
УДК 338.124.4(100):330.831.2

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SCHUMPETERIANISM IN TIMES OF A GLOBAL ECONOMIC CRISIS

The paper's intention is threefold: firstly it traces more than twenty-year- history of the current crisis. The author calls it in its larger part a "Schumpeterian crisis" which having originated in the USA as a success and boom story, based on a disruptive revolutionary technological innovation then went through several phases process gaining in complexity and ending currently in the Eurozone.

A second goal of the paper implies a necessity in a comprehensive view to explain the current crisis viewed from a Neo-Schumpeterian approach, i.e.provides an analytical platform not only for explaining but also for fighting the Schumpeterian crisis and its aftermath. The author is suggesting the so called Neo-Schumpeterian corridor and the institutional setting of a specific country which should determine the strategy and the measures of political governance.

Following this idea, the paper looks at the situation of four countries, namely the USA, Germany, China and Greece, which may play a crucial role in the coming years either in stabilizing the current situation (USA and Germany) or in hindering an upcoming of new risks of a global political contagion (Greece) or in forming a new, until now unforeseen global downfall, because of certain risks in the transformation of the socio-economic system (China). The political options and measures are discussed using CNSE as an analytical framework.

Keywords: three-pillar approach, the Neo-Schumpeterian corridor, CNSE framework, historical phases of development, co-evolutionary process, current crisis.

1. Introduction.

We are living in turbulent times. The stock markets and the currency markets play crazy. Fears that not only certain countries, but whole continents might collapse are growing. Confidence and expectations are shrinking worldwide.

What are the reasons for this deep economic crisis? Is it Greece, or Portugal or Spain or even Italy with their sovereign debt problems, which are responsible for this situation of catastrophe? Is it the Eurozone with its currency troubles, which terrifies the whole globe? Or stands behind the state of affairs we can observe today a much longer and much more complex process of causation, of different reasons and effects which currently ended in a sphere of global doom and anxiety, only comparable to the period at the end of the Twenties of the last century. Back then, however, there existed more or less only one real problem for society and politics, namely the economic crisis which began to spread in a dramatic way to become a worldwide crisis of nations. Today, we have also to consider other developments, which will significantly influence and limit our lives and our future,

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like climate change, the ageing of societies, the exploitation and the use of energy and the sustainable management of our natural resources.

This paper, nevertheless, will concentrate only on the economic crisis, and try to give some answers to the questions asked above, using the concept of Comprehensive Neo-Schumpeterian Economics (CNSE) as recently developed by Hanusch and Pyka [4]. This concept is mainly based on the idea that innovations are the driving forces of the development of capitalistic societies. These forces are operating not only in the real or industrial sector of an economy, as assumed in traditional Schumpeterian economics, but they also dominate the dynamics in the financial and the public (social) sector of advanced economies as well as the co-evolutionary processes between these three institutional pillars. In developing (emerging) countries the co-evolutionary courses may be even more relevant than in the mature economies of Europe or in the USA.

The paper is divided into the following parts:

In the first part an overview of the CNSE-approach is given, introducing its framework which contains the 3-pillar approach (real, financial and public sector) and the Neo-Schumpeterian Corridor (NSC) as an illustrative device for the future-orientation and development potential of economies.

The second part will concentrate on the historical development of the crisis, starting with a major argument, namely that it has to be seen in the context of the economic consequences of a disruptive, transformational or even revolutionary technology, emerging in the 1970s and 1980s in the IT-sector especially of the US economy. With its background of primarily technological innovations it may be characterized thus as a typical Schumpeterian crisis. The bursting of the dot.com-bubble around the year 2000 then set a series of additional turbulent events into motion, spreading around the globe and becoming international in character and in nature. The original Schumpeterian crisis seems to alter into a more complex one, containing besides Schumpeterian also Hayekian and Keynesian elements [12]. The paper will show, how the current crisis came into life, what its historical path has been and in which way its trajectory of development has proceeded.

The third part will give an explanation for the portrayed crisis development, using the framework of CNSE. The main focus of this section will lie on failures of the evolving process of capitalistic market systems, not in the traditional neo-classical or Keynesian sense, but from a viewpoint based on arguments of malfunctioning in the processes of innovation and (co-)evolution, concerning the real, financial and the public sector. The main intention of this part is to give a systematically structured and analytically consistent and stringent explanation of the worldwide crisis scenario which looms since more than twenty years. Most of the interpretations and explanations which one can find in today's literature have the character of a partial analysis, looking and concentrating on the one or the other single crisis situation, which occurred in this long time span. Nearly all of them are miss-

ing, however, to look at the whole sequence of crisis events and, especially, to strengthen the linkages and interdependencies which exist between separate crisis' situations. That means that the majority of authors, doesn't have the whole course of events in their mind with its different stages or phases of development.

This section is followed by some arguments concerning the character of the crisis.

A last part is focused on political governance. Here, the paper tries to explore, first of all, why public policy, either in form of government intervention or central bank activities, is obliged to interfere into the market system. This more general reasoning prepares the basis and the background for a specific analysis, in which some ideas and propositions are worked out, how to cure problems in selected countries, using the CNSE-framework. The intention behind this part of the paper is to show that there doesn't exist a general political strategy suitable for all countries to solve their current problems. Instead, we will show that the form and content of political governance depends on a country's macro-economic situation in the NSC and its institutional setting pictured in the 3-pillar approach.

The paper will concentrate on the USA, on Germany and China and on Peripheral Europe embracing Greece as a good example. On the one hand, these economic players, vary in a CNSE perspective quite remarkably in their economic situations. They are quite different in character and they are vulnerable to future changes in a quite diverse manner. Last not least, they may play a crucial role in the coming years, either in stabilizing the current situation (USA and Germany), in hindering an upcoming of new risks of a global political contagion (Greece) or in forming a new until now unforeseen global downfall (China). Therefore, they demand, in a CNSEframework, a quite different tackling and multifaceted measures of political governance. So, let's start with the CNSE-approach.

2. Comprehensive Neo-Schumpeterian Economics (CNSE).

CNSE is based on Neo-Schumpeterian economics. In that context the central actors under investigation are entrepreneurs and entrepreneurial firms, as we know. And the most important process to be analyzed is innovation and the underlying knowledge creation and diffusion processes. Here, in sharp contrast to Neo-classical economics, the notion of innovation focuses less on the efficient utilization, but more on the removal and overcoming of limiting constraints and the setting of new ones.

However, Neo-Schumpeterian economics, in its present shape, is still far from offering an integral theory of economic development. Most of the research of the last decades has primarily concentrated on the real sphere of an economy [5]. Technological innovations propelling industry dynamics and economic growth obviously are a major source of economic development. But technological innovations are not the only source, nor can industry development occur in a vacuum. Instead, development is accompanied and influenced by the monetary realms of an

economy as well as the public sector. The degree of maturity which the Neo-Schumpeterian approach meanwhile has reached in the field of industrial dynamics admittedly does not hold when it is aiming at the future orientation of financial markets and the developments of the public sector and the coevolutionary processes taking place between them.

2.1. The 3-Pillar-Approach

Undoubtedly, the Neo-Schumpeterian approach has to be set on a broader conceptual basis. And for this purpose we suggest Comprehensive Neo-Schumpeterian Economics (CNSE) as a theory composed of three pillars: one for the real side of the economy, one for its monetary side and one for the public sector [4]. Economic development then takes place in a co-evolutionary manner, pushed, hindered or even eliminated within these three pillars (figure 1).

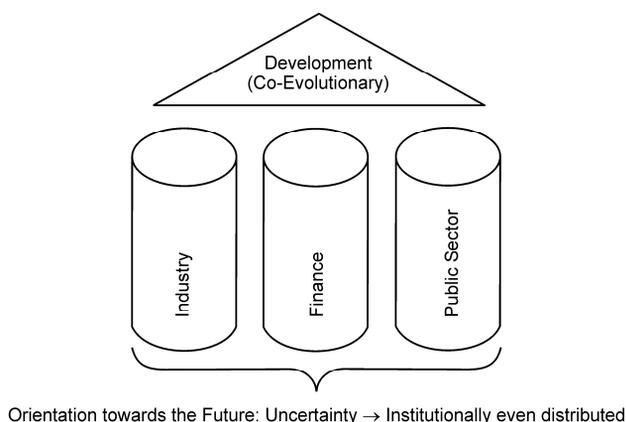


Figure 1. Three pillars of Comprehensive Neo-Schumpeterian Economics

In order to understand the crucial co-evolutionary relationship, one must explore the bracket accompanying all three pillars, namely their orientation towards the future which introduces uncertainty into the analysis. The fundamental importance of true uncertainty has to be seen as a characteristic concerning the single pillars as well as a phenomenon shaping the relationships between the three pillars and causing a high degree of complexity.

In an ideal form, this constellation results in an even or fair institutionally distribution of uncertainty, on the one hand, and, on the other hand, in a configuration of protective measures against uncertainty which can be characterized by the principle of institutional solidarity or unified accord.

Such a CNSE approach, however, focusing on innovation driven qualitative development, should not only look at the co-evolutionary aspects of economic life, it should also analyze the various issues of each of these pillars in a normative manner and work out their proper role in a theoretical and political context. Be-

cause each of the three sectors has to serve the future design of a society and an economy and assumes a corresponding role.

In such a concept, the task of the real economy will be to foster at all times through innovation and parallel investments the knowledge-oriented progress and the resulting wealth of a country or a region. To accomplish this task, it needs certain freedoms and the active support of the government.

The financial economy has an even closer, almost symbiotic relationship with the real economy. Its task is not – as it just happened – a short-term decoupling from the real economy spurred by speculation, but quite the opposite, namely the medium and long term oriented sustainable financial accompaniment and encouragement of innovative and successful companies and sectors.

The governmental and political responsibility lies, above all, in the monitoring of the future-oriented, long-term symbiosis of the real and the financial sectors as well as their co-evolutionary development. For that purpose it has to install an adequate intelligence and control system.

But, monitoring and controlling is only the one side of the same coin. If it is necessary, the government also has to support the co-evolutionary development of the system through specific budgetary and institutional instruments. On the revenue side of the budget, for instance, a growth and progress oriented tax system may be an effective instrument. On the expenditure side investments in education and research seem to be adequate measures and on the institutional side means like standardization patterns and property rights as well as regulatory activities can be recommended.

2.2. *The Neo-Schumpeterian Corridor (NSC): Theoretical and Political Aspects.*

Having CNSE in mind, an improved understanding of development processes in modern societies and an effective public policy governance, which should build on that, can only be expected, when the co-evolutionary dimensions and the proper role of the three pillars are taken into account. This can be illustrated within a concept which we introduced earlier as the Neo-Schumpeterian Corridor (figure 2).

Such a corridor is designed in a future oriented way and represents an open space for development which runs acute-angled between two axes representing time and economic success (growth) and in which the innovation and firm driven dynamics of modern

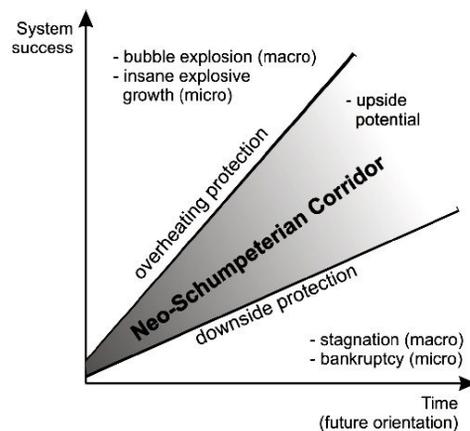


Figure 2. Neo-Schumpeterian Corridor

economies can be modeled. Within this corridor, economic entities, companies as well as economies, can move freely and can choose a success-based and promising position dependent on their specific preconditions. In this sense, the corridor also serves as an outline for possible developments that political actors in their governance have to respect as well (figure 3).

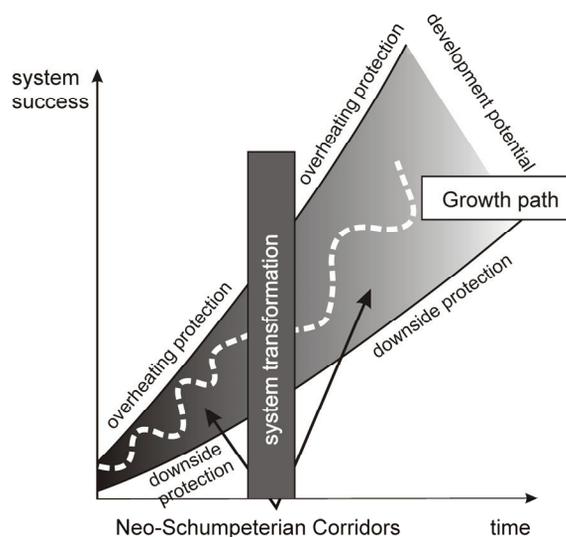


Figure 3. Neo-Schumpeterian Corridor Evolution

The freedom to use the potentials of (co-evolutionary) development in the NSC gives leeway for radical as well as minor changes (progress) in the three pillars of a socio-economic system. Radical changes can bring forward a profound transformation of the whole system (disruptive innovation process). The corridor may find a new course, eventually widening its development potential as shown in figure 3. For illustrative purposes this figure also contains a hypothetical growth path for an advanced economy. The advancement is measured by income per capita.

Our relatively abstract explanation of development processes in the NSC will now be set up empirically by looking at the history and the character of the current economic crisis.

3. Development of the Current Economic Crisis.

Surely, we live in an insane, crazy world, not just since the beginning of the new millennium. Events come thick and fast, at least regarding the economical part of life.

The Financial Crisis is going to be replaced by a “Crisis of the States”. Grown institutional structures, arduously built over decades impend to collapse. The European monetary union and the bond between its member states seem to be

more and more seriously endangered by nationalism and political self-interest. Scenarios of an impending downfall have taken up exceeding space and broad attention in the media and public discussions. How could such a development occur over a relatively short time span?

So, what has happened over the last twenty years which led the world close to a mood of doom and made people think more intensively than ever before on how to deal with the plight that is showing on the horizon?

In the following we try to give an answer to these questions, tracing the historical path and the different phases of the development of the current crisis.

Phase 1: Boom in ICT-Industries

The true base of today's global crisis lies in the USA and in the enormous economic boom, starting there about twenty years ago and which was spurred by the coincidence of several economic and political factors that may be called Schumpeterian: first of all, the innovative key or general purpose base technology in the IT-sector which spread like wildfire; then, the readiness of creative entrepreneurs and the availability of sufficient risk capital that could be used to finance a futureoriented extraordinarily strong expansion. And, besides, government provided the necessary framework by choosing a policy of low taxes and deregulation of economic processes. This expansion period proved to be so tremendously successful that it burst – not only in the IT-sector – all scales of evaluation of companies and it carried with it many other economic sectors to unseen heights.

Phase 2: Boom and Crash on Stock Markets

Around the year 2000, the boom stumbled over its own hubris and the limitless optimism of the involved actors. But the central banks also held their share of responsibility. They suddenly focused on a tight monetary policy by raising the interest rates in order to fight a perceived inflation in consumer markets. In the run-up to the emerging crisis, however, they had carelessly ignored the inflation in assets that had been developing in the stock markets. However, it is this inflation in assets which is in a Schumpeterian context an essential cause for distortion and crises. The eventual burst of the inflated bubble in this field preceded the deep slump of the New Economy and the Dot-Net-World.

Phase 3: Boom and Crash in the Real Estate Sector

The central banks had no other option but to react almost in panic, this time by lowering interest rates and therefore by adding even more new liquidity into the economic circular flow. The new money searched for new opportunities of high profit and this is the point, where we find the shift in investment from the firm sector to the households' real estate sector. Here, the same unregulated interdependence of greed, short-term focus and exaggerated optimism surfaced. A new, incredibly large bubble formed, which crashed about three years ago in the US.

Phase 4: Global Spillover Effects

From there, international spillover effects occurred worldwide and spread into the financial sector. And here the bubble burst on a worldwide scale with a more and more audible noise. The central banks again were part of the trigger of this outpouring due to their policy of rapid increases in the interest rate designed to tame the enormous volumes of liquidity. Around the year 2008 this culminated in a shambles, a global financial and economic crisis, which should consequently and, not at least because of its origin, rather be called a “Schumpeterian crisis”.

Phase 5: From Economic to Public Sector Crisis

The global economic crisis needed huge amounts of financial help from the public sector. In all advanced countries around the world and also in the emerging ones in Asia and South America an enormous growth of public sector debt evolved, in addition to the already existing very tall one. And, as a consequence, something happened which Public Finance never thought about before since the Great Depression. The global financial markets started to fear that there might exist a certain risk or danger even for an advanced country getting into bankruptcy. This scenario especially worked out for peripheral European economies like Greece, Portugal, Spain and Italy. Consequently, the international rating agencies downgraded the credit rating for these countries and decreased the value of their government bonds. So, especially the Mediterranean countries are now confronted with high interest rates and a looming insolvency of their public sector. In this situation also spillover effects may occur to other European countries causing a worldwide contagion effect with not foreseeable economic and political consequences.

Phase 6: From Public Sector-to Euro-Crisis

As the Mediterranean countries all belong to the Eurozone, their extraordinarily severe public sector crisis spread over to the currency markets. They started to fear that those countries might become a systemic risk for the Euro and all the other countries being part of the currency union. Greece, Portugal, Ireland, Spain and Cyprus already had to ask for a bailout, organized and financed by the EU, the EZB and the IMF. A possible bankruptcy of one of the bailout countries still exists, however, inducing a certain danger of an uncontrolled chain reaction damaging the Eurozone, the EU and eventually also the world economy. So, presently, there exists a high possibility of a rising new global economic crisis comparable to the Great Depression of the late 1920s and 30s.

4. Explanation of Crisis Development.

Crises as we experienced them in the late 1920s in the USA and worldwide, or on a more regional level in the late 1990s in Japan as well as now once again globally do not result from failures in the market economy or the capitalistic system. They are not systemic defaults but are much rather the result and product of an excessive and exaggerated success of this system. To put this rather bluntly: The

capitalistic system will not collapse – if ever – because of its defaults but because of its success driven exaggerations.

Interpreting it this way the current crisis can be characterized as one with a typical Schumpeterian origin. In any case, it is not a malicious development in the Keynesian sense, which would be based on price and allocation processes related to and determined by rigidities in a market economy or on a mismatch of aggregate supply and aggregate demand. Furthermore, we cannot recognize any classical or neoclassical market failures as triggers: failures in the supply of collective services or market imperfections connected with misleading competition. No, the current crisis is hardly reducible to shortcomings of such kind in the market economy or to exogenous shocks in the capitalistic system. It is much more the result and product of an excessive and exaggerated success of this system.

One of the first economists who recognized this correlation was Joseph A. Schumpeter. His insight shows a strong opposition to the common, Anglo-Saxon influenced neoclassical approach of economics. According to Schumpeter, the capitalistic system is defined in its dynamics and its development in a prominent way by forces largely ignored in the neoclassical theory. This includes creative entrepreneurs and bankers ready to assume risks, whose actions are future-oriented and aimed at replacing old forms of doing business by creating new ones; that means by “creative destruction”.

Thus defined, capitalism becomes a system which is to a high degree linked to uncertainty and insecurity both in a positive and negative sense. Basically, everything can and will happen if the system is allowed to develop freely. It is capable of generating the most impressive performances and also of causing most painful collapses. It is, therefore, not a system of balance and harmony as the Neoclassics supposes, but one which flutters between possible extremes of the highest success and the most deplorable decay. This is true for companies as well as regions, nations and global economic areas. Basically, it oscillates in a Schumpeterian cycle of “Boom and Bust”.

However, in analogy to the “theory of allocation failures”, focusing on Neoclassical economics, and to the “theory of macroeconomic coordination deficiencies”, focusing on Keynesian economics, also a theory of “development failures”, focusing on Schumpeterian economics, might be formulated. Such a theory can be based on two main determinants which we introduced before in our approach of CNSE. Firstly, failures in the co-evolutionary development process may occur in the Neo-Schumpeterian Corridor where the innovation and firm driven dynamics take place.

Here the so called “innovation fabric” of an economy is situated. And, secondly, they may show up in the institutional setting of a country, consisting of the 3 pillars, the real, the financial and the public sector, focusing on their “co-evolutionary process”.

Let's start with the first determinant.

4.1. Malfunctioning of the "Innovation Fabric".

The essential asset of the NSC-concept is its future-oriented focus. It is of utmost importance for the long-term stability of the economic system that its progress is neither too large nor too small. Too little growth cannot establish an advancing dynamics, and the standard of living in an economic area would have to suffer. The increase in investments would be insufficient both in the private and the public sector as well as with respect to physical, human, intellectual and social capital. The people will then adopt a negative view on the future development and, therefore, oppose and block the creative access to innovations and risk propensity. These two elements, however, sum up the driving forces of development in a capitalistic economy. At the end of a period of insufficient growth, the living conditions will inevitably decline on a relative basis. The relative recession may even be aggravated, if other regions, nations or economies achieve a higher growth and standard of living.

The same is true for the case of an economy that is too successful and attains growth rates far above average, rates which may be neither sustained nor stabilized. This success may very well create the positive and optimistic basic attitude in the economic agents necessary for future-oriented operations. But, rapid growth is also always linked to an accelerated process of change in the structures of an economy and in the behavioral attitudes of its agents.

Concerning the structure there are sectors which are readily expanding and others that do not grow as dynamically and so cannot keep up with the fast pace of development pushed upon them by the fast growing domains. The real development in such an economic system will then be determined by two velocities. The forces that impose and can bear the high speed will be found in the innovative and strongly growing sectors and companies, while the sluggish variables fall into the sectors of low growth. As long as the latter serve as a natural brake for an exuberant economic dynamics, the economy will continue to position itself within the corridor and quite possibly even at its upper boundary. From a theoretical point of view, this is the best and economically the most successful situation for an economy. Admittedly, this case will empirically only occur in the rarest cases for a longer period of time.

For the structural conflict between the fast and the slowly developing industries in an economy can – even if it was limited to the real sector and therefore seems to follow the Schumpeterian ideal of “creative destruction” – lead to the complete breakdown of the entire system, because the inert sectors can no longer support the high pace of growth of the dynamic industries. This may happen when, for example, the infrastructure, the training of employees or the adaptation to customers' wants or suppliers' conditions cannot be altered and harmonized rapidly enough and will then work as a scotch block for all sectors.

Still, this case may also be seen as an exception, just as the “natural” adjustment of dynamic and retarding forces in an economy or an economic region.

Concerning the behavioral attitudes of economic agents the most dangerous crisis momentum seems to be affiliated to a common mood of neglecting the destructive potential of innovations. This may show up in a misunderstanding of the complex nature of (radical) innovation in the business, financial and public sector, especially concerning processes which originate in technological as well as financial innovations and lead to a phenomenon called “asset inflation”. For instance, extraordinary dynamic industries, such as the IT-sector in the 90s, will incite the attention and the interest of all those economic actors who desire to participate in the boom in fast growing domains as financial investors and who will want to also enjoy the high returns achievable. The technology driven expansion in the dynamic part of the industrial sector will then be spurred and artificially inflated in the asset part of the financial sector by speculation and leveraged financial products. It might even be triggered to a boom and bubble by the greed and short term focus of the financial investors [8]. The burst of such a bubble can topple the whole economy into a severe crisis, as we experienced.

4.2. Disorderly Co-evolutionary Process.

Probably the most relevant cause of a major crisis in terms of the CNSE is a severe dysfunction of the symbioses between the three pillars: industry, finance and public sector. Once the harmonic, balanced cooperation between the macro-economic subsystems malfunctions for a longer period of time critical situations and even crashes will be inevitable. Generally, such crises will commence, first of all, in the real economy whereof very often some extraordinary economic success could pull the trigger. Starting from there, negative effects will spread out into the financial sector, they will gain more and more importance there and eventually touchdown in the state sector and its institutions.

The reasons for such a spread of crises, occurring as a process of certain phases, can finally be determined quite clearly, although the whole events seem to appear rather complex. Finally, they can be traced back to changes in the behavior of the relevant decision makers and, subsequently, to changes in the manner and shape of task fulfillment in the three pillars.

This very important thesis can be illustrated quite well, using the global crisis which we are still stuck in as a good example. As we saw, it started all out with the great success of the IT sector in the US during the 80s and 90s. Spreading out all across the globe, this huge success also was responsible for the over dimensional scales of company evaluation known so far. At the end, fortunes were paid in the so called “New Economy” just for phony and rather unpromising ideas and projects. Because these were almost not based on real performance and future economic potential. Decisions and taken actions were more or less exclusively determined by great expectations, hoping for enormous future revenues. Normal com-

mercial thinking turned rather quickly into speculative greed and dullness creating a delusive world, which was lacking any kind of a real economic basis. Thus, as a consequence, the real economy pillar had to falter sooner or later, which we all could witness at the end of the 90s.

Parallel to this development, a change in business conduct occurred as well in the financial pillar. Instead of accompanying real activities of firms critically and supervising them as symbiotic partners, banks also recognized the advantages which illusion and speculation granted. Instead, they focused more and more on mere financial transactions like derivatives and warrants. This way, the bankers' critical common sense was replaced by a rationality which concentrated primarily on shortterm and speculative profit seeking, without making the necessary efforts in terms of conventional banking. So, the crisis on the stock market and the downfall of the "New Economy" was just a logical consequence caused by the behavioral changes of the economic actors.

How did things stand at that time as far as the state sector is concerned? Politics as well, especially in the US, recognized the new possibilities, disengaging itself from the duties connected with a prosperous relationship to the other pillars, which – as we know – should have focused on the control and regulation of the excessive events. On the contrary, politics pursued its own behavioral rationality which is, in democracies, mostly the maximization of votes and the maintaining of political power. And, the easiest way to gain votes in the political competition is by offering election gifts, especially granted to the social sector of an economy and based on public debts and financed by (private) banks.

Thus, a new and very particular symbiosis between the financial and the public sector arose almost unavoidably. However, this specific cooperation was not founded on one general principle of striving for social welfare, but, instead, on two separate and contrary objectives: maximization of speculative profit on the one hand and maximization of votes on the other. Especially in the US a scenario emerged, in which social policy – in the meaning of maximizing votes – was primarily meant to be the right of owning a house or a small real estate. And, this desire was easiest met by benevolently inspecting and controlling the required financing through the bank sector. The reason the latter was willing to do so is mainly due to some kind of implicit security guaranteed by the government to banks and insurance companies. Another reason might be the availability of cheap money the central bank was responsible for on behalf of the government. Furthermore, the efforts corporate finance made to replace the speculative sector of the "New Economy" with a new sector, which as well holds the possibility and sufficient potential for speculative transactions, played a crucial role. There is no need to describe what emerged from this infamous alliance between politics and corporate finance. We are still suffering the most severe crisis since the great depression, which could

even extend to a national default in countries like Greece, Ireland, Portugal or even Spain with highly visible consequences for Europe and the rest of the world.

4.3. Political Weaknesses reinforcing Schumpeterian Failures.

For normal politics it was very hard, even nearly impossible to detect the real causes of the crisis. That's true especially for the US and the Federal Reserve. Particularly, a missing understanding of the interconnected relationship between the real and the financial sector as well as the public sphere caused political decisions with reinforcing negative effects for crisis development. Typical for the orthodox thinking during the first four phases of the crisis history was Alan Greenspan's philosophy of an expansionary monetary policy in the first two phases of the crisis, namely to increase money supply and decrease interest rates, thus piling up monetary liquidity to unbelievable extents [2]. He didn't understand the main reasons of an asset inflation caused by too much liquidity, neither at the stock market nor in the real estate sector. So, he also didn't care about those economic forces which spilled over from the financial into the other sectors of the US economy and worldwide, creating a bubble and causing the bursting of it.

But, also a one-sided fiscal policy in the Keynesian tradition added to the crisis development by increasing public budgets and enlarging budget deficits financed by sovereign debt.

In addition, a one-sided neo-liberal regulatory policy of the financial market had strong crisis strengthening effects. In a world of globalization extensively deregulated markets get a great chance of building up a powerful monetary force which can be used for big speculative attempts, or even worse, for attacking national governments and their sovereignty, because of their indebtedness.

The right policy, also in the sense of CNSE, would have been, to tame the financial markets either by regulatory measures or by installing automatic or built-in stabilizers via the tax system. This could have been done in form of a Tobin tax on financial transactions or a progressive capital gains tax on speculative profits [6].

5. Character of the crisis.

The whole cycle of "boom and bust" characterized by the first four phases of crisis development can be called a "Schumpeterian crisis". Its cause is the enormous success of the US/capitalistic system, spurred by endogenous dynamics in the technological field. This success also influenced habits of economic and political actors. Long term rationality changed into short term egocentric and selfish greedy maximization.

The current crisis is also, as we saw, the result of a combination of Schumpeterian failures and reinforcing political weaknesses. They occurred in each of the pillars at different times. The sequence of deficiencies started in the real sector, then went to the financial sector and ended in the public sphere. Here, the crisis is still virulent, especially in the countries of the Eurozone.

In phase five the “Schumpeterian crisis” seems to alter into a more complex one, composed of (a) Keynesian elements, concerning unemployment and a lacking aggregate demand; (b) Hayekian ingredients, concerning public budget deficits and not anymore manageable levels of public debt, inducing speculative attacks of global financial markets against national governments, and (c) still Schumpeterian elements, concerning competitiveness and innovativeness of advanced capitalistic economies.

Phase 6, the Euro crisis, has a special character. It is a kind of Mundell crisis [9], going back to the founding and beginning of the currency union. Heterogeneous economies were integrated by law and contract into a quasi homogeneous construct which never fulfilled the aspiring hopes of its founders.

The Eurozone crisis might also have happened without the effects and consequences of a “Schumpeterian crisis”. Maybe that the latter, however, accelerated the speed and time of its appearance, cleared the causes of its defects and made the economic and political consequences of its faulty design more transparent than before.

6. Governance in a CNSE Framework: General Reasoning.

So, what can we do in such a crisis? Which tasks are reserved for the market and which ones are bound to the government as a knight in shining armor?

We think Schumpeter and also Austrian economics [3, 7] would take the easy way out of this argument. They would probably reason that the capitalistic system should be left more or less alone. There are enough self-healing forces within it that will make sure that after a certain period of global downturn, we would return to a phase of common growth; meaning that it would start a development which will once again lead through a powerful, maybe technological incitation from a bust towards a boom situation. But, can and may we consider this option justifiable in economic or political terms after we have made the terrible experiences during the first world economic crisis and, in the subsequent years, in the devastating consequences of the Second World War? No, the political dangers that would arise are by far too unforeseeable and dramatic that such a strategy should not be tested under any circumstances because of consequences such as an increasing nationalism, social riots and possibly even wars. Therefore, the crisis needs the government and the central banks with their policies.

So, it does not seem controversial, even in traditional Schumpeterian thinking, that successful capitalistic economies cannot exist without a certain amount of regulation if we want them to generate an economic development which is sustainable and less erratic than the unregulated invisible hand could achieve. The government as a political actor can, and should, of course, make a contribution so that ups and downs in the development process of an economy are more moderate and steady and that a smoother evolution can be attained.

We certainly do not need to point out specifically, that fulfilling the mentioned goals is an extremely complex and difficult political challenge concerning the intelligence as well as the instruments to be used.

As substantial as this task may be, there are a few rough and avoidable mistakes in politics which we can already point out today. The political frame should by all means not be limited to singular, not deeply thought through, reactive measures such as have been discussed largely in Europe and worldwide for the financial and other sectors of the economy.

Due to the prevailing mind of the important makers and shakers in academia and politics, who consider the government to be a sort of repair garage of last resort, the people in charge are skating on thin ice and risk overreacting. They think that they have recognized some defaults in the market system and are trying to eliminate them by very strong public involvement. Apparently, this provides the government with a role and responsibility that exceeds by far every so far accepted dimension. The currently discussed inventory of possible measures represents exhaustively the whole spectrum of public activity: intervention, regulation, control, and nationalization are the most frequently cited terms when it comes to using governmental help to cope with both the financial crisis and the developing economic crisis. This can be an extremely risky attitude, especially when it leads to a policy of partial “piecemeal engineering” or “muddling through” and when the overall context that characterizes modern economies is not respected.

From a Comprehensive Neo-Schumpeterian perspective the focus should be much more on the dynamic overall performance of a capitalistic economy which is on the brink of transforming from an industrial into a knowledge-based system. This evolution is driven by the three most important pillars of its economic and social regime, which are, as we know, the real economy, the financial and the public sector. All three have to serve the future design of societies and economies and assume a corresponding role in the Neo-Schumpeterian Corridor.

The idea of such a corridor however presupposes that the political sphere can actively decide on the framework and take the appropriate measures that can effectively and timely tame and dominate those forces in a capitalistic system which continuously try to go through the roof and risk exiting the corridor towards an excessive growth path. On the other hand, politicians have to make sure that an economy will not fall out of the corridor, and that it will not have to cope with economic stagnation. Probably the greatest challenge for academia and politics in the next years will be to bring this Neo-Schumpeterian Corridor to life by providing the economic and political content of implementing the right strategy. Let me give you a few proposing remarks on how this role could be assumed in the framework of CNSE. We choose for this purpose four countries as typical examples, namely the USA, Germany, China and Greece. These economies differ extremely concerning their macroeconomic situation in the NSC as well as in the character of their

institutional setting, the interplay between our three pillars, the real, the financial and the public sector.

7. Specific Country Analysis.

Let's start with the current situation of the US economy.

7.1 The US economy.

The following two figures 4 and 5 may illustrate the current situation of the US economy.

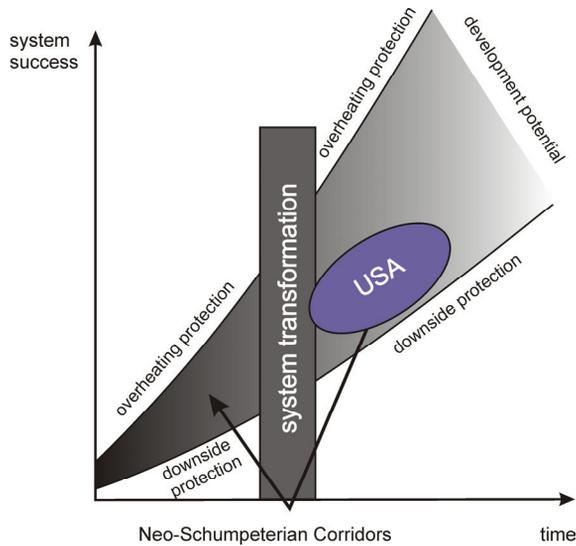


Figure 4. The US economy modeled with NSC

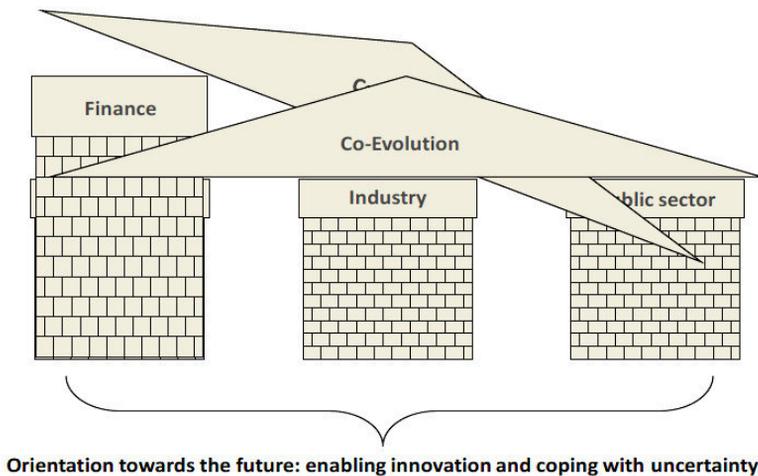


Figure 5. The US economy modeled with three pillars of CNSE

Figure 4 shows that the US economy is situated inside the Neo-Schumpeterian Corridor, but presently at its lower boundary. As we already pointed out this economy had to go through an exciting process of transformation in the last twenty years with all its ups and downs, caused by a disruptive innovation in the ICT-sector. Without any question it is the leading capitalistic economy which is on the brink of transforming from an industrial into a knowledge-based and digital socio-economic system. We have listed the most prominent aspects for such a development earlier. In a Schumpeterian sense we need innovative entrepreneurs and responsible bankers as actors in the economic sphere who can restart again and again the dynamic process of change and progress which only they can achieve. Maybe, also “capabilities” play an important role at this point, meaning the ability of economic actors to generate innovations. For, those abilities have the power to secure the individual in a certain way against both, the risk and the uncertainty which are necessarily connected with change and progress in the future. Only those capabilities provide the courage and the heart to cope with uncertain events in a future-oriented way. These characteristics are a huge asset of the US economy holding the potential for a successful economic development.

A first important goal for the political governance therefore should be to strengthen further on the creative dynamics of the future-oriented process, without neglecting, “creative destruction” which is closely linked to this. It is also important to keep this process going if and as long it is working in a healthy way.

This also means that a successful policy in the NSC has always to create new opportunities in the goods and service markets and to preserve variety to breed future success. So, policy has to closely watch the dynamics of technology and innovation, to observe sectors with high potentials (downside protection) and to support new and emerging markets (upside potential).

In this respect the two domains of modern Schumpeterianism, namely “innovation economics” and “industrial dynamics” gain their specific importance. Both offer a score of instruments when it comes to preserving and supporting economic dynamics. They include education and R & D, patents and competition law, regulatory ease or measures to reduce risk or increase risk awards, for instance through the tax system or through government funding of new technologies as well as public investment and consumption.

But also the labor market gets into the focus when a situation of lacking dynamics predominates. The most important task, applying a modern Schumpeterian policy in the NSC, would then be to hinder a mismatch of skills and jobs by giving priority to training programs for the work force or to develop the personal capabilities to cope with the future and to adopt to global changes in the markets.

In general, political governance in the NSC has to reduce risk and complexity in the markets, by applying for instance the concept of flexicurity in the labor

market, standardization in the goods market and reforming insolvency laws in the financial market.

A look at figure 4, in addition, shows that the US economy presently is also a so called “no-growth economy”, situated at the lower boundary of the corridor. So, what might be the reason for this?

Without any question, the US economy is still suffering from the “Schumpeterian crisis” and its aftermath, which it experienced during the last twenty years. These events resulted in a huge piling up of public and private debt and a lack of confidence in the financial markets. So a second goal of public sector governance could be to restore confidence via Central Bank policy and public guarantees, and, especially, to control public debt.

However, a much more severe reason for the sluggish performance of the US economy can be assigned to a disorderly co-evolutionary process, shown in figure 5. Because, this is a real and long term structural problem and not one of a business cycle phenomenon or a current lack of Schumpeterian dynamics. The US economy obviously suffers from an unbalanced (loop-sided) co-evolution. The financial sector is dominating more and more the whole economy with severe consequences concerning growth and international competitiveness. As the main business activities of financial institutions are concentrated on the national markets, a remarkable lack of “tradable goods”, to be produced and exported by the industrial sector, can be stated.

Therefore a third governance goal should be focused at this part of underperformance, trying to balance the co-evolutionary system especially by strengthening the old competences or by creating new opportunities in the industrial sector.

7.2. The German economy.

The socio-economic situation of Germany is illustrated in figures 6 and 7.

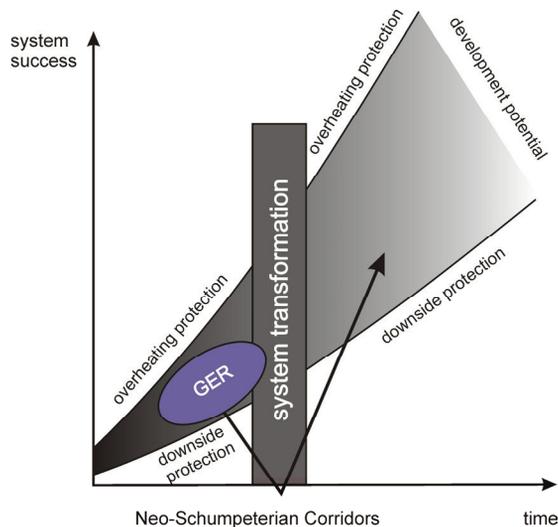


Figure 6. The German economy modeled with NSC

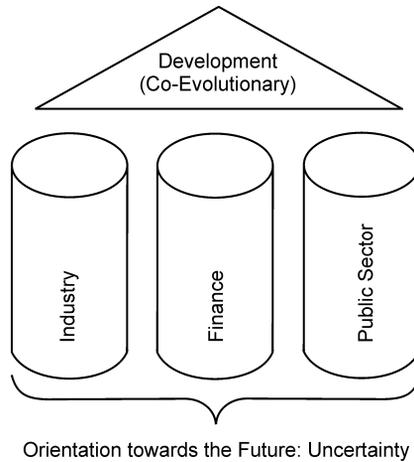


Figure 7. The German economy modeled with three pillars of CNSE

The German economy finds its place in the middle of the Schumpeterian corridor. It follows in these days a very successful strategy by combining its old excellency in industries like machinery and automobiles with new innovative advancements in these fields, concerning product quality and efficiency. It relies in this respect on the structural concept of “related variety”, improving the competitiveness of industries which have a close technological relationship.

Unfortunately Germany was not able to acquire a leading role in the transformational technology in ICT and to build up a new future-oriented industrial sector with a high development potential, like the USA. On the other hand it engaged very early in the technological field of renewable energies. This technology may be accompanied by a flow of disruptive innovations. Here it is at the beginning of a process of technological transformation, having until now achieved the position of a world market leader. It is Germany’s great challenge in the near future to hold its leading rank in this „revolutionary“ technological process

How this profound new course will be mastered in the next future is one of the most thrilling issues concerning the German economy. The result of this shift in using energy and material resources will be most decisive for the role of Germany as an economic power in the EU and as a stabilizing factor in an uncertain and eventually turbulent world economy.

Concerning the political measures Germany can follow, more or less, the recommendations of Neo-Schumpeterian economics which we already proposed in the case of the US economy.

The institutional setting of the German economy seems to be quite fine (figure 7). All in all, it can even be characterized as a relatively perfect one, fulfilling its pillar roles in a quite proper way, except the financial sector. Here, a remarkable deficiency can be observed in the lack of public and private risk capital which is

urgently needed to give start-up companies with new ideas and products a financial help for their future development and success. But, contrary to the USA, in Germany there doesn't exist an unbalanced co-evolutionary development process or a structural failure in the architecture of the three pillars. The problem is a minor one, namely a misallocation between a normal investment oriented supply of financial services for the real sector and a highly risky innovation and future-oriented one.

7.3. *The Chinese economy.*

Compared to the US and Germany, China differs in its macroeconomic situation in the NSC and in its institutional setting quite profoundly. It is still an emerging country following, until now, to a great degree a different growth model than the Schumpeterian one, primarily designed for advanced capitalistic economies. Its growth strategy is mainly determined by factors like production of standardized products and services with a comparative advantage, investment in infrastructure, easy capital access, industry oriented economic policy and technology import via licenses, joint ventures, direct foreign investment, imitation [11].

These elements form a growth path much simpler and more deterministic than the more complex one characteristic for advanced economies.

Looking at figure 8 the two main macroeconomic challenges of China can be shown quite clearly in the NSC. China's economy is located at the upper boundary, because of its huge economic success and its extraordinary high GDP growth rates of about 10 %.

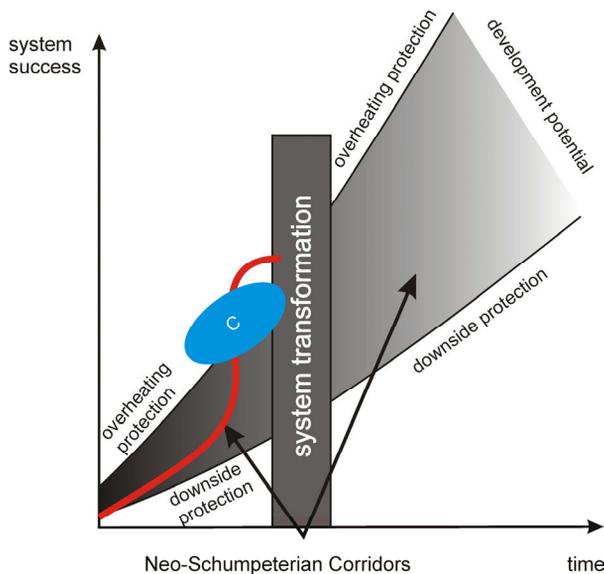


Figure 8. The Chinese economy modeled with NSC

Worldwide, a certain fear is moving around that the Chinese economy is already overheating and producing a huge bubble, comparable to the US one, responsible for the current economic crisis.

So, a first goal of public governance must be to prevent overheating of the socio-economic system by carefully watching for bubble creation and for exaggerated optimism. And, to avoid a bubble explosion by calming financial exuberance, fighting asset inflation, sedating excessive dynamics in overstrained sectors and by using steady, modest and transparent measures in engineering a soft landing. This is a tremendous challenge for Chinese economic politics.

But, this enormous task is not the only heroic one. As figure 8 shows, China is also in the middle of a process of transformation or transmission from the status of an emerging into the status of an advanced economy. It has to leap forward and install a new growth model in order to make sure its miracle continues. This new development model has to be a Schumpeterian one, future-oriented and based on entrepreneurship and innovativeness, in order to master the shift from a “catch-up-economy” to a modern socio-economic system characterized by creativity, knowledge and the use of digital information [13]. The world will see whether and how China will succeed to perform this incredibly demanding challenge. Japan’s historical experience in the last twenty or thirty years with such a transformation from “catching up” to “forging ahead” should be an instructive but also warning example. This country has not yet finished its process of transformation and is still suffering from its two “lost decades”.

A huge obstacle for the Chinese transformation process certainly will be its institutional configuration. As figure 9 shows, the Chinese development model depends to a high degree on a pillar constellation which is linked together in an extremely close manner. The relationship between the real, the financial and the public sector is an integrative and almost intimately one, dominated by an authoritarian

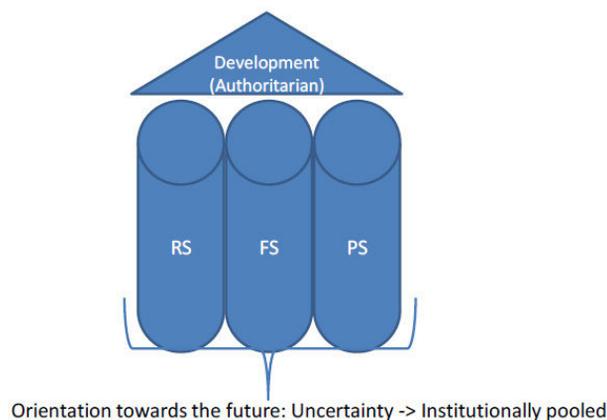


Figure 9. The Chinese economy modeled with three pillars of CNSE

claim for primacy of the one party government and characterized by an institutionally pooled handling of uncertainty. To cut the links among government, finance and business would not only mean forcing companies to become globally competitive by unleashing a wave of entrepreneurship to spawn new creative industries. Especially state companies that now gorge on subsidies and other privileges have to be cut loose to make it on their own. It would also require to strengthen the financial sector by transforming banks from arms of state policy into commercially oriented, risk sensitive financiers. All that is an enormous task, but not impossible. For instance, South Korea recently succeeded in such an endeavor. But, will China also be able to accomplish this big exercise?

7.4. The Greek economy.

The Greek economy is the most severe problem child in the current crisis. Its macroeconomic situation in the NSC is illustrated in figure 10.

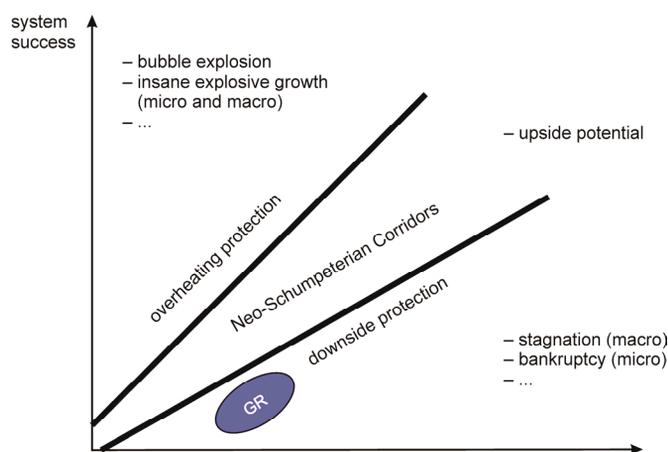


Figure 10. The Greek economy modeled with NSC

Greece is situated beneath the lower boundary, producing only negative GDP growth rates since a couple of years. Some economists even think that it has fallen back from the status of an advanced into one of an emerging, may be even a developing economy. If this holds true, a quite new strategy for future development would apply, namely an overall plan suitable for catch up economies, like the BRISC countries for instance. However, let's assume that Greece is still an advanced economy which has the right and the competence to stay further on in the family of EU countries and in the Eurozone.

In this case the first goal of political governance should be to avoid a structural breakdown of the socio economic system and to bring the economy back into the NSC.

Normally, in situations below the corridor the Keynesian medicine comes in, propping up a country via additional government expenditures financed by public

debt. But, in the case of Greece this instrument to avoid the deflationary effects of a serious crisis doesn't work anymore. Greece is already more or less a bankrupt economy dependent on the solidarity and financial help of other countries in the Eurozone. So what else can be recommended to help the country out of its miserable situation?

From a Schumpeterian viewpoint, the Greek problem is a structural one based on lacking competitiveness and growth. So, Schumpeterians would recommend, first of all, to foster competitiveness and growth, for instance by bolstering the given strength of the economy, by supporting sectors with comparative advantage, by feeding small and medium-sized firms, by training labor force to increase productivity or by lowering the wage level. This policy measures may work out even in a shorter time period.

Concerning the middle or long term perspective, it would be wise to follow also a traditional Schumpeterian strategy, namely to install future-oriented dynamics by reforming the education system, by supporting R & D, encouraging start-ups and entrepreneurship or by pushing deregulation and furthering international openness.

In a comprehensive view, however, all three institutional pillars have to be taken into account. As figure 11 shows, the Greek co-evolutionary process is also an unbalanced and loop sided one, dominated by the public sector. Baumol's "Theory of Cost Disease" [1, 10] seems to have been proven empirically in Greece. The relatively inefficient public sector is not only far too large, but it is also pretending key variables of an economy, such as wages, working time or national productivity. So, the most urgent reforms have to be started in the public sector by overcoming political paralysis, bringing public budget under control, cutting public debt, increasing efficiency of bureaucracy and expanding privatization. Until now, nearly nothing has happened in that respect.

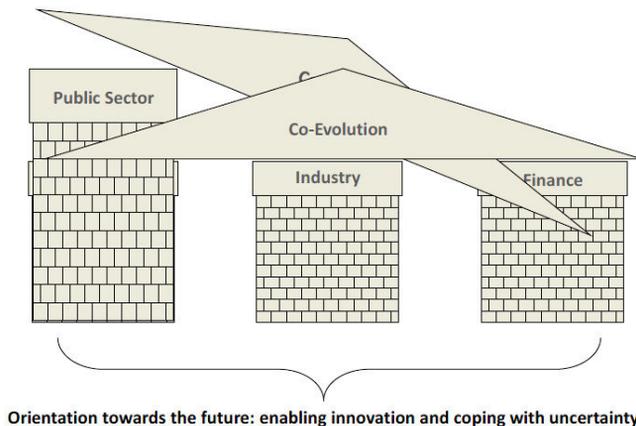


Figure 11. The Greek economy modeled with three pillars of CNSE

In summary, a pragmatic design of political governance in a CNSE framework for countries suffering deeply from current economic crisis can be put into the formula “cut, stimulate, innovate”. This means (a) cut excessive public expenditure and sovereign debt (cut fat!), (b) spend money for investment and growth (stimulate fitness!) and (c) invest in future-oriented activities with high innovativeness (build up strong muscles!).

We don't intend here to discuss phase 7 of the current crisis history, namely the problems of the Eurozone. This topic is a totally artificial one created from the beginning on by a false economic concept of a currency union: To get out of this dilemma there exist three options: (a) to overhaul the economies of the weak member states with the financial help and solidarity of stronger countries, (b) to integrate into a fiscal and political union or (c) to leave the Eurozone.

At the moment, politics still prefer option (a), but we will see how this topic may evolve.

8. Concluding Remarks.

The paper's intention is threefold:

First of all it wants to work out that the current crisis has a long history of more than twenty years. It is in its larger part a “Schumpeterian crisis” which originated in the USA as a success and boom story, based on a disruptive revolutionary technological innovation. It went through several phases in its historical process gaining in complexity and ending currently in Europe as the Euro-crisis.

A second goal of the paper is to show that for an explanation of the crisis a comprehensive view is needed, such as it is formulated in the Neo-Schumpeterian approach of CNSE.

CNSE is able to provide an analytical platform not only for explaining but also for fighting the Schumpeterian crisis and its aftermath. In that respect it doesn't follow the partial peace-meal engineering approaches which dominate the current crisis policy and the academic discussion around the world. Instead the paper figures out, that it is the macroeconomic situation in the so called Neo-Schumpeterian corridor and the institutional setting of a specific country which should determine the strategy and the measures of political governance.

Following this idea, the paper looks at the situation of four countries, namely the USA, Germany, China and Greece. These countries may play a crucial role in the coming years either in stabilizing the current situation (USA and Germany) or in hindering an upcoming of new risks of a global political contagion (Greece) or in forming a new, until now unforeseen global downfall, because of certain risks in the transformation of the socio-economic system (China).

For the four countries the political options and measures are discussed using CNSE as an analytical framework.

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Получено 29.05.2013

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ШУМПЕТЕРИАНИЗМ В ПЕРИОД ГЛОБАЛЬНОГО ЭКОНОМИЧЕСКОГО КРИЗИСА

Прослеживается более чем двадцатилетняя история современного кризиса. Автор считает его в большой мере «Шумпетерианским кризисом», который, начавшись в США как история успеха и провала, основанного на разрушительной революционной инновационной технологии, затем распространился, усложняясь в течение нескольких фаз, закончившись сегодня в странах Евросоюза (Еврозоны). Подчеркивается необходимость всестороннего анализа для объяснения причин современного кризиса с позиции неошумпетерианского подхода, аналитическая платформа которого способна не только объяснить, но и справиться с последствиями кризиса. Автор предлагает так называемый неошумпетерианский коридор и те составляющие в каждой отдельной стране, которые определяют стратегию и меры политического руководства.

Ключевые слова: *трехколонный подход (три столпа), неошумпетерианский коридор, модель всеобъемлющей неошумпетерианской экономики, исторические фазы развития, со-эволюционный подход, текущий (сегодняшний) кризис.*