstable financial system could become even more unstable with a higher capital adequacy ratio, even if the capital adequacy ratio was so high that it always secured the survival of the system. This would namely not only facilitate unbridled speculation but also become ineffective and potentially harmful since the financial system then would be able to fluctuate unrestrainedly and ravage the real economy without itself ceasing to function.

20. Instead of replacing one problem in the financial system with another it is possible to create a healthy financial system where the total volume of credit and the stability is secured by a replacement-cost-anchored feedback control which prioritizes the needs of the real economy and makes harmful (destabilizing) speculation unprofitable.

21. In the long run it is possible to achieve a further improvement of the controllability and stability of the financial system through a gradual transition to a full-reserve credit system and where the only legal source of fiat-credit is the Central Bank. The introduction of such a system will, no doubt, meet stiff resistance from those financial institutions now enjoying the privilege of creating credit ex nihilo. The best antidotes to such opposition are facts and full transparency.

8. Destructive use of the interest rate

1. With inflation is usually meant consumer price inflation and the current modus operandi of the Central Banks is to use the interest rate to control the rate of consumer price inflation.

2. The interest rate affects the price of real estate, whether this is intended or not, which has created conditions for moral hazard with periods of uncontrolled real estate price inflation followed by periods of uncontrolled real estate price deflation with more or less harmful effects on the financial system and the real economy.

3. To control the rate of consumer price inflation with the interest rate as an instrument or weapon is an ineffective, harmful and risky practice for several reasons.

4. A fundamental flaw with interest rate hikes, as a remedy against consumer price inflation, is that they, in addition to making the production more expensive, which tends to reduce the supply, also diminish the inducement to invest. Interest rate hikes thus have a direct inflationary, or more correctly; stagflationary, influence in the economy and only by making the interest rate damagingly high and by letting it slow down the economy for such a long time that the rate of consumption is pushed down sufficiently far, relative to the, simultaneously, decreasing rate of production, will the rate of inflation eventually be reduced.

5. This sluggish, ineffective and harmful method of fighting consumer price inflation is a sure way to increase the rate of unemployment since the reduced demand and rate of consumption, combined with the cost increase, due to the need for a relatively large time integral of the interest rate hike, invariably will harm both the inducement to invest and the will to produce. This will for obvious reasons have a negative influence on the rate of employment.

6. Yet another unwanted side effect of interest rate hikes has occurred on several occasions when the consumption rate, for some reason,

has declined slower than the production rate. This has caused stagflation characterized by a low, or even negative, rate of growth combined with a relatively high rate of inflation and unemployment, since the supply of goods and services has not been sufficiently large, relative to the demand, to push down the rate of inflation.

7. It may be appropriate to mention that the prevailing monetary policy, with an inflation target, has been praised by its advocates as being very successful over the last decades since it has been able to keep the rate of consumer price inflation exemplary low and stable. But what is the benefit of such a selectively blind monetary policy which has made it possible to create one of the greatest financial imbalances in the history of the world and also allowed it to happen?

8. How long will this strangely unsuitable monetary policy, with a consumer price inflation target, continue to be used like a potential financial weapon of mass destruction? Since the sole purpose, and raison d'être, of the financial system is to facilitate and serve the non-financial, real, economy this mode of conduct becomes even more indefensible and bizarre.

9. Sometimes a Central Bank will raise, or are exhorted by the IMF to raise, its control interest rate with the intention to stabilize or increase the value of its own currency. Due to general ignorance this kind of measure may influence the currency market for some time but there is simply no fundamental correlation between the control interest rate and the value of the corresponding currency. If such a correlation had existed, a Central Bank could, at any time, choose to pump its interest rate up and down and accumulate an arbitrarily large profit by alternately selling and buying its own currency. A possible initial correlation between an interest rate and an exchange rate will not be long-lived in such a situation. When the correlation myth is revealed the interest rate can be freely optimized for the needs of the domestic economy.

9. Monetary policy and psychology

1. A certain specific change in the Central Bank interest rate may result in diametrically different reactions and results depending on the general mood pervading the economy. In other words; conventional monetary policy is strongly dependent on psychological factors which it is badly designed to control.

2. The shortcomings of the monetary policy become most obvious when the rate of asset price inflation and the rate of consumer price inflation diverge strongly. This is a problem which has resulted in serious, and sometimes dangerous, consequences and the main reason for the existence of the problem is the use of economically and psychologically inefficient and unsuitable control instruments in the monetary policy.

3. **Some possible results from an interest rate increase:**

4. In a (psychologically) special case one or more interest rate hikes may have little or no influence on the economy for a limited time.

5. It is also possible that one or more increases of the control interest rate of the Central Bank may result in a reduced rate of credit expansion or to a credit contraction with falling prices, if expectations of bad times are dominating among the majority of the actors in the economy.

6. Yet another possibility is that several interest rate hikes combined with an increased rate of credit expansion and rising prices, especially on the real estate market, for a relatively long time may be interpreted as signs of good times.

7. However, a gradually growing awareness of a credit bubble, a fear of inflation and an increasing difficulty of finding real estate buyers willing to pay ever higher prices may finally become so alarming that the optimism and the expectations of good times of the majority turn into pessimism and expectations of bad times so that the rate of credit expansion and the rate of asset price inflation reverses and changes sign –

usually and unfortunately, far too late.

8. A typical example of an unpsychological, ineffective and dangerously destabilizing monetary policy in such a situation are the 17 (seventeen) consecutive, anxiously small (0.25 percent), increases in the Federal Funds Rate, in the USA, from July 2004 to July 2006. These 17, one-sided, interest rate adjustments ended with a collapsing real estate bubble and a historical financial crisis with global repercussions.

9. It is obvious that this kind of monetary policy, with absurdly harmful side effects, is a parody of macroeconomic control which ought to result in an awakening and a radical reassessment of the policy.

10. **Some possible results from an interest rate decrease:**

11. It is possible that one or more decreases of the control interest rate of the Central Bank may result in an increased rate of credit expansion and in rising prices, especially asset prices, if expectations of better times are dominating among the actors in the economy.

12. If the fear of bad times is dominating among the majority, then one or several interest rate cuts can be interpreted as a confirmation of an economy in bad shape and may then be accompanied by a reduced rate of credit expansion or by a credit contraction with collapsing real estate prices causing a financial crisis which slows the economy with a recession or even a depression as a result.

13. In a (psychologically) special case one or more interest rate cuts may have little or no influence on the economy.

14. **Some possible results of a general credit contraction:**

15. A credit contraction leading to a reduced rate of investment resulting in a reduced rate of production and a diminished supply may have an inflationary influence on the economy unless the demand and the rate of consumption drop sufficiently. The rate of employment will be affected negatively under such circumstances.

16. A credit contraction resulting in a reduced rate of consumption and a reduced demand may have a disinflationary or even deflationary influence on the economy unless the rate of production and the supply drop sufficiently.

17. A credit contraction which results both in a reduced rate of production and a reduced rate of consumption may, if there is a balance between supply and demand, result in stable rate of inflation or price stability. However, this is will inevitably have a negative influence on the rate of employment in the economy.

18. **Some possible results of a general credit expansion:**

19. A credit expansion which is mainly used to increase the rate of investment and the rate of production resulting in an increased supply may have a disinflationary influence on the economy and may, in extreme cases, result in deflation. The rate of employment will usually increase under such circumstances.

20. A credit expansion which is mainly used to increase the rate of consumption and the demand may have an inflationary influence on the economy and may, in extreme cases, result in hyper-inflation.

21. A credit expansion which is used to increase both the rate of production and the rate of consumption may, if there is a balance between supply and demand, result in stable rate of inflation or even price stability. Such a balanced credit expansion and growth usually also reduces the rate of unemployment.

22. The gist of the examples above is that the influence of the monetary policy on the economy is strongly dependent on expectations and mass psychology. This is one of the reasons why the hypothesis of the existence of a natural interest rate, or equilibrium interest rate, has shown to be so elusive and difficult to use in the monetary policy.

23. Another reason for the more or less spectacular failure of the widespread monetary policy, with focus on an inflation target, influ-

enced by this hypothesis is the excessive preoccupation with the consumer price inflation in sharp contrast to the carefree attitude towards the asset price inflation and its important interaction with the rate of credit expansion. An interaction which has circumvented the monetary policy and have resulted in time periods with inflating real estate prices which then have collapsed and created financial crises with severe damage to the resource utilization, the employment, the growth and the budget.

24. To eliminate the risk of the monetary policy at times becoming a parody of macroeconomic control, a new, psychologically sound and trustworthy, replacement-cost-anchored, credit-expansion-controlling monetary policy is needed.

25. Perhaps the greatest deficiency in modern monetary policy has been the unsuspecting acceptance of a virtually complete decoupling of the market price of the stock of real assets from its replacement cost or more precisely; from its (wear and tear corrected) replacement production cost. A decoupling unreservedly inviting and rewarding speculative investment in real estate.

26. There has been a hyperactivity in the work to create new rules and regulations for banks and credit institutions in the wake of the world wide financial crisis which erupted in the year 2008. But the gist of the new ideas which have surfaced indicates an almost total lack of insight into, understanding of and measures against the fundamental systemic flaws in the financial system, in the monetary policy, on the real estate market, on the currency market and in the world trade.

27. Without a radical reassessment of and change in the current economic paradigm then new speculative bubbles, collapses, economic crises and unnecessary unemployment will continue to afflict the economic system and damage the real economy, resulting in an unnecessary waste of valuable resources and to a severe suffering for individuals without an economic safety net.

10. An asset-price-controlling interest rate rule

1. The interest rate has often been (mis)used for (unfair) non-productive accumulation of capital and power and has created antagonism between rich and poor since thousands of years.
2. The interest rate can be an effective and fair economic tool and instrument which can be utilized to create beneficial conditions for saving, investment, employment, development, growth and prosperity but it can also be a destructive financial stealth weapon causing damage in the form of bankruptcies, unemployment, capital destruction, impoverishment, poverty, et cetera resulting in human suffering and social unrest – all depending on how it is used or misused.
3. The interest rate, its influence on the economy and its use, to reward in a 'balanced' and 'fair' way or to accumulate in an 'unbalanced' and 'unfair' way, has eluded and is still eluding the analysis of the world's greatest and most respected economists.
4. There is a theory that the market rate of interest reflects the marginal return on capital or in other words; that the marginal return on capital controls the market interest rate or vice versa. The theory may seem to be logical but raises the question; what is controlling the marginal return on capital? If the marginal return on capital is affected by the rate of investment and the market interest rate affects the rate of investment then the theory becomes a meaningless circular reasoning where the market interest rate and the marginal rate of return on capital will become arbitrary.
5. It is a fact that in order to achieve an optimum rate of investment and return in the economy as a whole and in a societal economic perspective, the rate of investment should be increased until the marginal real net return on investment (the marginal real net return on capital) is zero, or in other words; until the rate of investment is so high that it gives the greatest possible total real net return.

6. The idea that all investments with a net real return below the risk free interest rate are unwanted mistakes, and even harmful to the economy, is a serious misunderstanding.

7. It is both possible and advantageous to increase the rate of investment towards the optimal level, described above, even when the risk free rate of interest is greater than zero. This can happen in a natural way since a market economy elicits investments on terms which tend to deteriorate over time, and usually end up giving less return than anticipated, due to market competition.

8. In reality there is no simple and clear, generally known, monotonously decreasing function for the return as a function of the rate of investment. A more realistic function is based on the principle of a gradually increasing risk in relation to the expected return. If it were possible to know the exact return in advance then, for obvious reasons, no voluntary investments with a net return lower than the risk free interest rate would be made. Such an investment limitation would cause a considerable and unnecessary real loss of wealth.

9. If the rate of investment is at a level below the optimal in the economy there is always the possibility to increase it with investment subsidies. If this is done in an effective way, for example by using the revenues from well balanced fees on negative externalities it can result not only in a higher but also in a long-term sustainable rate of production.

10. It is a common view that the stock market will always grow at a considerably higher rate than the whole economy since this has been true for almost two centuries. But as a consequence of the fact that the total value of the stock market then will become an ever greater fraction of the whole economy this is a logical impossibility.

11. The amount of investment capital raised on the stock market by listed companies is a very small fraction of the total turnover on that

market. Speculation-prone, price-trend-amplifying actors do not improve the important risk capital function of the stock market. A ban on buying stocks on margin can be a first step in the right direction to reduce this kind of harmful speculation.

12. Outdated, counterproductive rules against insider trading should be changed since they counteract their purpose and in practice maximize the opportunities of profiting from information exchange between insiders in different listed companies. If, instead, insider trading is facilitated and encouraged so that price-affecting information is revealed with the smallest possible time delay, then conditions are created which minimize the insider profits and maximize the market efficiency.

13. A modern fighter jet is designed to be inherently unstable but that quality does not prevent it from flying but, on the contrary, improves its performance when combined with a stabilizing feedback control system. The economy is likewise inherently unstable but a reliable control system, with a stabilizing feedback based on suitable parameters, has so far been lacking. This systemic flaw has repeatedly caused disturbances and damage to the real economy.

14. The analogy with the fighter jet is thought-provoking but should not be stretched too far since there are basic human needs preventing a total collapse in the demand despite an often ineffective and destructive economic policy, creating a harmfully warped incentive structure. However, history has shown that the production loss, the rate of unemployment and the human suffering sometimes still can reach absurd levels.

15. Instead of using the interest rate, with an, from a serious control perspective, absurdly long time delay in the transmission mechanism, to fight the consumer price inflation with a negative influence on investment, employment and supply in the economy as a result, a Central Bank can, with advantage, use the interest rate to control and/or eliminate the asset price inflation and secure the value of the stock of

real assets, where real estate is the dominating part.

16. When the interest rate is used to control the price of the stock of real assets that will simultaneously and automatically also result in a relatively direct and robust control of the total amount of credit in the economy. Furthermore, the need for long, unemployment-causing, time periods with a harmfully high control interest rate is eliminated.

17. Perhaps the most important improvement in the economy may prove to be the positive psychological effects on human behavior when harmful, destabilizing, speculation is made unprofitable. This will not mean the end of speculation as such since beneficial, stabilizing, speculation will be favored under these conditions. No law of nature prohibits speculation from being used as a beneficial and stabilizing force in the economy – only bad rules rewarding the wrong behaviors.

18. The price of the stock of real assets in the economy can, with advantage, be controlled towards the replacement cost. Since the rate of credit expansion in the economy is strongly coupled to the growth rate of the price of the stock of real assets in the economy such a control strategy is an important condition for financial stability.

19. Without any coupling between market price and replacement cost, speculative investments in rising market prices and speculative investments in production of real capital (real assets) can result in an arbitrary rate of credit expansion and an arbitrary warping of the capital structure which sooner or later will result in uncontrolled price corrections and costs due to the defective capital structure with sometimes very severe side effects.

20. For an effective and reliable control, the Central Bank interest rate can be adjusted sufficiently often and with sufficient amplitude according to a stabilizing feedback rule. One possible interest rate rule is:

21. $\mathbf{r = (p + i)(e^{km/c} - 1)/(e^{k} - 1)}$ **Hoglund Interest Rate Rule**

22. Where **r** is the Central Bank control interest rate, in percent/year,

p is the rate of increase in the average labor productivity (defined as; the rate of increase in average produced added real value per hour worked), in percent/year, in the economy, **i** is the rate of consumer price inflation, in percent/year, in the economy, **e** is the base of the natural logarithm, **k** is an adjustable, dimensionless feedback control constant determining the strength of the feedback, **m** is the market price of the stock of real assets in the economy and **c** is the replacement cost (or more precisely; the wear and tear corrected replacement production cost) of the stock of real assets in the economy.

23. For the natural capital which is not replaceable the replacement cost in the interest rate rule can be substituted with a cost based on a fundamental use value or rate of return.

24. In a very long-term perspective the natural capital could successively be repurchased by society and be lifted out of the interest rate rule and be rented out and leased out to be used and cultivated optimally. This can be viewed as a slow and gradual land reform for a more efficient, more stable and more fair economy in the future. In the meantime a price-stabilizing tax or fee on the natural capital could be used.

25. The residual stock of real assets which is neither real capital nor natural capital, and therefore is lacking both a relevant replacement cost and a defined use value, is so small that its price fluctuations can be ignored in the interest rate rule for the sake of simplicity. Furthermore it is the principle of the rule that is important – not the exact price.

26. The basic feature of the rule is that it increases the interest rate when the price of real assets is rising and it decreases the interest rate if the price of real assets is falling. When the price of the stock of real assets is equal to the replacement value (based on the corrected replacement production cost) then the rule sets the real interest rate equal to the rate of increase of the average labor productivity in the economy.

27. With the aid of the above proposed interest rate rule the price of

the stock of financial assets in the economy can be strongly and reliably coupled to the total amount of underlying security, for example the replacement value (based on the corrected replacement production cost), of the stock of real assets in the economy – creating conditions for a secure and long-term stable financial system with a balanced rate of credit expansion.

28. The governing principle is that a properly formulated feedback rule can take advantage of the collective analytic capacity of the market and reward those actors who can predict which price movements have a beneficial influence on the economic system and create conditions for long-term sustainable development. The principle affects the behavior of the actors in a market stabilizing and risk reducing direction.

29. When the strategy of the Central Bank becomes sufficiently trustworthy, both logically and psychologically, through an open monitoring of a sufficient set of properly selected economic indicators and through an open use of a sufficient set of properly designed control instruments, there is no longer any need for secrecy or unpredictable actions from the Central Bank to achieve the desired result.

30. When the interest rate is used to control the price of the stock of real assets the consumer price inflation can be controlled, and if so desired; eliminated, through the use of a variable, positive or negative, percentage consumption control fee which is adjusted sufficiently often and with sufficient amplitude to optimize the demand in the economy.

31. A Value Added Tax could also be used to control the consumption, under the condition that it is made sufficiently agile and allowed to become negative when so required.

32. The control can be made budget neutral by adjustment of the income tax and/or an income fee, in counter-phase to the consumption fee. The adjustment of the tax and fee can also be made income neutral, in other words; result in the same percentage change for all incomes.

11. The labor-productivity-compatible interest rate

1. There is a special interest rate with the quality to be able to eliminate the unnecessary, man-made, historical opposition between 'labor' and 'capital'. The same interest rate will also make it possible to create favorable conditions for saving, investments, employment, development, sustainable growth and prosperity.
2. The secret with this interest rate is that it, by definition, creates a natural balance between the average time dependent (financial) reward for the provision of capital and the average time dependent (financial) reward for the provision of labor.
3. The underlying principle is that the level of the interest needs to be controlled so that the risk free real net interest rate in the economy reflects, or in other words; is equivalent with, the rate of increase of the average labor productivity in the economy.
4. Such an interest rate creates conditions where the group of people who provide (real and/or financial) capital ('the capitalists'), which (directly and/or indirectly) increases the labor productivity, can be fully and 'fairly' rewarded in relation to their contribution in the economy.
5. If the average real wage (defined as; average real value per hour worked in the economy) is simultaneously controlled so that the average labor productivity (defined as; average produced added real value per hour worked in the economy) the group of people who provide (manual and/or intellectual) labor ('the laborers'), which makes the capital profitable, can also be fully and 'fairly' rewarded in relation to their contribution in the economy.
6. An important condition for long-term genuine price stability, in other words; zero inflation rate, without harmful side effects, is that the risk free nominal net interest rate is harmonized with, and reflects, the rate of increase of the average labor productivity in the economy.
7. Another important, often disregarded, basic condition for long-

term genuine price stability is that the rate of growth of the total volume of credit in the economy is sufficiently strongly coupled to the rate of growth of the stock of real capital (real assets) in the economy.

8. The concept of time preference and its influence on the interest rate, on the discount rate, on the distribution of consumption over time and between different generations has long been the subject of a controversy among economists. In the light of the conditions and terms described above the controversy over time preference can be dismissed.

9. Instead of letting an arbitrary time preference determine the interest rate, and cause problems, the best solution is to let the expected rate of increase of the average labor productivity serve as the target value for the real yield curve (and the discount rate) and accept this as the natural time preference or in other words; the time preference which the economy allows without becoming destabilized.

10. A simple example; a developing country, undergoing a period of rapid industrialization, with a rate of growth of the average labor productivity of 8 percent per year, would get serious inflation problems if the risk free real interest rate in the economy were to be kept at 2 percent under such circumstances, even if the time preference was ever so low among the population.

11. On the other hand, a developed country with a rate of growth of the average labor productivity of 2 percent per year would get very serious deflation problems, if the risk free real interest rate in the economy were to be kept at 8 percent.

12. The idea that the market interest rate or the discount rate is determined by, or ought to be determined by, some human time preference and that the time preference in the economy can be chosen at will without causing harmful side effects is consequently a misconception.

13. In developed economies the labor-productivity-compatible interest rate could stay below 2 percent. A rate of increase in the average

labor productivity, and a risk free real interest rate, of 2 percent per year may seem low but makes it possible to achieve a real growth per capita and an increase in the average real wage of more than 169 percent in 50 years, with unchanged working time, or makes it possible to reduce the working time, for example from 40 to less than 15 hours per week, if a shorter working time and perhaps a higher quality of life and a lower environmental load is preferred. Of course, a compromise between increased consumption and reduced working time is possible.

14. Even a still lower rate of labor productivity increase and interest can result in amazing growth in a long time perspective. A rate of the average labor productivity increase, and a risk free nominal interest rate, of a modest 1 percent per year for 1000 years makes it possible to achieve an accumulated real growth per capita and a real wage increase of more than 2 095 815 percent, without inflation or (unfair) financial imbalances, with unchanged working time.

15. Obviously such an extreme growth is physically impossible, with the same life style, technology and relative resource consumption as of today, for the next 1000 years. However, if increased knowledge, innovation and technical development results in a reduction of the relative environmental load which is sufficiently fast, that is; of the order 1 percent per year, then such economic growth is, by definition, possible and could transform human life beyond the borders of imagination.

16. The conclusion is that even if the rate of labor productivity increase is relatively low the accumulated economic growth, in a long-term perspective, can become very high or the working time can be made very short. As mentioned above, it is also possible to make a compromise between growth and working time.

17. The low interest rate levels in the examples above are very beneficial for long-term investments in a durable and environmentally compatible infrastructure and resource management. This improves the

conditions to create a genuinely sustainable and fairer world with sufficient resources to sustain a high quality of life for everyone.

18. The average labor productivity is a relatively stable parameter in the economy. The main reason for this stability is the fact that the average labor productivity is the result and fruit of all available real capital as well as all technology, collective knowledge and experience that have been accumulated for a long time and the total quantity of labor-productivity-influencing factors will normally change only slowly. Another reason is the driving force of self-preservation to survive the competition by maximizing productivity to increase the profit of all business activities – both in good times and in bad times.

19. Despite the large difference in the rate of increase of the labor productivity between various sectors in the economy in a long-term perspective, especially concerning the production of goods compared to the production of services, the hourly wages in the respective sectors have not reflected this large difference. The dominating reason for this is the competition which has had a strong leveling effect, and limited the profit margin as well as the rate of increase in wages in the most productive sectors, to the benefit of all other sectors and the whole economy.

20. An important condition for a balanced average level of real wages in the economy is a sufficient demand for labor in relation to the supply of labor. This condition is often lacking in countries undergoing a process of industrialization and where the supply of labor, due to a large influx of people into cities and growth centers, is much larger than the demand for labor and where the capitalists and entrepreneurs can exploit the workers to the limit of starvation.

21. Often workers are paid wages so low that they can barely stay alive and they will still keep on working because the other alternatives are; no income at all or to move back to the village or small town they came from and for every worker quitting there are usually many willing

to start working on the same terms. This means that the relatively high level of unemployment is not caused by a general unwillingness to work – not even under harsh conditions.

22. These brutal imbalances in the economy may last until the demand for labor has outgrown the supply of labor in the process of industrialization and every industrialized country has a more or less dismal history of human capital exploitation during such a transformation of the structure of the economy before the average wage rose to a higher, more balanced and fair level which gave more purchasing power to the workers. Fortunately, there are efficient, practical economic methods which can reduce and eliminate such harmful imbalances on the labor market while simultaneously promoting development and growth – in developing countries as well as in developed countries.

23. The transformation process can become even more painful and lengthy if exogenous, trade-impeding counter measures are taken by already industrialized countries with the misguided good intention of counteracting the exploitation of the workers in developing countries.

24. Furthermore, the process is not yet completed in the developed countries since the average rate of profit on financial capital utilized to (indirectly) improve labor productivity is still considerably higher than the resulting rate of increase in the average labor productivity. This is a sign that there is room for improved competition leading to non inflationary real wage increases offering the possibility to create a, societally more beneficial and fair, sustainable balance between income from labor compared to income from financial capital.

25. An increased average real wage resulting in a higher utilized real purchasing power and demand, combined with a lower, balanced and fair, sustainable financial return on capital (in other words; a lower interest rate), can increase the demand for labor and improve the conditions for higher rates of employment and production in the economy.

12. Measures for elimination of financial crises

1. If the market value of the stock of real estate has dropped so much that the whole financial system is threatened, and the conventional monetary policy has become more or less impotent, for example through a liquidity trap, then buying of real estate should be subsidized so generously that the market price turns upward.
2. The need for the subsidy is temporary since the result of a sufficiently explicit and powerful action will be that the price of real estate will promptly begin to rise, which eliminates the need for the subsidy.
3. In economies with large differences in the relative price development between various local real estate markets the subsidy can preferably be adapted to the needs of the individual markets.
4. A quick recovery of the price of the stock of real assets through the use of a sufficiently powerful economic reward subsidy system and then a stabilization, for example through the use of the proposed Interest Rate Rule, are some of the most important immediate actions in countries suffering from harmfully low and/or falling prices in the real estate market.
5. With the aid of a certain amount of consumer price and wage inflation the price of the stock of real assets will in due time reflect the replacement cost without the need for unnecessary credit losses.
6. In extreme situations when the propensity to consume has been reduced to a harmfully low level there is always the possibility to introduce an adjustable consumption subsidy feedback.
7. If the subsidy rewards consumption to a sufficient degree it will elicit an increased utilization of private financial resources which can lift the economy with increased consumption, investment, production, employment and growth – even out of a depression.
8. If the rate of consumption and the demand becomes so high that the rate of production and the supply cannot keep up with the rate of

consumption then the same logic can be applied with a reversed sign so that that which previously were subsidies become fees.

9. One of the advantages to control the consumption and demand with control fees is that such measures do not have to increase the cost of production. The usual Central Bank behavior, in such a situation, is to increase the interest rate which increases the costs and impair the conditions for investments, employment, production and supply.

10. Financial crises, recessions and depressions caused by financial imbalances are sure signs of bad and misguided macroeconomic control. There is neither any sound reason to let financial imbalances accumulate nor to let the demand and the consumption drop to harmfully low levels since there are straightforward, practical methods both to avoid financial imbalances and to stimulate the demand, the consumption, the production and the whole economy in an effective and sustainable way without creating budget problems or inflation problems.

11. A country which for some reason has been allowed to accumulate a large budget debt may be afflicted by speculation pushing up the market interest rate. That does not have to be a serious problem if the country has a sovereign currency and a Central Bank since this allows the freedom to choose an optimal level of the interest rate to support a sound financial policy, rewarding desired behaviors in the economy.

12. Also in those cases where there is a large foreign debt, worsening the problems and the speculation, there are concrete, constructive measures to utilize the productive resources in the economy and to give the currency the possibility to find the level necessary to start reducing the economic imbalances without unnecessary delays and/or unproductive and destructive disturbances harming the economy and people.

13. Even for a country with both the above mentioned problems, in combination with the lack of a sovereign Central Bank and a sovereign currency, there are effective methods to solve the problems.

14. It is possible for all countries, and in all situations, to apply a constructive financial policy whose aim is to sufficiently forcefully reward desired behaviors in the economy, according to the principles described in this paper, and which increases the rate of investment, the rate of employment, the rate of production and the incomes while simultaneously reducing the budget deficit and/or the trade deficit so that the collective mistrust and fear and the destructive speculation can swiftly be eliminated and the confidence in the economy restored.

15. A well designed tax system does not have to have a negative impact on the economy, on the contrary; it should, by definition, always have a beneficial influence on the incentive structure, the resource utilization, the rate of employment and the sustainability of the economy.

16. To increase the credibility of the economic policy and to dismiss the discussion about Ricardian equivalence the negative budget impact of all subsidies can be, if so desired, neutralized completely by the introduction of sufficiently large control fees and/or a sufficiently large increase in the income tax.

17. With some measure of innovative thinking it is even possible to design a tax and fee system which strengthens the budget at the same time as the economy is stimulated to increased employment and activity with emphasis on sustainable development.

18. This is a fact irrespective if the budget financing has been done domestically or abroad. The principle is the one previously indicated; namely to sufficiently reward sustainable private consumption, per se, while simultaneously increasing the budget revenues sufficiently.

19. A simple and effective way of stimulating an economy is to introduce a budget neutral redistribution of purchasing power. This can be done through an 'income redistribution tax' or fee with the same percentage for all incomes. The extra revenues are then preferably repaid through monthly cash payments to individual reimbursement accounts

where the same amount is paid to all individuals.

20. The effect of such a solidarity increasing, Gini coefficient reducing, redistribution of purchasing power is increased demand and increased consumption which stimulates investment and results in increased production and growth. The process has a positive influence on the rate of employment, the incomes and the budget revenues in the economy.

21. Although a majority of the population will always benefit from a financial redistribution on these terms, which facilitates a democratically supported implementation, 'the proportional purchasing power redistribution' treats every individual the same and exactly the same amount of tax or fee is paid on every earned unit of money in a completely neutral way and completely independent of whom has earned the money. In fact, an income tax or income fee cannot be made more objective and neutral.

22. It could be advisable to start with a relatively low level of the redistribution and then successively adjust it upwards in search for the optimal level. Of course, the optimal level will be subject to change as the economy develops, improves and grows but once the principle is established it can become a valuable economic instrument for fine tuning the economy and for optimizing consumption, production, investment, employment and growth.

23. Every Central Bank, with its own sovereign currency, has the power to control the term structure of the interest rate (the shape of the yield curve). This is a powerful monetary tool which requires sufficient knowledge about the pervading influence of the interest rate in the economy, for good or bad, not to become destructive.

24. The theory that the monetary policy cannot affect the long-term level of resource utilization is a serious misunderstanding which sometimes has been used as an excuse for a bad monetary policy. One possible explanation to the misunderstanding could be the fact that inflation

has little or no negative influence on the economy in real terms as long as it is sufficiently predictable. However, it is also fact that deflation has had a powerful negative influence on the economy in real terms on many occasions – even when it has been predictable.

25. **Some thought-provoking questions:**

26. What would happen to the employment and the resource utilization if the Central Bank first, with a dangerously low interest rate, created an enormous asset price bubble and then, with a destructively high interest rate, made it collapse and result in a depression with persistent strong deflation and mass unemployment induced by lack of demand?

27. In what way would the economy escape and recover from such a monetary stranglehold, with a cripplingly high, deflation-boosted, real interest rate rewarding a destructive behavior of the actors in the economy and how long would it take if the interest rate was not reduced?

28. What would the consequences be for the economy and for people if the misguided monetary policy were driven so far that the whole financial system collapsed?

29. In what way would the production losses, the capital destruction and the suffering be compensated so that the harmful effects of the monetary policy on the resource utilization, on the real economy and on people would be fully neutralized and eliminated?

30. Is it not a fact that the financial super crisis in the year 2008 was a result of a relatively lengthy, gradual accumulation of large economic imbalances which was made possible by a clueless credit expansion which was allowed to continue due to a misguided and obviously harmful monetary policy fixated on controlling consumer price inflation?

31. Finally; why is an obviously harmful monetary policy so one-sidedly defended, by its proponents, if it really is so insignificant in the long term, as they claim – and what is actually meant by long term in this context?

13. Measures against trade imbalances

1. Every country with a Central Bank can relatively easily prevent a harmful accumulation of trade deficits. One way of doing this is through buying of other currencies to such an extent that trade debts towards other countries are secured in the form of a trade debt currency reserve.
2. Such a strategy has a fundamental influence on the exchange rates and reduces the risk for an accumulation of destructive, financial and structural, imbalances which otherwise will cause unnecessary costs in the form of job mismatching, unemployment and capital destruction when they, sooner or later, are corrected. The trade imbalances are worsened by countries which willfully or through ignorance counteract a natural appreciation of their currencies despite a trade surplus.
3. The idea that a trade surplus is something positive and desirable is an age-old fallacy which is still influencing the trade policy of most countries and whose negative consequences will afflict both surplus and deficit countries, due to the harmful warping of the production infrastructure. The worst damage, however, will befall those deficit countries whose productive capacity has been impaired the most. Due to an often relatively long time delay, market corrections can come about unexpectedly and with great strength which increases the risk and the damage caused by the non-existent, ignorant or adverse trade policy.
4. Countries whose currencies have attained a high status, and therefore are used as reserve currencies in many Central Banks, are especially prone to having their infrastructure warped due to the even stronger decoupling of the currency from the real economy and the foreign trade which may occur. The resulting accumulating trade imbalances can have severe consequences in the long-term and can affect the whole world economy in a destructive way when panic-driven exchange rate corrections suddenly begin and when the greed is replaced by fear.
5. An acceptance and application of the proposed trade debt cur-

rency reserve concept could result in a profound positive change in the behavior of the speculators on the currency market – where the analysis of and the respect for economic fundamentals need to be restored.

6. The absurdly high ratio of the financial turnover on the currency market to the real turnover in the world trade reveals that speculation has become the totally dominating activity on the currency market. This financial hyperactivity has a negative influence on the world economy since it is crowding out the fundamental relations between the real economies of the countries in the world.

7. Under certain conditions, for example those which have evolved in the Euro Zone, where some countries have accumulated large trade debts, it can be wise to use a trade control fee to support the restoration of a healthy and sustainable trade infrastructure.

8. To make the trade control fee objective and impartial all that is needed is that the fee is the same for all imported goods and services. In other words; the same percentage fee should be paid on all imports. The fee can be used to improve the budget balance or alternatively be used to support all exports with a certain percentage subsidy if the intention is to make the trade control budget neutral.

9. The trade control fee is not some political fix which will harm the market economy. The purpose of the trade control fee is to reduce an acutely harmful trade and infrastructure imbalance which the market actors themselves have created by lending money, at too low interest rates, to countries with too high inflation, for too long.

10. The trade control fee is also not a permanent solution to the problem of trade imbalances. These problems need to be solved by proper control of the credit volume and the rate of credit expansion so that the average real wage, in the long term, can reflect the average real labor productivity and so that the rate of consumer price inflation and asset price inflation can be equalized between the countries in the Euro Zone.

14. The Euro experiment

1. The European Monetary Union is the largest currency union experiment undertaken so far in the history of the world.
2. Both the financial and the monetary policy in the Euro Zone have been based on partially faulty and flawed assumptions and conditions.
3. In its present state the Euro Zone is lacking several essential stabilizing financial and economic mechanisms.
4. The problems which have afflicted certain Euro countries have not come as a surprise. The underlying problem-creating conditions have been present for a whole decade – fully visible in the statistics. A decade during which no effective measures have been taken to avert a guaranteed (confidence) crisis in the Euro Zone.
5. Large budget deficits and/or booming real estate markets and/or rapidly rising wages and costs, in some countries within a currency union, is not a recipe for a stable and healthy macroeconomic development and especially not when the safety net, which a sovereign currency implicates, has been taken away.
6. All naturally occurring destabilizing market forces existing within a country, with its own, unique, sovereign currency, also exist within each country of the Euro Zone but in addition to this there are further problems due to the differences between the countries in the form of different labor productivity, different tax systems, different pension systems, different finances, different rates of consumer price inflation, different rates of asset price inflation, et cetera. This can, in the long run, threaten the stability and even the existence of the currency union.
7. Even if the mobility of the highly qualified labor force is relatively high, the mobility of the great majority of the labor force is far too low to be able to function as a wage leveling factor between different countries in the Euro Zone.
8. Furthermore, the idea that a high mobility of the labor force can

function as a good leveler is questionable, since the associated, absolutely essential, infrastructure cannot take part in the move between countries.

9. So even if the labor force could be extremely mobile this would not be a solution but instead cause serious disturbances with accompanying warping of real estate markets and financial systems both in countries with an outflow and in countries with an inflow of labor force.

10. The whole idea, to subject individuals and groups to more or less forced adaptation, migration and sacrifice in order to correct obvious systemic errors and imbalances, caused by politically enforced large scale economic experiments with suboptimal currency areas, needs to be questioned and scrutinized.

11. It has been claimed that the dangerous economic imbalances which have arisen within the Euro Zone is the result of an irresponsible economic policy in certain countries. Even if this is partly true the criticism ignores the fundamental problem; namely the fact that the system has allowed economic imbalances to grow for such a long time without any natural or other effective stabilizing or restoring market forces.

12. The market reaction, in the form of harmfully high market interest rates, which at long last are afflicting these countries is more a destructive force than a beneficial and stabilizing economic signal.

13. Since the market, as mentioned earlier, is suffering from an inherent destabilizing feedback this may cause the market rate of interest to be deceptively low for a long time and then, when the imbalances have grown so much that the problem suddenly is perceived as acute by the market, become harmfully high.

14. Reality has shown, in an overexplicit way, that the idea that budget deficits should be covered by borrowing on the financial market, to reduce the risk of an irresponsible economic policy, is based on unrealistic assumptions about the qualities and behaviors of the market.

15. Late come austerity measures which are both psychologically and incentively misdirected and which result in a reduced rate of investment, a reduced rate of employment and a reduced rate of production, are serious mistakes and worsen the problems in the economy.
16. To borrow money, at a high interest rate, from those who have more money than they want to use for consumption, aggravates the problems since that makes the rich even richer and therefore increases the purchasing power imbalance between the poor and the rich.
17. In its present form, with the present legal framework and current economic paradigm, the European Monetary Union can probably only be preserved intact with a federal, supranational financial policy. If such an economic system is politically and democratically acceptable and viable nobody knows for sure.
18. However, despite the severe and acute economic problems it is possible to make the whole European Union flourish with the help of a new economic paradigm, according to the principles outlined in this paper. One of the most important changes is a new, beneficial, incentive structure, designed to utilize the advantages of the market economy.
19. To create a beneficial incentive structure there is a need for an economic feedback to balance and stabilize real estate markets with the aid of control fees and/or the interest rate rule above.
20. Budget neutral control fees on the import and export of goods and services in each country can be used, as a temporary means, to achieve balance in the foreign trade and a balanced infrastructure with respect to the size of the export sector in the economy.
21. Control fees on consumption can be used to correlate the rates of consumer price inflation between countries.
22. Control fees on credit can be used so that the net cost of risk free credit will reflect the rate of increase of the average labor productivity in each country.

23. Every control fee can be made both market neutral and budget neutral by letting it become endogenous to the market. This is achieved if a buying fee is paid by the buyers on the market to the sellers on the market via a market control fund, with a time delay. If the buying fee becomes negative then, instead, a selling fee is paid by the sellers on the market to the buyers on the market via the same fund.

24. Although the control fees in the long run should preferably be budget neutral, it is advisable and beneficial for countries with a high budget deficit to use some fraction of the fees to reduce the deficit.

25. In the long run the spontaneously emerging futures markets, for these control fees, can be coupled more or less strongly to the primary markets, which the fees are meant to control. In this process a new kind of futures markets can be created, which could be defined as endogenous futures markets or 'meta markets'. The combination of these meta markets and the primary markets have the potential to become self conscious and self-reflecting markets, aware of their own behavior.

26. Without the support from a new and radically improved economic system and paradigm, several European Countries will be exposed to many years of unnecessary suffering, unemployment and capital destruction. Even the most successful countries within the Euro Zone will be affected by negative side effects under such conditions.

27. The idea to let more 'responsible' countries help less responsible countries to pay off their debt stems from a bad economic paradigm and creates an unsound incentive structure rewarding moral hazard and sending the wrong signals both to borrowers and lenders.

28. In conclusion; there are practical and efficient ways out of the European crisis without wrong-signaling debt write-offs, confrontations, conflicts or social unrest and without damaging the real capital, the natural capital or the human capital, in other words; without causing unnecessary capital destruction or human suffering.

15. The pension challenge

1. Demographic changes, mainly due to an increasing life span and a decreasing nativity in most countries in the world, has increased the ratio between the number of people living on a pension and the number of people working. This ratio may continue to increase in the future.
2. The demographic changes have made most existing pension systems unsustainable. Little or nothing has been done to address the fundamental problem and many funded pension systems are in an acute need of reforms or radical change. History has also shown that funded pension systems are vulnerable to political mismanagement.
3. There are three straightforward ways of solving the problems:
4. One measure is to increase the average retirement age. This is natural since both the life expectancy and the state of health of people at the retirement age has improved.
5. Another measure is to decrease the size of the average pension.
6. A third measure is to increase the average pension fee or tax extracted from the working part of the population.
7. It is advisable to use a combination of all three measures so that the size of each individual measure is reduced. The distribution of the necessary measures can be determined democratically in a poll.
8. An purely income transfer based, pay-as-you-go, pension system has several advantages over a funded pension system. One major advantage is that the pension problem, the political responsibility and the financial burden then cannot be ignored, procrastinated or just passed on to the next generation of tax payers.
9. Another advantage is the simplicity, the high efficiency and low cost for a pay-as-you-go pension system in comparison with the 'outcome-obscuring complexity' and the high administrative cost of a fully funded, individual lifetime income-based, pension system.
10. A third advantage with a pay-as-you-go pension system, coupled

to the average wage, is the elimination of the unfairness problem which occurs when the growth rate of the pension capital deviates from the growth rate of the average wage in the economy – which otherwise may cause arbitrary changes in the relative standard of living for the retired part of the population.

11. Finally; the idea that a funded pension system results in lower costs and higher aggregate growth is based on a misconception about the possible sustainable maximum return on large scale investments.

12. To place the full responsibility of saving for retirement on each individual may seem like a simple and effective solution but this is an unrealistic and unfair way of handling the pension problem since there, for various reasons, will always be a need for an economic safety net.

13. One way of solving this problem is to introduce a basic pension defined as a certain fraction of the average wage in the economy. If the retirement age is made flexible and the corresponding flexible level of the pension is adjusted so that cost neutrality is achieved, then an important individual freedom of choice in the system is created.

14. To begin with, before the tax system is fully optimized, the pension can be financed by a tax or fee on every income with an equal percentage for all levels of income. This principle of financing has the advantage to be both simple and efficient since it will treat all incomes the same and therefore does not result in an undesirable warping of the incentive structure in the economy.

15. The simple pay-as-you-go pension system proposed above does not eliminate the individual responsibility and opportunity of every person to prepare for a life after retirement.

16. For those with low wages and for the long-term unemployed such a pension system will enable an improved quality of life at retirement while the rich and/or well paid already are fortunate to have had the means to save, invest and prepare for their retirement.

16. The unemployment problem

1. The problem with bad matching between the labor force and the vacant jobs is often highlighted when the economy begins to recover from a recession or a depression and the number of job openings begin to increase but with little or no reduction in the rate of unemployment.
2. After a long period of asset price inflation, which has stimulated large scale investment and speculation, and/or after accumulation of a large trade debt, both the employment structure and the structure of the real capital in the economy may have become warped. Then when the demand structure in the economy is changed, after a more or less brutal correction, there will arise matching problems – especially if the previous imbalances have lasted for a long time.
3. Despite these, sometimes serious, matching problems the single most dominating factor causing unemployment is almost always a lack of a sufficiently large aggregate demand for goods and services in the economy. For obvious reasons this fundamental lack of demand is usually accompanied by a lack of demand for labor.
4. Most economists, even those doing research on the causes of unemployment and the means to reduce it, seem to regard the forever recurring lack of aggregate demand as a phenomenon beyond the reach of monetary and fiscal control. This is a misunderstanding and an ignorance about the possibilities to change the incentive structure.
5. Some researchers in the field of macroeconomics have been as preoccupied, trying to understand and explain the, so called, Beveridge Curve, as other researchers were with the, so called, Phillips Curve a number of decades ago without realizing that these, so called, curves are not real curves at all. They may appear to be curves when the data points are plotted in a two-dimensional graph for a relatively limited time span. However, when the data points are plotted over longer periods of time they will be scattered in a more or less chaotic pattern.

In fact, the data points could form any pattern.

6. Some economists have expressed the hypothesis that the Phillips Curve is a vertical line positioned at the NAIRU (Non Accelerating Inflation Rate of Unemployment). The basic idea behind this hypothesis is that it is impossible to keep the rate of unemployment below the NAIRU without causing runaway inflation in the long run.

7. This hypothesis is practically useless since the NAIRU, if this concept really exists in the practical sense, has shown to be very elusive and the fact that any 'postulated' NAIRU can always be changed at will and, if so desired, reduced by improving the matching process in the labor market and by increasing the relative benefit of working instead of being unemployed and by rewarding investments and production to influence the employment positively. With a properly designed economic feedback control the competition can be increased sufficiently to reduce or eliminate the inflationary pressure.

8. When there is a need for a major restructuring of the economy, for example in the wake of an extended time period of large scale investment in the real estate sector or a long-term accumulation of a large trade debt, then it is inevitable that the NAIRU will increase for some time, due to matching problems, before beginning to decline. How much and how long depends on how much the structure of the economy has been warped during the time of imbalance.

9. Most of the causes of unemployment, for example; a lack of aggregate demand and/or a bad incentive structure and/or a warped capital structure and/or an inefficient knowledge and skill structure and/or bad labor market matching can be avoided by a sufficiently powerful application of the principles for economic balancing and stabilization.

10. It could be wise to remember that the economy exists for man and not the other way around. This fundamental principle seems to be forgotten in the political rhetoric against the 'miseducated' unemployed.

17. The education system

1. Education is of great importance in a viable society and also an investment with an exceptionally high return.

2. A good education system must be able to serve also those individuals who by nature are more interested in and stimulated by acquiring practical skills than by accumulating theoretical knowledge.

3. Children who do not respond well to the 'standardized' education in the 'established system' may still have a good potential for developing their skills, at their own pace, to the benefit of society as long as their self-confidence has not been damaged too much in their early years.

4. It is a fact that some of the students in the compulsory education system will get more or less serious problems if theoretical knowledge is emphasized too much and/or too early in their lives.

5. Although based on the best of intentions many education systems can be inefficient and wasteful and indirectly cause problems, which in extreme cases can become very costly societally, for some individuals who do not fit into a too rigid education system.

6. There is tragic evidence that a rigid education system in combination with 'psychologically insensitive' educators may become a traumatic experience, with lasting harmful effects for vulnerable youths, many of which are lacking sufficient support at home.

7. Instead of acknowledging, encouraging and being adapted to the needs and the often practical aptitude of those individuals, the education system is often being used forcefully and wastefully at teaching these students to lack both knowledge and self-confidence to be able to contribute to society and to attain an acceptable quality of life.

8. Teachers who have acquired the relatively rare ability to make the learning process interesting, exciting and joyful for students are of great worth to society and ought to be richly rewarded and given the opportunity to help other teachers to improve their ability to do the same.

18. Measures against pollution and unfairness

1. Environmental labeling of goods and services has become a common measure in many countries. Environmental labeling is based on the hypothesis that if consumers are given information about the environmental impact of various goods and services then this knowledge will have a beneficial influence on their consumption choices.

2. It is, however, a serious problem that environmental labeling too often has resulted in an incentive conflict. This happens when the labeled products and services have a higher price than other less 'environmentally friendly', products and services with the same functional value or benefit to the consumer. Such a conflict will, in practice, punish the 'right' behavior and reward the 'wrong' behavior. In addition it most likely will have the effect of giving the majority of the population a bad conscience for choosing the cheaper alternative, in an effort to make ends meet.

3. There will, of course, always be a minority who can afford to buy the more expensive goods and services and which also will do this with a good conscience. Even if such a behavior can be perceived as positive, it is not a solution to the problems.

4. Unfortunately there are many examples of economic and environmental measures which are both ineffective and a waste of resources but which are still used, due to the possibility to conceal the inefficiency and the real societal costs to the majority of the voters. This has long been a problem which has prevented and delayed the introduction of effective and sustainable measures.

5. Reducing CO2-emissions by imposing a compulsory limit for CO2-emissions from cars is a typical example of bad economics and a waste of resources. The political temptation associated with this kind of legislation is strong since the majority of the voters don't think about the societal cost inflicted by such legislation and in case they do, the

majority believe the cost is paid by someone else. The truth is that the real cost for reducing CO2-emissions this way is much higher than with a single CO2-fee on all CO2-emissions resulting from the use of fossil fuels.

6. To reduce the CO2-emissions by applying a Cap and Trade system in such a way it has been implemented in the European Union is also not a good idea – especially if the system does not include all CO2-emissions. To, furthermore, take the politically easy way out, by granting emissions permits for free and, in the process, letting the recipients themselves determine their expected future amounts of emissions has shown to be a embarrassing mistake.

7. During the time the European Emissions Trade System has been in operation it has caused an unacceptable, to say the least, redistribution of monetary resources with little or no influence on the CO2-emissions – by, in practice, cheating, and stealing money from, environmental organizations and people who in good faith bought emission permits believing that by doing so they were reducing the total amount of CO2-emissions.

8. Thanks to an improved spread of information, where the development of Internet has played a crucial role, the awareness about this and other problems is increasing and radical improvements in the efficiency and transparency of the environmental policy can be expected.

9. It would be a major improvement if the ETS system could be replaced, or at least complemented, by a single, transparent, flexible CO2-fee on all CO2-emissions caused by fossil carbon. If a sufficiently large part of the income from the fee was repaid to the population (the voters), such a system could be secured politically and become a shining example of simplicity and efficiency compared to the present and proposed future European ETS system.

10. The conception that the environmental problems facing humanity

can be solved by informing and educating people to change their lifestyle and take a personal (economic) responsibility for the global problems may be based on good intentions but unfortunately it is not only ineffective but also counterproductive since it has shifted the focus from and delayed the elimination of the dangerous, life-threatening systemic errors in the economy.

11. Growth can be made environmentally compliant, resilient, genuinely sustainable and to an increasing extent immaterial if the ownership, use and depletion of natural resources, including the emissions of environmentally harmful substances are charged with sufficiently high fees – maximizing the probability of the peaceful survival and development of mankind in a very long-term perspective.

12. To delay the introduction of these effective measures may result in dangerous energy and resource crises with collapsing labor productivity, mass starvation, conflicts and wars with scary consequences.

13. To make high fees and taxes acceptable to the majority of the population a repayment of a sufficiently large fraction is necessary, for example, through a reimbursement mechanism with a reimbursement account for every adult individual. Children could receive a certain fraction of the amount, preferably paid to their providers.

14. A repayment on these terms is beneficial for the majority of the population directly and the whole economy indirectly and results in a demand, investment, employment, production and growth promoting redistribution of economic resources and purchasing power.

15. Budget neutral fees on CO2-emissions and other unwanted emissions, according to the principle described above, can reward new markets with a growing benign demand resulting in a sustainable, global development which can increase the quality of life for all.

16. It has been claimed that a CO2-fee, which is sufficiently high to effectively begin to abate the global emissions of CO2, will be harmful

and impose a very high cost, due to a sharply reduced global economic growth. The truth is that every tax or fee in the economy is also a revenue in the economy and what determines the real result is how the redistributed money is used.

17. It is common, in model calculations of the effects of emission fees on the growth of GNP, to ignore the fact that the GNP figure does not only include produced benign goods and services but also, to a large fraction, products and activities that are both unwanted and/or directly harmful. Therefore it is a serious mistake to believe that maximum GNP growth is the most important criterion when ranking different development alternatives.

18. The GNP concept needs to be down-prioritized to the advantage of some more meaningful measure of economic development or at least be critically scrutinized and evaluated in the light of relevant indicators of genuinely sustainable development and growth.

19. In conclusion; global economic growth and development can be made benign and sustainable by proper use of economic feedback control and by sufficiently frequently adjusted fees which are repaid to the consumers, according to the principles mentioned above. A new and effective way to find the optimal level of an emissions tax has been proposed by Sanctuary, M and Hoglund, A (2005), "A Flexible Pollution Tax".

20. In a long-term perspective sufficiently high fees on activities, both material and immaterial, which are harmful for the long-term survival of mankind, would make it possible to successively abolish taxes and fees on other activities, both material and immaterial, which are beneficial for the long-term survival of mankind.

21. In plain language this means that taxes and fees on, among others, financial capital, real capital and human capital, including labor, can be abolished. Such a tax reform would generate a positive economic quan-

tum leap since the sustainable purchasing power, which creates a demand for long-term sustainable and environmentally compatible products, under these conditions can reach its full potential which in turn will positively affect the economic conditions for innovation, investment, employment, production, development and sustainable growth.

22. Since the individual and automatic payment of sufficiently high fees, which will be an integral part of the price of all goods and services in the future, is directly proportional to the actual use and depletion of natural resources, including the actual harmful emissions, that each individual is causing directly or indirectly, the payment can be seen as an individual and personal economic responsibility-taking for the natural resources which every individual is using, spending and consuming.

23. The repayment of the fees, in equal shares to every individual, can be seen as a confirmation of the basic principle of universal equality and fairness and may prove to be essential to achieve a wide acceptance of sufficiently high fees for the fundamental resource problems on this planet to be solved.

24. Of course there are different opinions about what is a fair allocation of the natural capital and other resources of this planet and what allocating principles and living conditions are acceptable and fair, but ask yourself the question; What principles for the allocation of resources would I want or choose, beforehand, if I had the opportunity and if I subsequently were forced to participate in a lifelong experiment in which I had no prior knowledge about the conditions for my life?

25. An honest answer to this key question, in the light of your own conscience, can result in a decisive change in your behavior and make you aware that your opinions, choices and decisions can become important contributions to a more constructive and fair resource allocation and existence for the inhabitants on the planet Earth.

19. Words of warning and promise

1. Due to insufficient knowledge and experience about sound economic incentive structures and practical economic feedback control methods a multitude of imbalances in nations, in unions, in regions and in the whole world have been allowed to accumulate for so long, and to such an extent, that there is an acute risk of a systemic breakdown.

2. The situation is more or less absurd in the light of the fact that the financial system is entirely man-made. In other words; the flaws, the weaknesses and the harmful side effects of the system are all a result of human ideas, behaviors and decisions that cannot be blamed on exogenous disturbances beyond human control.

3. Trying to fix the problems by manipulating the interest rate and by experimenting with 'quantitative easing', without sufficient knowledge about the system, is extremely dangerous and can be seen as a scary analogy to the experiment done in the Chernobyl nuclear reactor where the control rods were ignorantly, albeit in good intentions, pulled out too far in an attempt to restore the reactor power.

4. There is an urgent need for a radical improvement of the prevailing economic paradigm. The longer the change in the thought pattern and the system is delayed the greater the risk of an uncontrolled chain of events leading to immense damage and suffering.

5. Despite the precarious state of the world it is important to realize that even such major crises as The Great Depression during the 1930s and The Global Financial Crisis of 2008 were caused and aggravated by human behaviors and actions which could have been avoided and prevented with a sound incentive structure in the economy.

6. In conclusion; if a sufficiently effective and comprehensive economic incentive structure is created then, by definition, harmful financial imbalances can be prevented and the financial system and the market economy can be optimized for the long term benefit of society.

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