

Credit Beats Growth: Credit in Modern Capitalist Economy in Crisis

1 Introduction: Is the new central bank's goal for financial stability a solution for a stable economy and a strong society?

We live in exciting times. The financial and the pandemic crisis are shaking up economic development. Further upheavals are on the horizon. The climate crisis requires a change in the existing economic process. The global economy is in danger. Political and military concerns are increasingly coming to the fore. A new era is emerging. New ideas and concepts are needed, which should be based on a clear review of the current economic and social situation.

The financial crisis in 2008 has marked a turning point in central bank policy. Let's regard two central banks and their *traditional objectives*. The European Central Bank, the ECB, has *stable prizes* as their *main goal*. The inflation rate should not exceed 2%, otherwise the ECB should intervene in the economic process. The American Central Bank, the Fed, also has as their aim to keep the prices. Furthermore, it considers itself in charge for economic growth, high employment and for the stability of the American financial system.

The financial crisis that occurred in connection with the bankruptcy of the Lehman Brothers Bank has shaken the global financial system and brought the international economic system to the edge of collapse. This danger should be avoided in the future and should not burden future generations.

As a consequence, central banks (CB) intervene massively in the financial market. They are buying up unprecedented amounts of bad securities and thereby taking considerable risks off the market and lowering interest rates to stimulate high profits and investments. They are creating outside money and facilitating debt financing to secure their *new target: financial stability*. Much outside money and cheap bank credits, creating inside money, should provide sufficient liquidity at low cost and low risk in the economy and prevent insolvencies and unemployment. The new objective "financial stability" should favor future economic prospects. Otherwise, the new central bank policy will burden the economy and society in the long run.

Prasad characterized the global change in central bank policy as follows: "As central banks ran out of room to use conventional policy tools such as interest rate cuts to counter the risk of deep and protracted recessions, they took bold and extraordinary "unconventional" measures to support growth, fend off deflation, and store up financial markets. The Fed, the ECB, the Bank of Japan (BoJ), the Bank of England (BoE), and many other central banks took to directly buying large quantities of government bonds. Some even began buying riskier assets like equities and corporate securities – measures that would once have been unthinkable for institutions that had traditionally taken a cautious and conservative approach to policymaking", Prasad (2021, p. 313).

Prasad has succinctly expressed the new situation in which central banks now operate as follows: "In the aftermath of the global financial crisis, it became untenable for central banks to subordinate financial stability to other objectives", Prasad (2021, p.317). We take this

statement as our *first point: the new core objective of CB policy is financial stability, while the original main objective of price stability takes a back seat.*

Financial stability is now considered a sine qua non for the economy to function. This stability is regarded as crucial for any economy and the economy is considered as the basis for the welfare of the people. Therefore financial stability has generally gained ground as the new core objective. A threat to financial stability from the collapse of a big bank, as happened in 2008 with the insolvency of the Lehman Brothers Bank, must be avoided by all means. In this regard Prasad states: "The shock waves from the Lehman Brothers collapse that triggered the financial crisis in September 2008 were so large and damaging that it is now a reasonable proposition that the Fed will never allow such a big bank, whether a commercial bank or an investment bank, to fail in the future", Prasad (2021, p. 97).

With the high level of debt financing having increased since the financial crisis at that time, a new financial crisis would now be far more difficult to master than in 2008. In the face of increased instability, it is therefore difficult to imagine that central banks will be able to return to their traditional policies in the foreseeable future.

In view of the uncertain future, the question arises as to whether the new financial stability objective can provide a *sound basis for long-term economic development*. Doubts arise because it does *not promote confidence in the economy*, the social basis of economic activity. *Financial stability has considerable follow-up costs for the economy and society*. By backing the financial system unilaterally, it creates a long-term imbalance between credit expansion and economic growth. The transformation of production demanded by the climate crisis will further widen the imbalance between credit and growth. As a result, confidence in economic development dwindles. With its new target financial stability, the central bank is reluctant to fight inflation. But with its prices increasing, inflation makes daily economic activity more difficult and reduces prosperity. This also diminishes confidence in the economy.

Basically, the question is whether financial stability puts economic and social stability at risk.

2 Credit in modern capitalist economy: Its mechanism and its consequences

2.1 Banks promote profits by credit financing and central banks keep credit costs low to ensure financial stability and to favor growth

At the beginning of capitalism, companies increasingly used machines to produce goods. Their use generates enormous growth in the economy and leads to considerable prosperity in Western industrialized nations. With increasing credit financing of the capital used, banks and central banks now become the main players in economic development. They shape the modern capitalist credit economy with increasing instability, especially between credit and growth.

The modern capitalist credit economy is characterized by close cooperation between companies and banks. Credit financing is its link. It allows entrepreneurs to significantly increase their return in capital through debt financing. Increasing debt financing raises business risks and makes the economy unstable. The instability has come to light with the financial crisis. With this crisis, central banks now feel obliged to use all their means to

ensure the stability of the financial system and to promote growth. Without growth, stability is at risk.

As we face a new era, it is imperative to understand how the new central bank policy works for credit in the capitalist economy. In this regard, we are interested in the impact of its expansionary liquidity at reduced cost and risk. To do this, let's first look at the situation faced by an entrepreneur who wants to secure its future earnings and profits through today's investments.

Investment decisions are based on important research and development work. At that level different specialists such as biologists, chemists, physicists, engineers, IT specialists and designers drive technical progress. It manifests itself in innovation, such as new products, novel services and concepts, and new production processes. This level creates the basis for lucrative sales opportunities and worthwhile *project returns* r_p .

The entrepreneur will decide to invest if his project return r_p is greater than the market interest rate i . If $r_p > i$, then his investment project looks profitable in the future. Otherwise, it would be better if he gives his money to a bank earning interest. If the investment project is expected to generate profits, then it is also of interest to the bank. *It can participate in the promising project by supporting it with credit. On the one hand, credit financing is associated with additional costs, but on the other hand, it can significantly increase profitability.* The bank charges the market interest rate i plus a risk premium p_r for the loan. The loan reinforces the profitability r_e of the entrepreneur's invested money via a *leverage* v according to the formula

$$(1) \quad r_e = r_p + v [r_p - (i + p_r)]$$

as long as the project return r_p is greater than the finance cost $i + p_r$. Otherwise in bad times with increasing financial costs, the *return on equity* r_e will be reduced and can even be negative. Then the firm may lack the necessary liquidity and it must use part of its equity to pay its finance cost and runs the risk of insolvency. The leverage v is the ratio of debt capital to equity.

The new central bank policy with financial stability aims to lower the market interest rate i and the risk premium p_r . To this end, as already mentioned, it provides the private banking system with a lot of liquidity at low cost and takes over risks from the private sector of the economy by buying bad loans. In the limit, it even shows itself willing to separate high risk-bearing parts from banks. For example, there are plans in the ECB for the creation of bad banks which should take over bad loans.

The expected rate of return r_p varies from project to project. Statistically, we have a distribution of returns as schematically illustrated in Fig. 1 "Distribution of project returns in normal times".

We start the schematic representation of the distribution of project returns $h(r_p)$ with a symmetric diagram for normal economic times. The symmetry places the maximum h_{mn} of the distribution $h(r_p)$ in its center. The financial costs $i + p_r$ represent a lower limit. All projects with a return r_p greater than the threshold $i + p_r$ should be considered worthwhile

to receive recognition and for banks to support them through loan financing. The scope of worthwhile projects is shown shaded in Fig.1 “Distribution of project returns in normal times”.

In the transition from normal to good times, sales opportunities and financial conditions improve for entrepreneurs. Increased demand leads to higher project returns r_p for many more companies. The result in Fig. 2 “Distribution of project returns in good times” is that the maximum h_{mg} of the distribution $h(r_p)$ slides further to the right into the area of higher returns r_p . Lower financing costs make projects of additional firms with low returns profitable, the threshold $i + p_r$ is moving to $i^g + p_r^g$ in the left of the area of low returns r_p . As in Fig. 1, Fig. 2 shows the amount of profitable projects shaded. Due to better economic conditions it has increased significantly compared to Fig. 1. Moreover, as banks lend now more easily, the leverage v rises and so does the return on equity r_e and, finally, the company’s profits Π . As noted, profits stabilize economic development.

During the transition from good to bad times, stability is at risk. Now central banks are called upon to provide stability. And as growth lags behind credit expansion, central banks have to pursue for a long time their new objective “financial stability”.

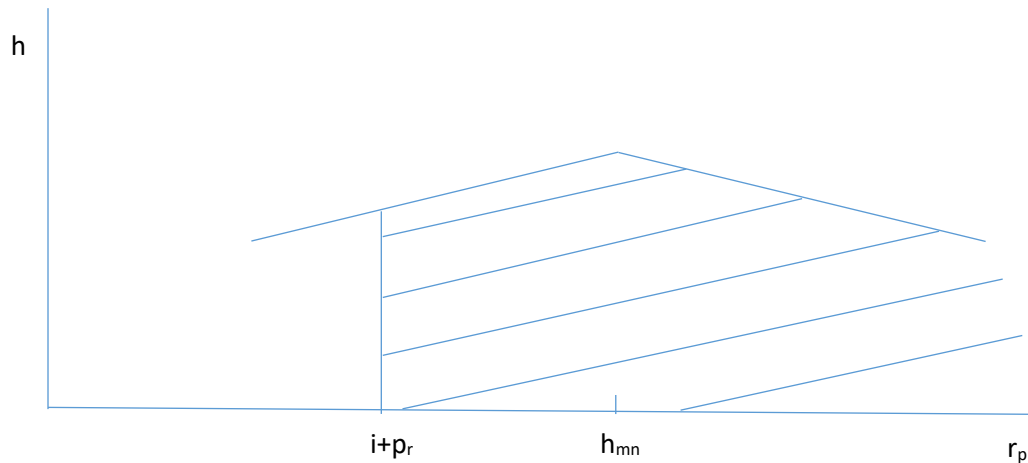
In bad times, the economic situation reverses. Sales opportunities shrink and financing costs rise. Under these conditions banks are more cautious in granting loans, the leverage v decreases. The reversal from good to bad times in the economic trend is discussed in detail in Pauly (2021) as the Keynes-Minsky momentum.

The new situation is shown in Fig. 3 “Distribution of project returns in bad times”. The drop in demand shifts the maximum h_{mb} of the returns distribution $h(r_p)$ to the left. Fewer projects are now profitable. The increased financing costs make the critical financial threshold shift to the right, from $i^g + p_r^g$ good times to $i^b + p_r^b$ bad times. They further reduce the number of profitable projects. Many companies now run into difficulties. Graphically, this becomes clear in Fig. 3 by the fact that the shaded area, showing the profitable companies, decreases significantly.

Now, as we know, central banks have to step in and ensure stability. To do this, they have to intervene heavily in the financial market to restore conditions as in normal or good times. Central banks measures have *a less significant impact on sales than on financing costs*. They could move the threshold $i^b + p_r^b$ toward $i^g + p_r^g$ as indicated by the bold arrow in Fig. 3, but not noticeably change the distribution of returns $h(r_p)$. With the impact of financial costs a lot of firms with low returns can stay in the market that would otherwise go bankrupt. Under the bad market conditions, central banks keep many companies with low returns from insolvency and thus they favor “evergreening”. These firms can continue to borrow and increase their profits through the leverage v . But it is not only firms with low profitability that benefit. The new central bank policy provides additional profits Π to all firms with profitability above the critical threshold.

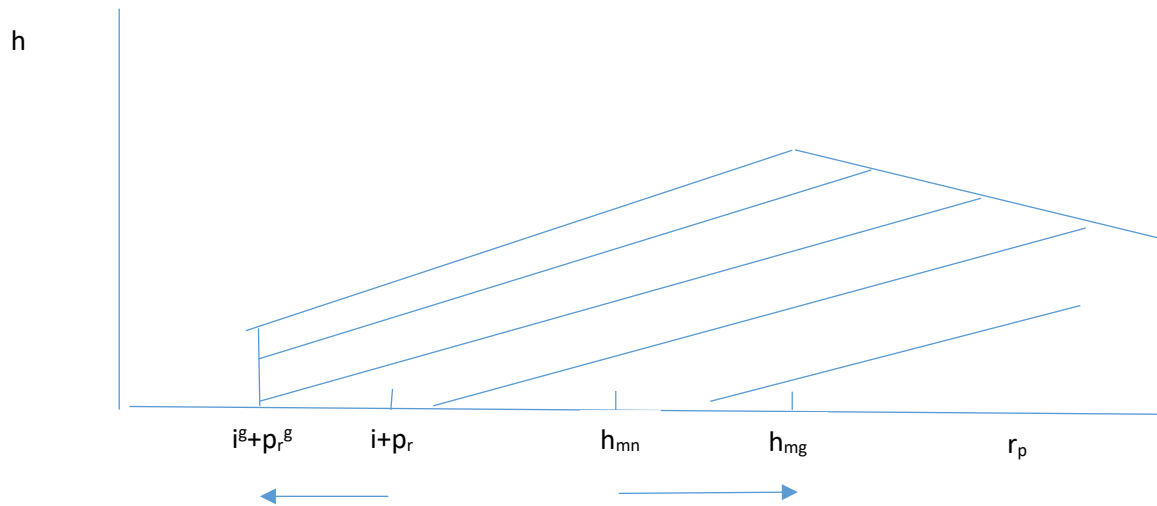
At best, central banks can stabilize the economy in the short term with their new financial stability objective; in the long term however, their actions promote instability. The modern capitalist credit economy is becoming more vulnerable in crises.

Figure 1 Distribution of project returns in normal times



For project returns r_p greater than credit costs $i + p_r$, the investment projects are profitable. These profitable projects are shown shaded in the figure. The further the project returns r_p are above the maximum value h_{mn} of the distribution, the greater the leverage effect v of the debt financing is and the higher the returns of equity r_e are, so the higher the profits Π are. The further the project returns r_p are below h_{mn} , the less the leverage effect v is and the smaller the returns of equity r_e are, so the smaller the profits Π are. As the break-even point $i + p_r$ is approached, the risk of insolvency increases. Often, companies with small project returns can only be saved from insolvency by government support. In the long term, government support can lead to evergreening and slow down economic development.

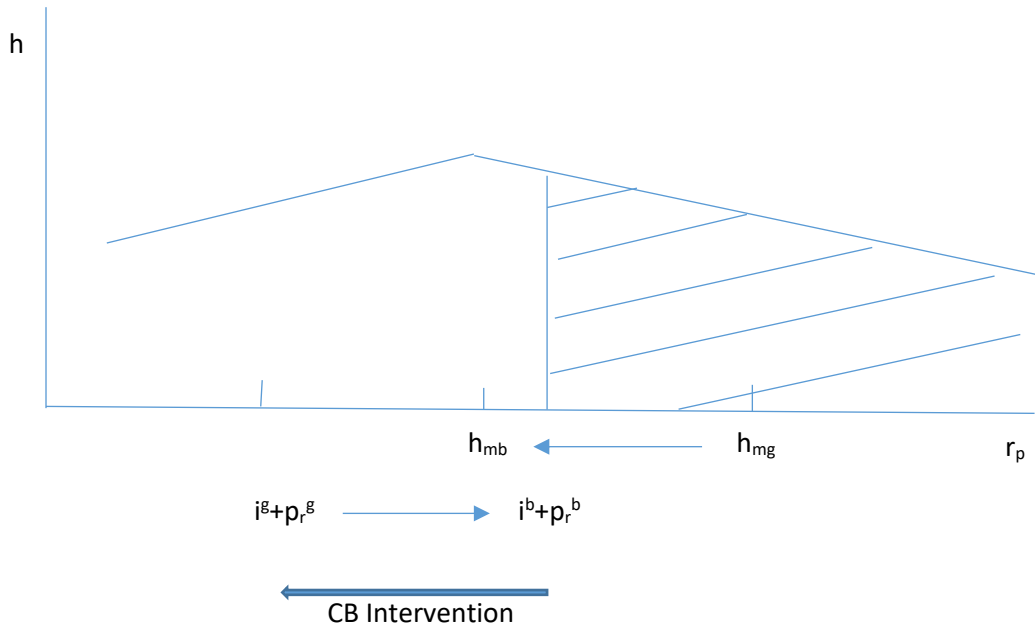
Figure 2 Distribution of project returns in good times



A change from normal to good times has two effects, indicated by the two arrows and the enlarged shaded area in Figure 2. First, the improved sales opportunities shift the maximum of the distribution of returns from h_{mn} to h_{mg} , then the number of firms with profitable projects is increasing. Secondly, the financing costs become more favorable. The improved financing conditions shift the break-even point from $i + p_r$ to $i^g + p_r^g$, allowing more companies to enter the market with profitable projects, albeit with low profitability. The lower cost of financing increases the leverage effect v .

The distribution of the rate of return $h(r_p)$ reflects the earnings prospects of firms in an economy and thus informs about the growth prospects of the economy as a whole. If the distribution shifts to the right, as in "good times" in Figure 2 compared with "normal times" in Figure 1, then the prospects for growth increase.

Figure 3 Distribution of project returns in bad times



A change from good to bad times has two effects, indicated by the two not bold arrows and the diminished shaded area in Figure 3. First, the reduced sales opportunities shift the maximum of the distribution of returns from h_{mg} to h_{mb} , even below the maximum h_{mn} in normal times. The number of firms with profitable projects is decreasing. Secondly, the cost of financing is rising. The deterioration of the financing condition shifts the break-even point from $i^g + p_r^g$ to $i^b + p_r^b$, even above the break-even point in normal times. The number of companies in insolvency are increasing, as more and more companies have difficulties to remain in the market. In order to secure jobs, the state is now called upon to intervene in the market, especially the central bank, with regard to the financing conditions.

Central bank measures improve financial conditions - as indicated by the bold arrow. They have little effect on demand - here on the distribution of profitability $h(r_p)$. If central banks pursue their new goal of financial stability in the long run by promoting growth with cheap money, then emerging inflation may reduce purchasing power and thus demand. Thanks to cheap money, less profitable firms may survive, but growth may fail to materialize. Evergreening may persist. And the imbalance between credit and growth may increase and thereby cause economic instability.

2.2 Long-term instability on the rise

Two effects of central bank's policy are apparent. Overall, profits Π increase and firms with low profitability can remain in the market or join it. The second effect favors evergreening and weakens the market forces in economic development as described by Schumpeter (1883-1950). On top of this, banks are likely to be more willing to lend because of the central bank's takeover of risk, thus expanding debt financing. This puts the balance between credit and growth in jeopardy, as growth falls behind.

In debt financing, Minsky (1919 – 1996) has seen the cause of economic instability. He distinguishes three types of finance:

1. Hedge finance
2. Speculative finance
3. Ponzi finance

With hedge finance, current revenues are sufficient to meet all payment obligations of the considered firm over a longer period of time. Current interest is paid including risk premium, and outstanding debts are repaid. In the case of speculative and Ponzi finance, current earnings are not sufficient to meet all financial payment obligations. In the case of speculative finance, the interest and the risk premium are repaid and the old debts that are repaid are replaced by taking on new debts, without increasing the indebtedness. In the case of Ponzi finance, the current finance costs are settled and the debt level is increasing. With the rise of debt the follow-up costs of credit financing increase and financial costs and risk are postponed into the future. Both debtors and creditors are now highly dependent on the development of the financial market.

One can argue that debt expansion à la Ponzi is economically viable as long as profitability is greater than financial costs, as long as r_p is greater than $i + p_r$. However, the volatility, specifically the Keynes-Minsky momentum, shows that this situation is highly risky and can easily lead to an economic crisis. In the long term, therefore, the CB new policy based on increasing credits cannot form a stable foundation for economic development as long as growth lags behind.

The new central bank policy is aimed at increasing companies' profits Π and reducing their market and financial risks. This policy also favors government spending. By buying up bad government loans, the central bank frees the state from old burdens, and the low interest rates allow the state to borrow cheaply to finance its current expenditures. Thus, the central bank supports the monetary financing of government activity and the expansion of government debt. Fiscal policy thus becomes dependent on central bank policy, especially in the EURO zone, where states have very different creditworthiness which can lead to significant interest rate spreads between individual EURO countries. This can create international tension if, for example, the Fed restricts its expansionary policy when inflation is rising and the ECB cannot follow to the same extent. This may be the case because the ECB has to keep an eye on the cohesion of the EURO countries, bearing in mind that a rise in interest rates can bring a less creditworthy country with high debt to the edge of insolvency. This political dependence of the ECB will weaken the EURO currency and cause import prices to rise and will strengthen inflation.

2.3 Inequality on the rise

As we can see, companies and governments benefit from high liquidity at low cost. This statement does not apply to all private households. The low interest rates are hardly an incentive to save money at the bank and provide for the future. This is especially true for the poor. They are increasingly dependent on help, primarily help from the state. Their dependence on it is increasing. The situation is quite different for richer people with income from profits. The result is a divided society with increased inequality.

As explained, the new central bank policy focuses on increasing the return on equity r_e and thus profits Π . This is how it intends to stabilize the economy. By far the largest share of profits goes to the richer households. They consume much less of it than poorer households do from their income. The savings rate s_Π of the richer households is close to one, whereas the consumption rate c_w of the poorer households is close to one.

With the policy of low interest rates, the central bank reduces the incentive among the poorer to save and provide for their future. Their propensity s_w to save is falling. As the propensity to save falls among the poorer and the profits of the richer rise, inequality in society grows. In addition, the richer can venture more. Much risk in investment decisions has been taken away by the central bank.

In Keynes' day money, especially from households, was still flowing into real investment projects, at that time the main function of the financial system was the transformation of household's savings into productive investment. Today much of banks' money, outside and inside money, is directed into profitable financial projects. If real investments are productive for economic growth, most financial investments are unproductive, for example, a lot of money that is going into the real estate market has no effect on growth. Real investments increase the national capital stock K and thus the national growth g . Investments as a whole increase wealth Σ and will further increase inequality. This has been pointed out by Piketty (2013) in his well-known inequality $r > g$, the return of wealth r is greater than the growth rate g .

Let us reformulate Piketty's inequality by distinguishing more clearly between productive capital K and wealth Σ . By including the price p_Σ of the stock of wealth Σ and noting that savings from profits Π substantially determine the increase in wealth, the increase in wealth is

$$(2) \quad \Delta\Sigma = p_\Sigma \Sigma + s_\Pi \Pi.$$

And after transforming this results in the growth rate $g_\Sigma = \Delta\Sigma/\Sigma$

$$(3) \quad g_\Sigma = p_\Sigma + s_\Pi \cdot r \text{ with the rate of return on wealth } r = \Pi/\Sigma.$$

Central bank policy, with its cheap liquidity policy, pushes the rate of inflation of stocks in the economy, significantly increasing p_Σ , prices especially in the real estate and art markets, but also in the stock market. Central bank policy makes, as we know, profits Π in (2) swell and thus the rate of return of wealth r in (3). *As there is a tendency for the growth rate g to decrease via evergreening, g will clearly lag behind the growth rate of wealth g_Σ , $g_\Sigma > g$.* Inequality continues to grow. The Economist puts it as follows: "The wealthy largely have

central banks to thank for their good fortune last year. By slashing interest rates and amassing assets, central banks helped the price of shares, property and bonds rebound”, *The Economist*, *Stabilité, liberté, égalité*. The pandemic has widened the wealth gap. Should central banks be blamed?” July 10th 2021, p. 66.

2.4 Loss of confidence in the economic future: Credit expansion - the source of imbalance in the economic development

And now more about loans. Mankind for centuries has been amazed to find that with orientation of the future in their present life, it actually makes the future a better place to live. This *forward orientation* has been successful for centuries and *the success is based on credit and exploitation of nature*. *Today’s credit system finances a promising future with the obligation to pay the finance costs tomorrow, especially via the Ponzi finance system. The economy has a tendency to postpone the follow-up costs, such as financial costs and costs of environmental exploitation, into the future.*

We can look back on a long glorious history of credits. In former times, farmers could observe that working the soil today with better tools produces additional yield in the next period. An increased use of technical products that farmers bought from craftsmen made it necessary for them to finance their purchases with external funds. They are taking on debt today. And it pays off for them, as long as their tomorrow’s return will exceed the financial costs they incurred yesterday. Similarly beneficial for farmers can be the credit purchase of artificial fertilizer. Later in the industrial revolution, entrepreneurs have taken advantage of credit financing and bought machinery and factories financed with credit.

The transition of people from gatherers and hunters to farmers and cattle breeders has fundamentally changed their lives. They became sedentary, lived in settlements, were able to feed themselves better and raise more offspring. To do this, they had to pay more attention to farming, raising livestock, and taking care to increase the yield. According to historian J.C. Scott, people became servants of their new task to generate more return, see Scott: “Against the Grain” (2017).

They used tools to increase yield. To buy tools such as spades, rakes and plows, they borrowed money. This was worthwhile for them, because from the increased yield they could later pay back the borrowed money plus interest. This was the beginning of the orientation towards the future, and it continues to increase in our time.

With our orientation towards the future, we become slaves to our expectations that we will be better off tomorrow than we are today. In order for these expectations to be realized, we need growth tomorrow with which we can pay our credit obligations that we have made today. Banks together with central banks and political actors are expanding the volume of credit in the economy, which requires further growth. However, when the growth will not be high enough to finance the credit costs, the equilibrium of the evolutionary economy based on high credit and high growth would be endangered. This in turn would put our fundamental basis for confidence in our work and life at risk.

Following Scott, we can state the proposition that people become slaves to their expected growth increasingly based on credits. This attitude is typical in the modern capitalist credit

economy. More pointedly we can say that the overstretched credit-financed capitalist economy makes the state and society slaves to growth. This is how the state-supported capitalist credit economy comes into being.

Innovative entrepreneurs are the main actors in the modern process of credit based economic evolution. They are supported by commercial banks. They provide the loans that entrepreneurs need to finance and market the production of their new goods. Following Schumpeter one can say that *credit creation is the complement of innovation*. Commercial banks are interested in expanding their lending business. Thereby increasing their profits. And central banks support them in their activities.

More generally, today, entrepreneurs finance their production with loans and tomorrow they sell their produced goods at a profit after paying their financial costs. This is the economically fruitful intertemporal exchange that has sustained economic development for centuries and in which economic agents have confidence. This trust is based on a lot of credit and a lot of growth. According to Harari (2011), trust, credit and growth are the pillars of the modern economy. This long-lasting stable balance between much credit and high growth is becoming unstable and trust is dwindling.

We can regard growth g as beneficial to investment on projects as it increases sales opportunities. Thus, growth g can be seen as closely linked to project returns on r_p and with economic prosperity. Some economists view future growth opportunities as low, for example R. J. Gordon (2016). Others consider the future full of opportunities, for example J. Mokyr. According to Gordon, the era of high growth is over. J. Mokyr sees it differently: "Mokyr, on the other hand, sees a bright future for economic growth, spurred by nations competing to be the leader in science and technology, and the resulting rapid spread of innovation worldwide. He sees the potential for progress in laser technology, medical science, genetic engineering and 3D printing", here quoted from Banerjee and Duflo (2019), p. 151.

One example of the growth potential in medicine is mRNA technology, which has enabled BioNTech's founders, U. Sahin and O. Tureci, to develop a successful vaccine against coronavirus in a short time. They point out that this technology can also be successfully used to combat other diseases: "At BioNTech, we are now going beyond covid-19 and investing in mRNA-vaccine programmes to deal with diseases such as malaria, tuberculosis and HIV, which are still responsible for many deaths in lower-income countries. The prospect of being able to bring mRNA technology to bear is creating a spirit of optimism in the fight against these human scourges", The Economist, The post-covid future of mRNA therapies. The world ahead 2022, November 8th 2021, p.133.

The future is open and also the answer to the growth question. What can be said, however, is that central banks favor evergreening and thus impede economic growth as Schumpeter saw it with innovative companies. This applies above all to Europe, and less so to the USA and China. The Economist notes: "..., only America and China have been able to marshal the process of creative destruction. Of the 19 firms created in the past 25 years that are now worth over \$100bn, nine are in America and eight in China. Europe has none", The

Economist, Geopolitics and business. America and China dominate global business. That is a wake-up call for other countries, June 5th 2021, p.11.

Furthermore, the transformation of production, as required by the climate crisis, will first make it more difficult for an economy to grow as it will increase the costs and will further stimulate credit expansion. So that Harari's central constellation of modern economy can become out of balance and trust may dwindle in the future.

Credit can be a blessing for mankind, but it can also be a danger. As Minsky argues, debt financing is a source of economic instability. In crises, sales threaten to collapse, growth g is slowing down, and thus the project profitability p_r can fall below the financial costs $i + p_r$, companies have to fall back on their equity capital and the insolvency spiral can begin, as we know from formula (1) and Fig. 1-3. Now the central bank is called upon to reduce the financial costs and avert the threat of insolvency. It switches to crisis mode and makes financial stability the dominant objective. In the process, it favors evergreening in the face of high national debt and thus prevents economic development à la Schumpeter toward more growth. *The modern economy's foundation of "much credit," "high growth" and "strong thrust" is in jeopardy.*

3 Imbalance between credit and growth endangers the economic and social stability

3.1 The great challenge: Green production transformation with further credit expansion

Now we can come to our second point. When it comes to the change in economic production caused by the climate crisis, the important factor is that: *To maintain trust and stability the modern capitalist credit economy is obliged to grow.* Central banks can make financing more favorable. But that may not be enough to secure sufficient growth in the long term. This is all the more true as the climate crisis requires a drastic change in production with additional costs and further credit requirements. This brings us to the third point: *The climate crisis calls for a new supranational industrial policy with a substantial change in production with additional costs and credits.*

The clean-energy transformation in the production process has features of innovative developments, as described by Schumpeter in his economic evolution. And yet many things are totally different. What is essential in Schumpeterian development is that the old is replaced by the new, for example in production. And, a new economic prosperity emerges, because the *new is more productive* and opens up new opportunities in the future with *greater growth*. High profits bear the financial costs, so the *external financing can be settled*.

Since the industrial revolution, coal, oil and natural gas have been the energy base in production. Their intensive use has played a decisive role in economic growth over long decades. Without them, machines would not have been able to develop their productivity. But their use has had long-term harmful effects on the environment and climate. It has taken a long time for this long-lasting mode of production to be considered responsible for the adverse effect, especially for global warming. We can therefore speak of man-made climate change.

Nowadays, the evidence is clearer, and the change in the mode of production is being insistently demanded more and more in society: away from the dirty fossil raw materials to

the CO₂ free green energy. The old is to be replaced by the new. As in Schumpeter's approach to economic development, the production process should change, and change fundamentally. Interestingly, energy is not explicitly included in production functions of traditional growth theory, yet it is of great importance in the economic process. One indicator of this is the considerable effect that the increase in the price of oil in the 1970s had on both inflation and unemployment.

It is not the entrepreneurs who are behind the transformation process. It is not profitable innovations that are reshaping the previous economic process. Now it is the state and society. The old mode of production has led to damage. It must be replaced by a new one to prevent further damage. This is what society demands of politics, and politics can no longer evade the pressing demands. The state intervention in the economy is enormous, the costs are high and so are the necessary credits. Even if the effort is great, it does not necessarily lead to more growth. High costs and more money in circulation are pointing in the direction of stagflation for the future. One day, people may be talking about green stagflation.

The climate crisis is an unprecedented, enormous economic challenge. Two options are sometimes discussed. The first envisages green growth. The aim is to try to achieve the green transformation with growth. The second puts the transformation in the foreground and makes growth subordinate to it. According to our second point, the second option cannot be realized without endangering the modern credit economy. An increase in instability with stagflation would threaten the economy and society with disastrous consequences. So only the first path remains. And here extraordinary efforts are necessary with serious changes not only in production but also in consumption. Particularly in the case of consumer behavior, it is clear that it is a matter of informing citizens, convincing them and taking them along on the new path.

A group of Brussels economists argues that the green growth option should strongly improve performance in hydrogen technology and in battery manufacturing, invest significantly more in research and development, and encourage citizens to make their behavior more environmentally friendly, see K. Lenaerts, S. Tagliapietra and G.B. Wolff, *Sacrifier la croissance pour lutter contre le réchauffement climatique est illusoire*, *Le Monde*, 12 Octobre 2021, p. 28.

On future investments in green technology, the Economist states: "Rich-world governments are pledging to transform their economies to eliminate net carbon emissions, and this will require huge investment. ... Even with carbon taxation, the Office for Budget Responsibility, Britain's watchdog, estimates that the spending needed to get to net zero by 2050 will, by the end of that process, have added 21 percentage points to Britain's debt-to-GDP ratio." *The Economist*, *The great embiggening. Why government expands almost all the time*, November 20th 2021, p.21-23.

The state project of production transformation will further strengthen the tendency toward a state-dominated economy, with great impact on the economy. In this regard, P. Foulis, an editor of *The Economist*, remarks: "A boom in green-tech venture capital suggested that funds were being reallocated at scale. And sustainable investing became one of the biggest trends in finance since subprime debt. ... A shortage of fossil fuels, which account for 83% of

primary energy use, threatened to push global inflation above 5%, hurt growth and spook public. ... The hardest part of the coming year of realism will involve being honest with the public." P. Foulis, Reality check. Shortages and greenflation will end the age of idealism on energy policy. The world ahead 2022, *The Economist*, November 8th 2021, p. 15. Fighting climate change will be costly and may reduce growth, but it cannot be successful without the engagement of citizens.

Being honest with civil society will be a crucial asset for a promising turnaround in the economy that is being sought with the transformation of production. If the state explains its interventions to its citizens and thus takes them along with it on the new path, then a modern knowledge-based civil society can emerge in which technical progress can fully develop for the benefit of society as a whole, even if the upcoming transformation of production poses a major challenge. We will discuss the importance of civil society as a central pillar in the desired transformation later.

3.2 Follow-up costs in production and in finance

Externalities, caused yesterday, are increasingly emerging as costs in today's economic calculus. External effects are subsequent costs that are not included in the current market prices and are borne by society with a delay. Cost-minimizing production with fossil raw materials tends to pollute and even destroy the environment. The resulting damage is borne neither by producers nor consumers, but by the general public, usually with a greater or lesser time lag, often by people who had no benefit at all from the production yesterday. The term "external costs" is associated with A. C. Pigou (1877 -1959). An example of external costs is the old production technology with coal, oil and gas, which pollutes the environment and has decades of late effects in the global climate crisis. Another example is nuclear energy. It is a high-risk and extremely vulnerable technology that can lead to devastating environmental disasters. Nuclear power plants can be easily destroyed. Destruction in war, by terror, sabotage or mismanagement leads not only to large-scale radiation and destruction of life, but also to a failure of a main energy source. Even the risk of an accident is not privately insurable. Neither is the costly disposal of highly dangerous radioactive waste. These costs are borne by society, primarily by future generations. Therefore, their external costs, which are hidden for the time being, may emerge later.

As for the ongoing risks of nuclear energy supply and its long-term disposal problems, Dennis Meadows makes a similar point in an interview with *Le Monde* newspaper. He also highlights the long-term negative consequences of uncontrolled growth, which we see as a consequence of uncontrolled credit expansion by banks, central banks and short-term oriented politicians. For the interview, see: Dennis Meadows, Il faut mettre fin à la croissance incontrôlée, le cancer de la société, *Le Monde*, 9 avril 2022, 32.

The burden of externalities is becoming more and more substantial in economic processes and visible in everyday life, at least that of fossil fuel production on the climate. A reorientation is demanded and the first measures for drastic change are undertaken.

The expanding credit economy in the past is another burden for society now and in the future. Here the burden is the debt. With the rise of debt, Ponzi financing increases the follow-up costs of credit financing and postpones financial costs further into the future.

Royal houses in early human history already knew about this burden of debt and its follow-up costs and also about the liberating effect of debt relief for their countries. They invented debt cancellation. It was supposed to enable a powerful new beginning. Now debt relief is more complicated. Credit is a mainstay of the modern economy, and it is internationally intertwined, which is especially true for the financial sector. Today, for the international financial community, debt relief may signal low financial reliability and increase the risk premium for the countries in question and may endanger their financial stability.

What was debt relief in the past could be anyone's inheritance tomorrow. Donations can come alongside loans. A new central bank policy could develop in this direction. You will be able to inherit when you are young and when you are old. And the central bank can turn out to be the new "testator", the new donator, for the whole society and for society in need. Here, it can establish direct relations with the individual economic agents and make a new contribution to the future development of civil society.

The IT technology can also strengthen civil society. It can form a platform where the state and society can cooperate better. An example from Taiwan bears witness to this. The digital minister there, Audrey Tang, describes the new orientation as follows: "The pandemic has strengthened our model of collaboration between people, government and the private sector, deepening what I call "people-public-private" partnerships. This is because we have built digital infrastructure that lets people freely express opinions on policy reforms", The Economist, How technology can strengthen democracy. The world ahead 2022, November 8th 2021, p. 91. The new IT technology not only allows citizens to be fully informed about upcoming political decisions, but also enables them to participate in the political decision-making process. This reinforces democracy from below through citizen participation. The 4th section discusses political reorientations in more detail.

3.3 The changing relationship between growth and credit and the challenge of the climate crisis in the capitalist credit economy

According to Schumpeter, entrepreneurs drive economic development, and thus growth. They are the innovators and create new goods. They market the new and assume considerable risks in the process. The new doesn't just want to be developed and marketed. Development and marketing also need to be financed. Banks provide the financing, mainly in the form of loans.

With the crises, the relationship between growth and credit is changing. The crises since 2008 have made the economy unstable, and the central banks in the leading industrialized countries see themselves called upon to ensure stability and set financial stability as their new core objective. To this end, as we know, they are reducing their central bank interest rate and buying bad securities to an unprecedented extent in order to lower the market interest rate i and the risk premium p_r , which massively eases financing conditions.

The resulting credit expansion requires growth, which in times of crisis - as discussed in Figure 3 - cannot result from favorable financing conditions alone. If it does not occur, it serves primarily to secure employment with evergreening. The evolutionary equilibrium between credit and growth thus becomes unbalanced.

Compared with earlier economic developments, the direction of the relationship between credit and growth is changing fundamentally. *Whereas in the past growth required credit to unfold, today credit requires growth to pay for it.* The credit expansion that follows from stabilization policy in crises will itself lead to further crises if growth is insufficient. It will also make the industrial transformation toward green technology much more difficult. This is because the transformation requires money on a large scale. Whether it can generate the necessary growth for evolutionary equilibrium must remain an open question.

The fight against the climate crisis is costly. It costs a lot of money. Loan financing would further increase the follow-up costs in finance. The increased debt will then place a heavy burden on future generations. What is serious is that they will have less growth to pay off the loans and that inflation will tend to remain high, since in environmentally friendly production prices will capture all costs, part of which used to be left out as external costs in the past. The new climate policy in an unchanged capitalist credit economy will put confidence in the development equilibrium between credit and growth in serious jeopardy. A successful fight against the climate crisis can thus only take place in a reorientation of the modern capitalist credit economy, otherwise the new climate policy will be off target.

And a climate policy that misses its targets can have disastrous consequences worldwide. The Economist points out the costs and consequences of a failed climate policy in several articles in its November 5th - 11th issue with the title "Say Goodbye To 1.5° C. Why climate policy is off target."

In any case, the question arises: How can traditional economic policy break out of the impasse? How can the follow-up costs, environmental damage, evergreening and the credit burden, be reduced? The state would have to move away from the policy of cheap money, low interest rates i and the taking on of private economic risks p_r , toward strengthening project profitability r_p and taking on civic risks.

A company's profitability r_p can be promoted through education, professional training, research and development. This promotion will benefit future growth and the development of a knowledge-based society. It is a long-term process toward a knowledge-based society. On the one hand, this process forms a basis for society from below and, at the same time, strengthens competitiveness on a global level.

The knowledge-based society can turn out to be a suitable basis for the technological upheaval towards green production. Many innovations in energy production can be accomplished at the local level, in cooperation between local citizens, businesses and government agencies.

Unlike interventions in financing, these measures have a long-term effect on profitability and are thus not very politically attractive. This makes a broad and long-term public relations effort all the more urgent and calls for new institutions. An institution for public relations, for example where experts and scientists of all disciplines can continuously inform the public on current and fundamental issues, should be an independent forum in which the public can take an interest.

4 Realignment of economic policy

4.1 A turnaround through reorientation of the state towards civil society

To better understand the scope of the change, let us briefly describe the existing economic system. The main actors in a closed economy without foreign trade are: the state sector, the business and the private household sector. The state with numerous greater municipalities and smaller communities at the local level and with the central bank. The business sector with more or less profitable companies and more or less large banks, with retail, commercial and investment banks. We expand the private household sector to civil society with children, students, consumers, employed and unemployed persons, as well as ill and retired people.

The main actors are interrelated in many ways. The central bank does transactions with private banks and creates outside money. Commercial banks grant loans to companies and consumers and create inside money. The creation of money is based on credit and the other side of this is debt, which is increasingly weighing on the development of the economy.

In the course of the recent crises, the dominance of the state in the economy has grown. In the process, central banks are becoming the central player in the state-dominated economy. Their new focus on financial stability favors the role of the state by providing the utmost support to companies and their pursuit of profit and henceforth strengthening the inequality in the society. In the long run, it will increase instability with further credit expansion in the capitalist economy. Thus, the focus on financial stability cannot contribute to a sustainable economic and social system.

The role of society in social and economic life has been weakened by the increasingly powerful state and its focus on economy, especially on the financial sector. But society should play a more prominent role. Society must therefore be strengthened in the form of a knowledge-based civil society. Economic growth can benefit from knowledge-based citizens, who want to be strengthened in the face of strong credit growth so that confidence in the future will not fade.

Central banks can play a crucial role in strengthening civil society. They can use modern IT technology to do so. They can set up an account for every citizen, for children, students, consumers, employed and unemployed persons as well as ill and retired people. That could turn out to be revolutionary. Central banks can use the latest techniques and put themselves in the service of society.

If the focus of central banks with financial stability is clearly on private banks to promote profit by favoring the credit economy, the focus on civil society adds other objectives to the central bank policy: equal opportunities from an early age and protection of people in precarious situations. Improving equality of opportunity benefits education and thus the knowledge-based progress that sustains future growth. In the new path, central banks act as banks of social affairs with clearly defined tasks for supporting the civic society, an additional task to their traditional one in finance.

4.2 An additional task for central bank: Supporting the strength of the social and economic base without increasing the credit burden

Strengthening civil society and making it a cornerstone of economic development is a great challenge. A strong European civil society stands in contrast to the nation states that have emerged in Europe over long decades. It can help a European development to emerge from below and to unleash a lot of initiative. The reorientation of state intervention policy can help to trigger this new evolution. Central banks can play a decisive role in this process.

In the case of government intervention, it is crucial that it does not increase the credit burden but, as far as possible, strengthens Europe's federal structure so that citizens can better engage in the political process. Europe's states are not allowed to print money to finance themselves. They depend on the money creation of the central bank, on its outside money creation. Like inside money creation, this requires credit expansion, which weighs heavily on the economy. The ECB, together with its national central banks, can inject new money into the economic cycle *without increasing the credit burden and the imbalance between credit and growth*.

The ECB is arguably more suited to *the new economic policy of supporting citizens' economic life without increasing the credit burden*. The new path could also be a way out of the impasse it has reached with the objective of financial stability.

New IT techniques allow central banks to break new ground by creating e-money. They can open accounts for citizens without recourse to private banks and enable them to make direct payments with their central bank digital currencies accounts, CBDC accounts. Prasad refers to this as account-based CBDC, E. S. Prasad. *The Future of Money*. Chapter 6. *The Case for Central Bank Digital Currencies*, p. 193 -238.

An account-based CBDC could promote reorientation to social issues in a variety of ways without increasing the credit burden. It could serve to improve equal opportunities. Each child could receive a starting capital, a donation, a kind of state inheritance, as many children have received this from their wealthy parents since forever. The central bank could support the propensity of citizens to make provisions by supporting savings through interest rates payments that are *independent* of the business cycle. In this way, the account-based CBDC becomes a savings account. The account can also serve to protect citizens against inflation and economic recessions, as well as against the needs of those who are elderly or have an illness.

With the new orientation, the state can tailor its policy more clearly to the companies and its traditional economic policy, and just as equally, to the society with its new social policy. In its new orientation toward society, the state frees itself from the burden of credit and interest payments that traditional policy entails. In this way, the state can regain society's trust.

With the dual strategy, the state, and this applies above all to the central bank, can pursue its concern in a more targeted manner. It can do this through a new kind of money creation, the creation of e-money.

In the dual strategy, the ECB can use the new CBDC accounts to compensate the loss of purchasing power due to inflation. This applies not only to inflation, but also to bad times

when demand wants to be strengthened during a recession. Prasad addresses Friedman's monetary policy through helicopter drops in the context of account-based CBDCs.

“Monetary policy could also be implemented through *helicopter drops* of money, once seen as just a theoretical possibility of increasing cash holdings in an economy by literally giving each person in the economy a fixed sum of money. The idea is that putting money into the hands of all households could boost spending. High-income families might not need the handout from the government but low- and middle-income households would be more likely to spend the extra cash, giving the economy a shot in the arm”, Prasad (2021, p. 207).

Two further examples may illustrate the new orientation of central banks to social issues and social investments.

4.3 Targeted measures to strengthen the social and economic base: Cash gifts for expectant and young mothers

After arriving in the poor country of Burundi, a Unicef staff member is surprised by the many mentally handicapped and physically weak people who have grown up undernourished. Malnutrition in infancy hinders the physical and mental development of children and generates disabled people. Such people in poor economic conditions can only insufficiently act on their own obligations and assume their social responsibility, especially to give their children a healthy nutrition, a confidence in their own future and a good education with a perspective in social life.

Poor economic conditions can also affect children's development in Western industrialized nations. There, the state can do a lot, but not everything. It must set priorities. One priority is to provide financial support to expectant and new mothers and thereby strengthen personal responsibility. Research suggests that this financial support is beneficial to society as a whole - not as a loan, but as a donation. Two studies shed light on the situation of young women in low-income positions.

A study by Donohue and Levitt (2001) – see also Levitt and Dubner (2005), chapter 4 “Where have all the criminals gone? - indicates that young and economically disadvantaged women are at high risk of giving birth to children who may later become criminals. In their analysis, they provide evidence that legalized abortion can significantly reduce the rate of criminalization. In their conclusion, they note at the end of their article that improving the living conditions of expectant mothers in bad economic environments and thus "providing better environments for those children at greatest risk for future crime" may be an alternative to abortion. In a following analysis Donohue and Levitt (2020) find strong support for their hypothesis that legalized abortion will account for a persistent decline in crime rates.

The second study investigates how better economic conditions can improve children's development outcomes. Several studies are published under “Baby's First Years”. According to Noble K. G., Magnuson K., Gennetian L. A. et al. (2021): “Childhood economic disadvantage is associated with lower cognitive and social-emotional skills, reduced education attainment, and lower earnings in adulthood”. The analysis of Troller-Renfree S.V. et al. (2022) is based on a randomized controlled trial. A total of 1000 low-income mothers of newborns were enrolled in the study. The study randomly assigned \$333 or \$20 monthly

cash gifts. In summary, they provide evidence “that giving monthly unconditional cash transfers to mothers experiencing poverty in the first year of their children’s lives may change infant brain activity”. This change allows for hope of better development of cognitive skills, of higher language performances and social-emotional qualities; see also Santi, P., *Développement cérébral: un peu d’argent ferait la difference*, Le Monde, 2 Février 2022, 23. A further analysis of Yoo P.Y. et al. (2022) shows that the cash gift is not misused for spending on alcohol and cigarettes.

The study results around the “Baby’s First Years” project give hope that unconditional cash transfers to mothers can be a good investment for child development and thus for the development of society in the future. As the transfers are directed to young mothers we can speak of *well targeted unconditional cash transfers with great benefit for the society*.

4.4 Targeted measures to strengthen the social and economic base: Major infrastructure project managed by mediation

Long-term measures are not in the interest of politicians, who in democracies are interested in short-term results. It is for this reason necessary to be creative in times of change and to create institutions that can provide guidelines for long-term orientation. These new institutions should focus not only on the economy but also on society. Their objective should be to strengthen both the economy and society in the long term.

The productive forces of the citizens in the knowledge-based society must be made to unfold and thus be harnessed for the general interest, for the common good. As we know from Adam Smith, in a market economy the pursuit of individual interests often leads to social prosperity. But this is not always the case. Tensions often arise between citizens, the economy and the public interest. This is when mediation can help.

We are talking here about major projects in the field of important economic infrastructure: large new bridge constructions such as the new bridge in northern Italy near Genoa that has to replace the old collapsed bridge, tunnel constructions such as the Fehmarn Belt crossing between Denmark and Germany, as well as large communication networks in the sea, on land and in space and power lines for better energy supply from north to south in Germany, in Europe and with many parts in the world.

And we are also talking about great projects of energy transition where global cooperation becomes necessary. Energy transition may be the greatest challenge in the future: the production shift from fossil to renewable energy, the green economic transformation. It needs to be mastered nationally, Europe-wide, for example in the North Sea, and globally. It can become a project that challenges humanity as a whole. As such, this challenge will require global cooperation.

Let's get back to the infrastructure projects first. In Germany, the aim is to build on the success in Italy, where the Italians quickly replaced the collapsed highway bridge in Genoa with a new masterpiece. In Germany, a new bridge on the A45 freeway is to be built with six lanes. Here, an ombudsman is to help bring all the important agencies together in a non-bureaucratic manner so that the highway project can be completed quickly, for details: “Sechsspuriger Ausbau und ein Bürgerbeauftragter: Neue Details zur A45-

Rahmedetalbrücke, www.tagesschau.de/regional/nordrheinwestfalen/wdr-story, 10.02.2022, 1-5.

Major projects affect the interests of citizens, the economy and the state. In order to speed up planning approval procedures and quickly move on to a permit process, the consent of the three main stakeholders must be secured. Essential to this is transparency. For comprehensive solutions, all available data must be used at the outset. Comprehensive data collection allows all parties to work out realistic scenarios, to expose conflict situations, but also to identify win-win situations. Bornschen and Weber are convinced that better use of data in modern, technologized, knowledge-based societies can ensure more efficient processes, for example in transportation planning or more generally in infrastructure projects. They therefore propose "the model of a public trustee for data management". They see public data trusteeship as an important tool to ensure future prosperity. They hope that a convincing progress narrative can be developed from this approach, see Ch. Bornschein and E. Weber, Treuhänder für Daten. Lasst die Daten endlich arbeiten!, www.gaz.net/aktuell/wirtschaft/digitec/ein-neues-modell-fuer-die-datennutzung-in-europa, 25.08.2021, 1-4.

Whether ombudsman or data trusteeship the process will come down to civic mediation, nowadays frequently used to regulate conflicts of interest in legal matters. The process can produce new institutions that can comprehensively strengthen society. With comprehensive access to data, mediators can help disclose decision-making situations and align the interests of citizens, business and government. The digital minister of Taiwan, A. Tang, as we know, points in a similar direction with her model of collaboration between people, government and the private sector, what she called "people-public-private" partnership.

A comprehensive use of a database can be helpful to overcome the climate crisis and to maintain international cooperation. Ma Jun points this out. The political tendency together with the Ukraine war gave way to the international competitive struggle of individual countries developing into strategic and cooperative partnerships. Therein could lie the danger of the world developing into a few large areas with different values. This development could stand in the way of solutions to the global climate crisis. Climate change calls for global cooperation, see The Economist, Climate change demands global co-operation. The World Ahead 2022, November 8th, 74. In it, Ma Jun points out the importance of transparency, which can come from publishing data, in changing environmental behavior: "As the developer of the Blue Map pollution database, we have seen how environmental-information transparency can inform and empower stakeholders to take action to improve air and water quality, reducing China's air pollution by more than half in just eight years." And further: "In 2022, we are expanding the same approach to climate change, by creating the Blue Map for Zero Carbon, a greenhouse-gas database similar to our pollution database, for different regions and industries."

Targeted measures that strengthen the social and economic base give rise to expectations of growth in the long run.

5 Conclusion: Unstable modern capitalist credit economy with a state facing great challenges with new opportunities

Stagflation – low growth and high inflation - with large losses of purchasing power, along with huge debt with great instability and increasing high inequality threaten future economic development. Confidence in the economy dwindles when future low growth can no longer finance existing high credit obligations.

The state, its economy and its citizens must be prepared for any eventualities. If you go past the limits of your potential in normal times, then you run the risk of being left defenseless in difficult times. This is clearly evident in the case of central banks, especially the ECB. In bad times with high inflation, it is no longer able to act. It then becomes clear that it can no longer ensure its original core objective of price stability. It has out of necessity changed its legal objective in the financial crisis to financial stability. Now an additional challenge lies ahead: stagflation with loss in confidence of economic agents in the future. This puts the central banks in a quandary.

The central bank's policy of cheap money has caused government debt to grow. Fiscal policy can hardly compensate for the loss of purchasing power due to stagflation. And the threat of high inflation will force central banks to revise their policy of cheap money. Even a small increase in the central bank interest rate can swell the government's interest service.

The Economist outlines the challenges facing the state in unstable times: “Soaring interest costs will further squeeze government budgets already under pressure from higher energy costs, rising defence spending, ageing populations, slowing growth and the need to decarbonise. With inflation high, it is also a bad time to let deficits grow – a path that might force central banks to raise rates even more.” The Economist, Interest rates and budgets. When maturity misleads, July 16th 2022, 61-62.

The modern credit economy needs growth, otherwise it cannot exist. Political actors ensure credit expansion with words and actions, but their short-term policies bring about little growth. The conversion of polluting old production to green technology has a similar effect. It causes the credit to primarily grow, but less production, the supply of goods of the national economy. High loans demand high growth, which is difficult to meet with transition to green technology and with risky times. The imbalance between credit and growth weakens the trust of economic agents in the future and is becoming a serious economic problem that cannot be easily solved. The entire society is called upon to participate in the search for solutions.

A new start is needed and can only succeed if serious long-term ways out of the modern capitalist credit economy are pursued.

Under capitalism, entrepreneurs use machines together with people to produce goods. Both factors determine the production of goods in an economy and thus its prosperity. Machines, like people, are remunerated. With people the remuneration is referred to as wages and with machines as returns. For machines, one uses the more comprehensive term capital. The return on capital is increasingly determined by the financing of capital. Debt financing increasingly brings the financial system into play, which wants to share in the profits of

economic development. Banks help companies to increase their return on equity through debt financing and thus participate in promising innovative projects of companies, as outlined in 2.1 Banks promote profits by credit financing and central banks keep credit costs low to ensure financial stability and to favor growth.

This cooperation between companies and banks is the basis of *the credit economy in the modern capitalist economy, supported by central banks with their new financial stability objective*. It is the engine for credit expansion or, in other words, for the increase in debt in capitalist economies and it endangers the economic and social stability with long lasting follow up costs in finance, the future costs of debts for upcoming generations.

Today's credit enables enormous investments, which can increase production and in particular wealth in the future. But they also involve future payment obligations that must be met from future growth. This is where an intractable problem arises for the modern capitalist credit economy. In contrast to how it was for a long time, growth can no longer cover the cost of credit. The equilibrium of a lot of growth and a lot of credit is shaking.

The consonance of "lots of credit" and "high growth" feeds people's fundamental confidence in the development of the modern capitalist credit economy. This is what Harari (2011) refers to.

There are some indications that the balance between "credit" and "growth" will become unbalanced in the future. The volume of credit is likely to continue to rise, and the increase in goods production will not be able to keep pace.

The previous method of production with coal, oil and gas has led to considerable follow-up costs, costs that were incurred during production yesterday, but which were not included in the pricing of the goods traded at that time. The costs are delayed until later in the form of environmental destruction and climate change.

At that time, goods offered too cheaply stimulated growth. *Today, the inclusion of economic activity on the environment and climate burdens the economy in two ways. The damage caused yesterday wants to be repaired today and a new "clean" way of production wants to be introduced. The removal of the damage and the conversion of production are expensive and require enormous credit, but are likely to cause inflation and to trigger few growth impulses.* The transformation in the economy will thus further widen the imbalance between "credit" and "growth". The battle for the climate cannot be won without a transformation of the capitalist credit economy. The credit economy up to now would only continue to burden future generations with its follow-up costs of indebtedness. A reorganization of the financial system could provide a way out.

Going into debt for climate change would aggravate one of the follow-up costs for the other.

The long-term solution is for the state to loosen its one-sided ties to companies and financial systems and turn its attention more to citizens. This is less about social support for citizens who have drifted into precarious situations in the course of their lives and more about improving equal opportunities for all citizens in their economic lives from the very beginning. Here, central banks in particular have new tasks. They can use direct financial transactions to ensure greater equality of opportunity without expanding the volume of credit and can favor

long-term growth by well targeted support. With better financial resources, citizens can dare to do more and can thus contribute to growth. In this way, a knowledge-based society can emerge. This modern civil society can be an important factor for competitiveness in the intensifying international competitive struggle and for a new national welfare.

In the face of these major challenges, the task now is to actively shape the future with a clear concept. The old "time will tell" leitmotif that has been valid for a long time will no longer be sustainable. Trusting that tomorrow will bring new opportunities for solutions may turn out to be an erroneous path and cost society dearly. We cannot continue to postpone our problems to future generations, they will already have enough to do with their own. Today we need to develop new sustainable concepts for a better future.

By using modern IT techniques in its reorientation, the state itself could transform itself into an efficient agent for economy and civil society. But without a substantial transformation of the capitalist credit economy, crises will constantly challenge society.

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