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The Financial Crisis – An ideal Teaching Moment

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Does after the crisis mean before the crisis? Financial crises are part of the economic cycle and therefore not only absolutely normal but under certain circumstances beneficial. Is this also true for the ongoing financial crisis? It might be too soon to draw final conclusions, but financial crises show a great potential to encourage learning from the past and to foster socio-economic education. That's not meant as a belittlement of the financial crisis, but should sharpen the mind to notice a primary dilemma of our economic system: Even though increasing credit facilities contributed to the economic prosperity during the last decades, the development of savings and debts should be in balance with the long-term productive capacity of society, economy and environment. The authors will review certain aspects and causes of the financial crisis under social und environmental constraints and will discuss possible long-term paths of development from an economic perspective. Following this, didactical implications will be considered and feasible learning content will be discussed.

1 Introduction

Literally, the term "crisis" means "crossroads" or "parting of the ways" in the original Greek and thus symbolizes a situation, in which something can develop in different directions (Graeber 2011, 185). Certainly, the financial and economic crisis is such a parting of the ways and raises the question, to what extent the affected citizens try to become "familiar with the place" in order to be able to contribute to a decision on the direction.

In an Europe-wide, representative survey by TNS Infratest (2010), 51 to 87 per cent of the interviewed (according to the country) said that during schooldays, periods of vocational training or years of study they had learned little or nothing about economics and finances. Traditionally, Europeans and especially the Germans neither inform themselves sufficiently in a private context (e.g. conversation amongst relatives and friends) nor with respect to so-called "public knowledge" (generated from economics literature or relevant newspapers/ magazines) about financial matters. With regard to the previous year of crises only eleven per cent of the interviewed Germans (ibid.) said they informed themselves actively, e.g. by reading the financial section of a newspaper. Has the financial and economic crisis changed anything? The media-producing institutions report massively about the financial and economic crisis. Even in 2012 the media covered the financial crisis of 2007-2008 as well as the "European Debt Crisis" on an almost daily basis. However, considering the media-consuming citizens the feedback was not much to look at. An analysis of news queries on the internet (Google Zeitgeist 2008-2011) does not show a top-ranking for any crisis-related keyword in Europe. And also the above-mentioned research study on financial matters shows that since the beginning of the crisis only about six per cent of the Germans increased their activities to educate themselves further in the field of financial matters, but just as many also decreased their activities. One reason for the reluctance to inquire about the financial crisis could be the crisis semantics itself with a broad variety of incomprehensible acronyms (CDO, ESM, EFSM etc.) and an inconsiderate repetition of veiling euphemisms respectively dysphemisms (e.g. bailouts and financial umbrellas respectively bad banks or toxic stocks). However, it is noteworthy that according to the study especially persons, who already acquired considerable knowledge about economics and finances while going to school, are also much more eager for knowledge with regard to the crisis.

If socio-economic education is supposed to enable students to orient themselves in socio-economic processes and to play an active role in the shaping of the socio-economic system, an up-to-date and explosive topic such as the financial crisis should not be neglected. The present contribution meets this challenge. The claim is not just to deal with the financial crisis in a descriptive way or to exhibit pseudo-controversies about market-optimistic versus market-pessimistic positions. From the authors' point of view the educational potential is not even utilized totally, if the financial crisis is only used as an opportunity to deal with the common socio-economic categories. Therefore, in this article, the educational discussion comes after a thorough analysis of the topic (of the financial crisis and possible paths of development). Later on, it is debated, how learning in and from the crisis can be modeled and what kind of implications it has for socio-economic education.

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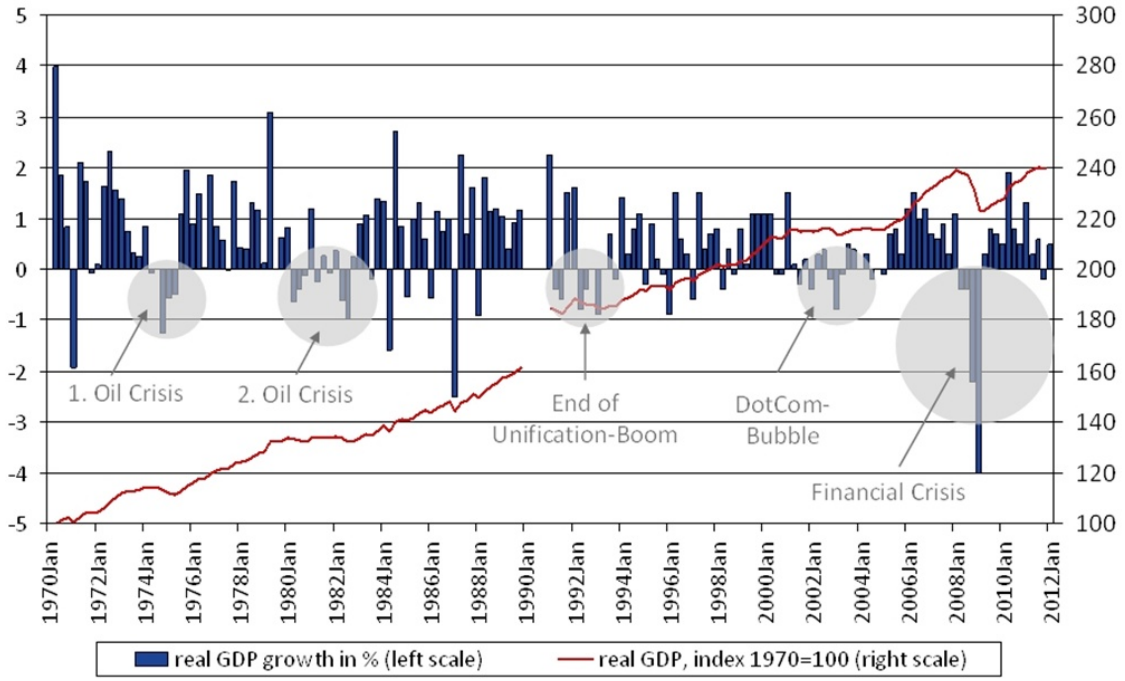

Illustration 1: Development of real GDP in Germany 1970-2012 (sources: Bundesbank, own calculations)

2 Economic analysis of the financial crisis

2.1Historical classification

Without doubt, the financial crisis, whose effects have been keeping us on tenterhooks for nearly five years, marks a serious break in global economic development. For the first time since the survey of the data, global economic performance decreased on an annual basis: According to the World Bank the real gross domestic product 2009 decreased by 2.3%. Almost all economically advanced nations registered massive market downturns. Only the big, emerging markets could still register a positive economic development for the whole period between 2007 and 2010, although on a lower level.

Illustration 1 classifies the economic development of the last four decades for the biggest national economy in Europe. Illustrated is the development of the German real gross domestic product in the period between 1970 to 2011 – index-based (right scale) and in annual growth rates (left scale).

If you consider the economic development of Germany in the last four decades, the enormous increase of economic performance is apparent. When you set real GDP of 1970 as 100, it is more than 240 today. This comes up to an average, annual growth rate of 2%. The latest financial crisis does not change this image substantially. Without the heavy economic collapse 2009 the real economic performance of Germany today would only be 10,5 billion Euro (0,4%) higher than officially stated (implying a proxy of the average annual growth between 1970 and 2008 of 2,2 % also for 2009).

Like every developed economy also the German was confronted with several crises in the past. Market downturns and recessions are a natural element of the economic processes and originate from the compensating interaction between supply and demand. To some extent, as in 2001 after the bursting of the DotCom-Bubble or also in the current crisis, previously built up exaggerations are reduced to a more realistic degree. Also if they partly have painful "side effects", e.g. in the form of unemployment or loss of property and income, crises also create the potential for further development. Even though it will be remembered as a comparatively serious recession - also in the long run, the financial crisis of 2008/ 2009 joins a long list of economic crises. Within the last 40 years Germany underwent eight technical recessions (at least half in series with negative growth).

The comparative look at the recent past can modify our view of the current crisis to some extent. However, the reasons for the problems should in no way be trivialized. Quite the contrary: A more profound understanding of the connections and reasons for the crisis can contribute to changes so that the extent of future economic crises will be smaller. An important reason, especially with regard to the severity of global, economic market breakdowns can be seen in the long lasting growth of economic imbalances.

2.2 Economic imbalances as central reason of the crisis

The global economic development of the last decade is, among other things, characterized by increasing imbalances (e.g. Obstfeld & Rogoff 2009). On the one hand there are national economies that realize enormous saving surpluses, or in other words they built up a significant amount of claims – first

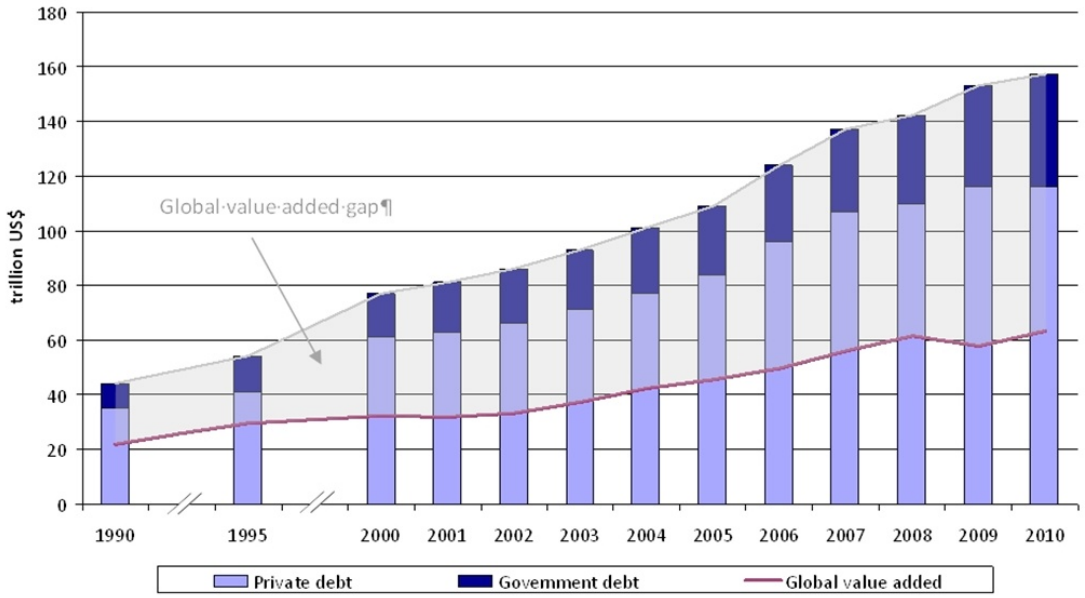

Illustration 2: Global value-added (nominal GDP) and worldwide indebtedness/ savings 1990-2010

(source: Roxburgh et. al (2011, S. 2), McKinsey (2009, S. 9) IHS Global Insight, own calculations)

and foremost the export nations China, Japan and Germany. On the other hand there are countries which accumulate huge mountains of debt; here, the USA stands out notably.

A consideration of the globally aggregated level furthermore shows that the economic development in the form of global GDP could not keep up with the worldwide dynamics of indebtedness or savings. So the global value-added (nominal GDP) increased by about 80% within the last 10 years. In the same period of time the worldwide total indebtedness rose by 160%.

Illustration 2 shows an estimation of the global total indebtedness (private and governmental) on the basis of a random sample of altogether 79 countries. As the methodology of the survey is difficult to reconstruct, the illustration only has an indicative character. But on a global level there is currently a lack of comparable information from other sources.

The central basis of findings to understand the financial and economic crisis is the following:

> Debts and savings are two sides of the same coin. On an aggregated, global level the savings (or claims) development always proceeds inversely to the debt dynamics. Making debts or rather the debited interest, which results from this, is a form of redistribution – from the debtor to the creditor. The debtor promises the creditor to activate his debts with future value-added.

The possibility to go into debt was a central basic requirement for our economic advancement in the last centuries. As a form of redistribution debts cannot be classified as generally problematic. But if the building up of debts (promise for value-added) is bigger than the value-added development in the long run (debt sustainability), a value-added gap develops, which theoretically has to be closed sometime in the future (Eichhorn & Solte 2010, 51).

It is difficult to say when the value-added gap starts to exceed a "healthy" rate and in the long run results in economic problems. If the international dependencies in the form of debts on the one hand and the savings on the other hand increase excessively, the sensitivity and responsiveness of the actors grow. All in all this causes market fluctuations, which can continue and intensify in a more or less uncontrollable way. The crises, which recently occurred, are evidence of this development (Easterly & Roumeen & Stiglitz 2001).

Causal for the development and extension of the global value-added gap were and are manifold economic imbalances:

- National differences in consumption and savings combined with different development speeds between emerging and industrialized countries partly contributed to huge savings surpluses or debts (Bernanke 2007).
- To some extent this was enhanced by misaligned national monetary- and fiscal policies (e.g. policy of low interest rates in the USA, the monetary policy of China, the economic policy of the EU). Each nation following its own interests has additionally promoted imbalances on a global scale (Blanchard & Milesi-Ferretti 2010).
- For some economies demographic change necessitate increased saving (e.g. Germany, China, Japan), whereas other nations at present do not (yet) exhibit a comparable necessity to save (e.g. USA) (Higgins 1998).
- An "innovation" dynamic in the financial sector, which has been accelerated enormously in the last 30 years, combined with the increasing global interconnectedness made financial transactions possible that in the past would not have been imaginable. Apart from that a strong market optimism in the last decades resulted in an increasing deregulation especially with regard to capital markets (Bofinger 2009, 85). Just think about the

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liberalization of the European insurance market since 1994 or the Interstate Banking and Branching Effciency Act from 1994 which authorized free interstate banking within the USA (Favare & Imbs 2010). All in all this process contributed to an advancing separation between the financial and the "real" economy (Allen & Snyder 2009, 37), which for example could be seen in the emergence of a significant excess liquidity on the money market.

- The pursuit of "more", which is typical for humans, is one of our strongest incentives and last but not least the basis for our economic development (Smith 1759). But if this is not inhibited, it also might contribute to exaggerations, which subsequently have to be handled in the form of crises. With regard to the depicted development of a continually increasing global value-added gap, there are also contrary tendencies, which have the poten-tial to attenuate or rather to reverse it in the future.

- Demographic developments will adjust. Nations which in the past had a demographically conditioned necessity to save will overage and consume their savings. In contrast, other nations will start to accumulate savings surpluses in order to be able to shoulder demographic burdens in the following decades.

- Differences in savings and consumption between countries will presumably shift. In some of the big emerging markets the consumption pattern will change with the increasing development (Guo & N´Diaye 2010), whereas in some industrial economies saturation tendencies possibly repress consumption (Reuter 2010).

- The separation of the finance and the "real" economy might not continue in an uninhibited way. Possibly the cycle of "innovation" in the financial industry, which is closely connected with the development of information technology, will subside. In other industries this has already been experienced in the past (Klepper 1997).

- There is the chance that - in the future - there is a better alignment of national monetary- and fiscal policies on a global level and that a sound system of regulation for international financial markets will be found and implemented. Nevertheless, these are just speculations about the future which may just be wishful thinking.

In so far the current economic model is not necessarily doomed to failure, as at present can be read in many places. But in order to guarantee long-term stability, some adjustments are necessary. If the system is left to its own resources, economic turbulences in the recently experienced extent will occur more frequently in the future.

2.3 Potential paths of development

Referring to illustration 2, three different approaches for the future development of the economic system can be identified. According to the arrangement they can turn out to be more at the expense or in favor of creditor or debtor:

a) Increasing of the value-added so that it is brought close to the level of debt.

b) Decreasing of the level of debt so that it is brought close to the value-added.

c) „Business as usual".

Five different options for action as possible development paths can be deduced from this.

A1) Real growth (Creditors consume more)

One possibility to align the value-added with the level of debt, are higher real growth rates. For this purpose today's creditors should start saving less or rather consuming more. In return today's debtors would generate higher revenues and could reduce their debt dynamics. To some extent this process will start in a self-regulating way in the following years. As already described, some national economies with current savings surpluses will feature savings defi-cits in the future and vice versa. How creditors, beyond that, can be motivated to stop saving, remains unsettled.

A2) Nominal growth (Devaluation of savings and debts)

The value-added gap could also be closed by a merely nominal growth. Inflation would entail a reallocation of assets at the expense of creditors. Partly, previous debts would be devalued. Contrary to the general opinion, inflation cannot simply be created. Basically, price increases are always the result of excess demand. Indeed, public policy and also the central banks can try to influence the aggregated demand behavior by means of indirect stimuli (monetary policy, public relations etc.). Direct control is not possible. Thus, the "path of inflation" theoretically is a possibility to close the value-added gap in parts. However, in practice this is not an instrument that can be applied in a controlled way.

B1) Forced saving (Debtors consume less)

Today's debtors could be „forced" to reduce their debts. All else being equal, this would first of all result in lower consumption. In turn, this would result in lower real growth rates, unemployment would increase and social problems would be amplified. In some approaches exactly this can be observed recently. Whether on the private or the public level – it is difficult for many debtors to continue making debts as usual. The consequences of this „Deleveraging" can be observed in the USA as well as in Greece. In the long run, this will also have an impact on today's creditors. Thus, it is very likely that their saving surpluses will be lower than in the last years.

B2) Debt relief (Creditors agree to waive their claims)

Debt relief is also associated with distribution effects – e.g. pension savings might be in danger. But in contrast to forced savings the creditors bear some part of the burden. Engaging the creditors may also cause adverse effects as it could create negative incentives for investors with possible contradiction of economy. Nevertheless, comparable with private-law regulations on insolvency

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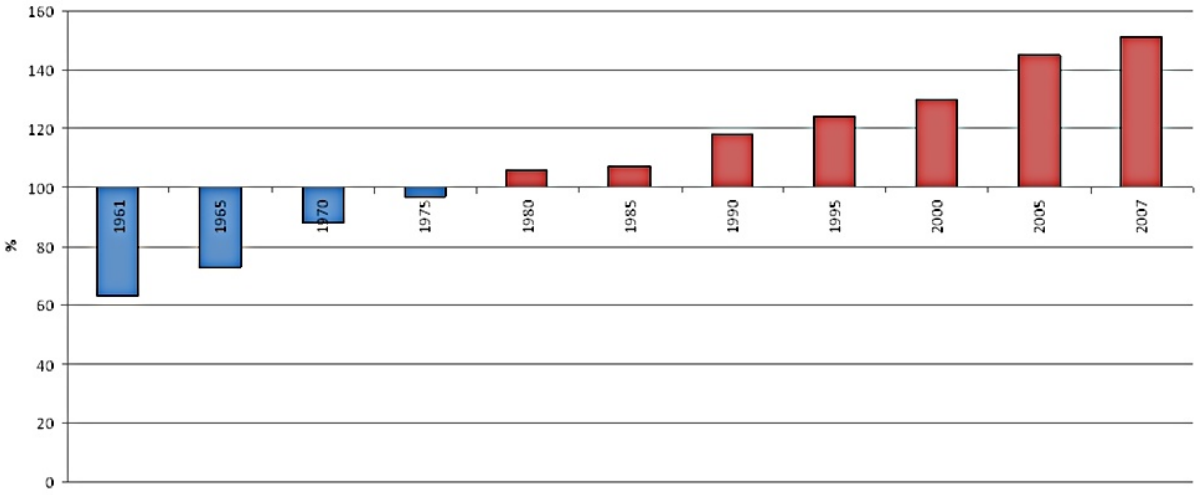
proceedings, a public insolvency law could be introduced. In an ordered proceeding a debt relief would be undertaken methodically. Ideally, an ex ante public insolvency law has got a preventive character, as it reveals the default risk of public bonds. With this procedure, the debt dynamics could be restricted at large. Already for many years the International Monetary Fund has been discussing an appropriate mechanism, but even the EU will not pursue this approach in the short or medium term (ex post) despite the current debt crisis and the risk of respective contagion effects (Beck & Wentzel 2010, 74). Thus, an implementation does not seem to be realistic.

C) „Business as usual"

A scenario for the future which seems to be very likely for the following years does not envisage substantial changes in the global economic structure. Today's creditors continue saving, today's debtors continue incurring debts, the value-added gap continues to expand. Whereas a closing of the value-added gap can contribute to a certain stabilization of the economic development, "business as usual" is the basis for future extreme crises. In recurring cycles, overindebted or illiquid market participants become insolvent and cause problems.

2.4 Ecological dimensions: nature and social freedom

The "choice" between the depicted, characteristic paths of development already seems to be difficult enough. To make matters worse, there are environmental as well as social preconditions that increasingly limit the scope of action. It is beyond dispute that our economic activities are not in line with a sustainable use of natural resources. To exemplify this, the concept of the ecological footprint will be used here. The concept of the ecological footprint is not without controversy (cf. e.g. Moffatt 2000), even though so far there is a lack of clearly superior measurement methods. At this point the results are only supposed to have an exemplary character. The concept of the ecological footprint relates the annual consumption of bio-capacity (first and foremost the emission of CO^2) to the reproduction of bio-capacity per year (CO^2-absorption). Until the end of the 1970s a surplus of CO^2-absorption could be observed on the global level (Global Footprint Network 2010). However, since the 1980s the ratio has inverted. Every year more bio-capacity is consumed than reproduced – in a manner of speaking ecological debts are built up (Becker 1998, 2). The most current date from the



s Illustration 3: Relation of annual consumption and annual reproduction of bio-capacity global 1961-2007
(source: Global Footprint Network 2010)

Country	Reproduction of bio-capacity	Consumption of bio-capacity	Ecological debt/ surplus
USA	3,9	8,0	-107%
Japan	0,6	4,7	-689%
Germany	1,9	5,1	-164%
China	1,0	2,2	-126%
India	0,5	0,9	-79%
Brazil	9,0	2,9	+68%

Table 1: Annual reproduction and consumption of bio-capacity in hectare per capita 2007
(source: Global Footprint Network 2010)

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year 2007 show that every year we consume 1.5 times as much bio-capacity as it is reproduced (cf. illustration 3), or in other words: Humanity would need 1.5 earths to be able to carry on their current economic model permanently (Ketterer & Lippelt 2010).

With regard to the consumption of natural resources there are considerable regional differences (cf. table 1). Again, the ecological footprint is used to exemplify this. On the one hand the differences can be accounted for by different geographical conditions. For example, the extensiveness of forest areas, which can absorb high amounts of CO^2, is distributed very differently on a regional level. On the other hand countries feature strongly differing economic production processes and levels. Currently, industrial economies make the biggest contribution to the ecological debt accumulation. Emerging countries still are behind that. However, it is very likely that this will change in the following decades, even if many emerging countries learn from the experiences of industrial states and skip some of the ecological developmental stages.

In the future the ecological threshold will also influence the economic development. In this context there won't be "business as usual" (cf. Meadows et al. 1972). On the one hand a limit for conventional growth could be deduced from the finiteness of natural resources (Lutter & Giljum 2009). On the other hand the side effects of the decade-long overexploitation of natural resources could weaken the trend growth (e.g. environmental pollution, climate change, more frequent and graver natural catastrophes). For this also compare the discussion about „Peak Oil" or rather „Peak Everything" (Heinberg 2010), the excess of the maximum output of natural resources.

If you put the above-mentioned development paths with regard to dealing with the global value-added gap in an ecological context it becomes obvious that the growth strategies (real or nominal growth) as well as "business as usual" are on a collision course with ecological necessities and thus cannot be implemented without conflicts. Only the often-cited, but so far not sufficiently observed, green growth utopias ("green technologies", health care market) raise hope at this point. It remains to be seen if they will occur to an adequate degree.

In addition to ecological restrictions, which become more and more important in the future, also social aspects will co-determine the process of a consolidation of the value added gap. In this context the past decades came along with growing social instabilities, which e.g. can be illustrated with the help of the development of the income distribution (cf. illustration 4). The Gini coefficient for the national income distribution is one of the most established parameters to illustrate economic results of distribution, but nevertheless it is not without criticism (e.g. Atkinson 1970). National gini coefficients have been increasing steadily for the last decades with only a few exceptions; i.e. that the income distribution becomes more and more unequal (Milanovic 2009 and 2011; Solt 2009). In general, also the distribution of wealth becomes increasingly unequal, even though the survey of wealth is connected with comparatively bigger methodical difficulties than the calculation of income (Frick & Grabka 2009). With a view to the future a further factor might be that the above-described ecological development in the next decades will also have a negative impact on social imbalances (Eboli et al. 2010; Tol et al. 2004). In this context it can be expected that the adaptability

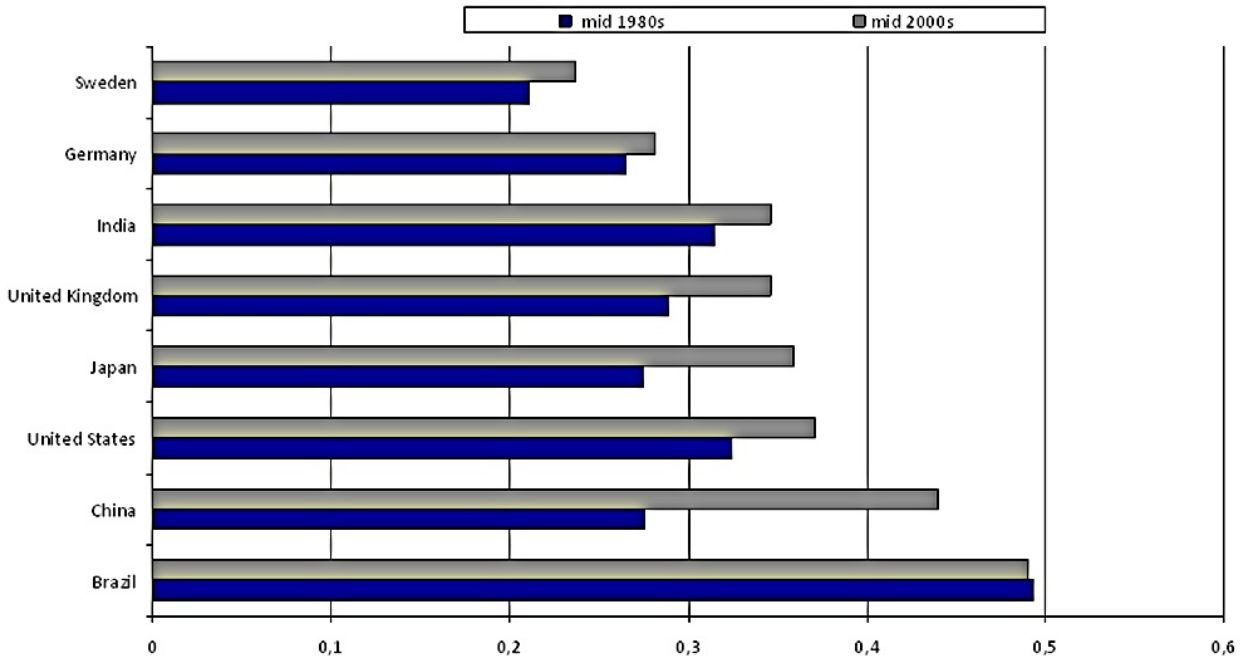

Illustration 4: Gini coefficient of the national distribution of income

(Source: Solt 2009, own calculations)

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of the socially disadvantaged with regard to climate changes turns out to be less; thus, economic consequences of the climate change might strike these population groups hardest.

The discussion about distribution inequalities is controversial. Some consider this as the crucial impulse for economic action. However, this does not apply infinitely. As soon as the unequal distribution exceeds certain (difficult to identify) limits, it rather is counterproductive from an incentive-theoretical point of view and can result in social problems (Aghion et al. 1999). The national and global developments with regard to the distribution of economic outputs in the last decades lead to doubts with regard to the social and finally to the economic sustainability. A further divergence of the social gap constitutes a substantial risk for the stability of the social- and economic system (Berg & Ostry 2011). Beyond that financial crisis itself can contribute to increasing inequality because they often go along with negative distribution effects (Bofinger 2012, 23). Scopes for decision-making with regard to a strategy for closing the global value-added gap are severely limited by this. “Business as usual” as well as a purely nominal growth or simple “deleveraging” will probably be attended by an intensification of social differences and thus seem to be problematic. At least it will not work without accompanying governmental interventions. The decision- and coordination processes, which are necessary in this context, lead one to assume that there will be more social conflicts in the future. inequality because they often go along with negative distribution effects (Bofinger 2012, 23). Scopes for decision-making with regard to a strategy for closing the global value-added gap are severely limited by this. “Business as usual” as well as a purely nominal growth or simple “deleveraging” will probably be attended by an intensification of social differences and thus seem to be problematic. At least it will not work without accompanying governmental interventions.

2.5 Interim conclusion

Economic crises are a recurring element of our life. We should look into this subject and try to detect the reasons. Also the current financial and economic crisis is only one of numerous economic crises we have experienced in the last decades – and certainly it won’t be the last. Causal for the considerable extent of the current economic upheaval are distinct exaggerations before the crisis. This has resulted in the fact that the efficiency of our economic system has been strained increasingly. Indebtedness and savings literally outgrow global value-added. Thus, the global indebtedness dynamics disconnected from the development of the debt sustainability in the last decades. In this way a value-added gap originated and expanded, which theoretically has to be closed in the future – at least, if we intend to limit the dimension of economic crises in the future.

Theoretically, there are different paths of development, which could be taken concerning this matter. An increased real economic growth would decrease the value-added gap as well as inflation, a modified behavior with regard to saving or making debts or a debt relinquishment. When “choosing” one of these alternatives it might be complicating that ecological and social conditions increasingly restrict the scopes of action. Without a systematic and systemic rethinking concerning the economic architecture and the handling of resources (financial but also natural and social), which is intended with this, a faster recurrence of extreme crisis becomes very likely. There is no easy way out.

3 Educational reflection

The financial crisis is an eclectic phenomenon, which can be considered from the perspective of different theoretical disciplines. Activity theoretical models play a central role in social sciences and their referring educational approaches. Whereas sociology considers social action as articulation of socialized humans (output), which is evoked by elements of social order (input) (Schäfers 2006), political science considers in addition to "polity" as the institutional frame (input) and "politics" as the processes of politics (actions) also "policies" as the realm and results (output) of public action (Schmidt 2010). Economics on the other hand analyzes, how and with which means (actions) individuals with stable preferences and under marginal conditions (input) maximize their benefit (output) (Schlösser 2008). All three perspectives can be traced back to the activity model, which is visualized in illustration 5. The emphasis of socio-scientific similarities should not mask the fact that on the basis of a shared activity model different activity theories developed, which partly are in diametric opposition to each other with regard to their basic assumptions (cf. actions in dilemma situations of homo oeconomicus vs. homo reciprocans). But also within the disciplines there are not less different basic assumptions (cf. the assumption of rationality of behavioral economics vs. neoclassical economics). But, the different approaches of the three socio-scientific disciplines add up to a more comprehensive picture of the phenomenon scope.

Illustration 5: Activity model of social sciences

Whereas historically the study of crises was of great importance in economics (e.g. Malthus, Marx, Keynes), under the neoclassical paradigm and its renaissance in the 1980s these approaches vanished to a great extent. One of only a few confirmative exceptions can been seen in the work of Minsky (e.g. 1982) or as a clairvoyant Roubini. This can be explained by the fact that the economic

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basic assumption of stable preferences and the economic efficiency perspective do not get along with crisis situations. In contrast to this it is not totally wrong to claim that sociology is a science of crisis (Uske et al. 1998). Sociological fields of research are normally closely connected with the industrialized society and its crises, as, for example the crisis of the welfare state, the end of the lifetime-employed society or the breakdown of traditional gender relations. Political science also deals with crisis phenomena intensely (Klenk & Nullmeier 2010). The crisis is a core phase of political change and a central object of investi-gation of political scientific conflict research.

However, it is remarkable that the specific focus on crises (political science, sociology) or rather the masking of crises (economics) apparently led to the fact that the activity model is not differentiated further with regard to the binary distinction "crisis mode "yes/ no"". In contrast, this was accomplished in business research with the approach of organizational learning by Argyris and Schön (1978). Beyond business studies this approach has been rarely dealt with so far in social sciences in general (cf. Hall 1993) as a confirmative exception) and in its educational disciplines in particular. Organizational learning differentiates between three learning levels with regard to the activity model.

a) First order- or single-loop learning

In case of single-loop learning, actions, which do not have the desired results, are varied (cf. illustration 6). Preferences and how they develop on the basis of framework conditions, as, e.g. norms or institutions, values or policies are not reflected upon or changed. Learning on this level increases the efficiency of actions, but not the action potential.

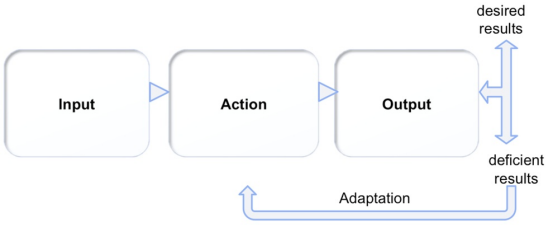

Illustration 6: Single-loop learning

b) Second order- or double-loop learning

The assumption for double-loop learning is the awareness that single-loop learning does not suffice to have the favored result; thus, there is a massive mental disturbance which can be called crisis. In a crisis it is necessary to question the preferences and their preconditions in principle and, where required, to modify the framework conditions or rather to expand the action potential (cf. illustration 7). Learning on this level increases the effectiveness of actions.

c) Third order- or deutero learning

In the case of deutero learning previous problem-solving pro-cesses are reflected and analyzed. The intended purpose is to reach a meta-level by (cf. illustration 8) elaborating on learning strategies and

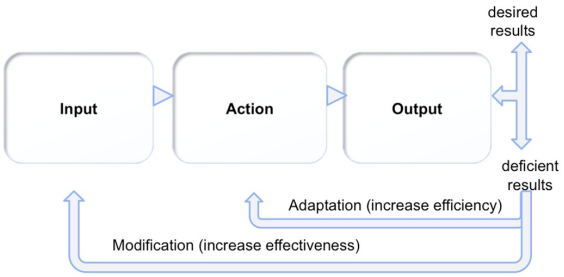

Illustration 7: Double-loop learning

by trying to optimize them. Deutero learning enhances the ability to be able to deal with problems and to be able to distinguish if first- or second-order learning is necessary and to develop new or improved learning strategies to practice crisis prevention.

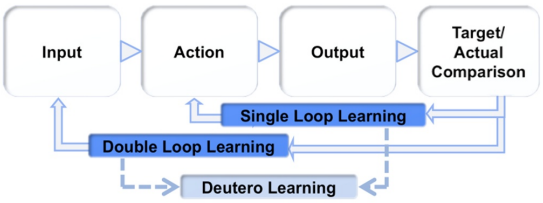

Illustration 8: Deutero learning

The analysis of the financial crisis in consideration of environmental and social requirements shows that a real coping with the crisis cannot work on the basis of "business as usual" (cf. development path C) and also a single-loop learning according to the schema "keep it up, but better" (cf. development paths A1 or B1) does not seem to be very promising for a long-term moderation of imbalances. According to the approach by Argyris and Schön, crises require a double-loop learning, which includes framework conditions of action as values and policies. In addition to the current coping with a crisis it is advantageous in the sense of deutero learning, to perform a reflection of social problem solving procedures.

4 So what? Learning in and from crises

The consideration of the evolutionary approach by Argyris and Schön (1978) expands the categorical approaches of educational concepts as from Kaminski and Eggert (2008) for economic education as well as from Massing (1994) for civic education. Kaminski and Eggert (2008) consider action theory as the basis for an attempt to put economic education in a logical order. Massing considers politics as an endless chain of attempts to cope with social present-day and future problems (policy cycle). Whereas in the case of Kaminski and Eggert the economic efficiency perspective dominates, Massing puts the legitimacy of political processes into the center of attention. However, both approaches systematically do not include the differentiation between first- and second-order learning and to a certain extent both approaches mask the efficacy dimension

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of economic and political actions. In the following a proposal is submitted, how the particularities of a crisis could create an additional benefit for social science education. In addition to the acquisition of categorical insights (cf. a-c) learners should be enabled to realize that crises require double-loop- and deutero learning (cf. d-g). For this purpose the following topics are suggested, which can be integrated into the curricula across disciplines.

Categorical approach (first-order learning):

a) Connection between savings and indebtedness (economics education)

b) Distribution of income and wealth (civic education)

c) Growth processes (mathematics)

Reflection and learning to learn from crises (second-/ third-order-learning):

d) Debts and morale (ethics/ religious education, German/ English)

e) History of financial crises (economics education/ history)

f) International measures to reorganize the financial markets (civic education)

g) Sustainability/ ecological footprint (natural science education)

On a) Connection between savings and indebtedness

The transmission mechanism, which describes the coherences and consequences of monetary measures on the real economy, is fundamental for the understanding of the financial and economic crisis in particular and the financial and economic system in general. In standard economic education the connection between consumption and saving as well as saving and investing is dealt with again and again (e.g. www.oeconomix.de). However, the interconnection of savings and indebtedness is not thematized and likewise no basic understanding occurs. Furthermore neoclassical economics derives its models from equilibrium assumptions which can be observed as inappropriate in times of crisis. Its assumptions and shortcomings should be elaborated.

On b) Distribution of income and wealth

Huge differences in the distribution of income and wealth have always been the trigger for revolutions and upheavals (Graeber 2011). In addition it can be noticed that bubbles on the financial market often develop with a growing inequality of the income distribution (Kindleberger 1989). Higher incomes feature a higher savings ratio, which, in addition to a basic financial security, are invested also in a speculative way in shares, real estate or raw materials. However, lower income strata are normally struck more existentially by the consequences of bursting financial bubbles.

On c) Growth processes

In monetary and fiscal policy growth effects play an important role and again and again result in misunderstandings. Economist and politicians often say that we need a growth of at least two per cent and central banks warn against an increase of the inflation above two per cent. But why is two per cent such an important threshold? If the economic growth in a country is permanently below two per cent, then it takes 35 to 70 years until wealth has doubled. This period of time exceeds the horizon of experience of one generation ("I'm not better off than my parents") so that the economic situation is perceived as stagnancy. In the Dark Ages the growth rates were even below one per cent permanently and the conception of economic activity as zero sum game established (Maddison 2001). In the course of industrialization the growth rates increased considerably above two per cent. The time for the doubling of wealth reduces to 23 to 35 years in case of growth rates of two to three per cent. Thus, the wealth dynamics between the generations becomes perceptible. In the field of inflation, the exponential growth has a contrary effect. In case of inflation rates below two per cent, currency devaluation is hardly observable, whereas in times of galloping inflations savings, but also debts, are halved in just a few years.

On d) Debts and morale

In all world religions a strange paradox can be observed: On the one hand a commercial granting of credit is objectionable, on the other hand it is an ethical command to repay borrowed money (cf. Graeber 2011, 15). The terms money, guilt and debts are not only closely related etymologically, but also on a conceptual level. The bible (e.g. Matthew 18, 23-24) and many works of world literature (e.g. Goethe's Faust or Shakespeare's Merchant of Venice) take up this topic again and again (e.g. Sedlacek 2012). In order to understand and reflect the underlying norms concerning economic activities dealing with savings and debts a liberal arts oriented approach is necessary. One can observe that the Matthew (VI: 9-13) version of the paternoster addresses debt relief as an act of Christian charity directly: „Give us this day our daily bread, and forgive us our debts, as we also have forgiven our debtors." That points out that financial crises does not only have an economic but also a humanistic dimension.

On e) History of financial crises

By dealing with historical financial crises, as, for example Tulip mania 1637, Mississippi Bubble/ South Sea Bubble 1719/ 1720, the first global economic crisis 1857, the banking panic 1907 or the second global economic crisis 1929 in comparison to the financial and economic crisis 2007/ 2008, learners can investigate the recurring, structural basic patterns, but also the differences of financial crises (Kindleberger 1989). It can be shown, which serious economic, political and social consequences emanated from crises. In this context, the differing handling of the first global economic crisis 1857 in the Northern and Southern states of the USA (Union and Confederate) did not insignificantly contribute to the American Civil War and also the second global economic crisis in the year 1929 promoted the rise

of fascistic parties in Europe. In the past crises were the sources for fundamental economic-political reforms (double-loop learning). In this context the foundation of the American Central Banks (Federal Reserve System) in the year 1913 was an answer to the banking panic 1907, the implementation of the separate banking system (1933) in the USA was a reaction to the second global economic crisis and the particular emphasis of the stability of money in the German Federal Bank Act was an answer to the hyperinflation in 1923.

On f) International measures to reorganize the financial markets

As a reaction to the financial crisis in Asia 1997 the ministers of finance and the central bank governors of the 20 most important industrialized and emerging countries (G-20) met in Berlin in the year 1999. Nine years later, the financial and economic crisis of 2007/2008 was necessary that the G-20, this time the heads of the governments, met again in 2008. The institution of the G-20 shows that a double- or even third-order learning has been initiated and makes the policy cycle evident considerably. However, the decisions of the G-20 (Kirton 2008) show how difficult it is to really apply second-order learning on a global scale. So far, only single-loop learning can be stated:

- More accurate supervision of rating agencies
- Better control of hedge funds and extension of the regulation of financial products
- Increased equity capital requirements for financial institutions
- More transparent information for consumers
- Long-term incentive system for managers
- Fight against tax havens and
- Extension of the International Monetary Fund (IMF).

Basic changes (as a public insolvency law) are not identifiable yet.

On g) Sustainability/ ecological footprint

The concept of sustainability comes from forestry and can be exemplified especially well with the help of biological systems (cf. Piorkowsky 2001). There is a tradition of regarding sustainable development as a challenge to economic education in Germany (cf. Weber 1999). A basic comprehension of natural scientific connections with regard to production processes and the dealing with resources and emissions is necessary to make the global dimension of the problem clear and to understand, why double-loop/ deutero learning is necessary. However, the core dilemma of "growth" between the strands of being a prerequisite for prosperity and at the same time a cause for ecological destruction still remains. Nevertheless, it has to be addressed in order to develop a moral sense.

It is a difficult undertaking to deal with the financial and economic crisis in an adequate way in terms of education. It needs a profound knowledge about basic economic and social relationships. Therefore, an extensive didactical transformation is necessary. It has to be emphasized that in addition to categorical approaches the potential of crises is to "learn learning". Beyond that, a deep understanding of the structural problems of our international economic architecture and especially a detailed discussion about possible and probable paths of development can prepare the ground for essential future changes. Awareness about ecological and social limitations play an important role in this context. A broad based internalized understanding of future economic needs is a necessary requirement in order to tolerate partly painful changes like debt relief. It can be critically noted that the discussed potential paths of development and the featured educational suggestions follow the aphorism to source out social problems, which possibly cannot be solved by the current generation, into the educational context. The pedagogical hope is that at least future generations are in the position to counteract these problems.

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