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**ДИСКУСИЯ ВЪРХУ РАЗВИТИЕТО НА СИМУЛАЦИОННА ИГРА "ПРАВАТА НА
ГРАЖДАНИТЕ НА ФОНДОВАТА БОРСА"**

**DELIBERATIONS ON THE DEVELOPMENT OF A SIMULATION GAME ENTITLED
"EMPOWERED CITIZENS IN THE STOCK MARKET"**

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Abstract: As a result of stock market turbulences in the last decades - for instance, the new economy/dot-com bubble that burst in 2000 or the Lehman Brothers collapse and the subsequent bank/ economy crisis in 2008, which brought significant crashes with it - plenty of private investors turned their backs on the stock market. Surprisingly, despite the lack of stock market investments by the German general public, the stock market continues to enjoy a massive media presence (as evidenced in Germany by the daily stock market reports that are transmitted at prime time (7.50 p.m.) on one of the country's leading TV channels!).

Key words: deliberations, simulation game, empowered citizens, stock market

Interest rates for savers have reached an all-time low - i.e. the rate of inflation being higher than the standard banking interest rate. "Savings in the bank" are, then, continuously losing value, and private investors are currently displaying increased motivation to place part of their income or savings on the stock market. Stock market values have, since March 2009, been on the rise broadly speaking, and this is definitely making the stock market more appealing to private investors again. They want to benefit from this current development, with the aim of using potential gains to stock up their state pensions when they retire, since the German government has reduced the state pension level in favour of bringing down (ancillary) wage costs.

In this context, banks are already approaching secondary school pupils and

young trainees and apprentices, seeing these as future customers who can be motivated by stock market simulation games to become financially active in the market. However, the banks are either consciously or unconsciously propagating investment strategies which enable an investor to win the simulation game – and the corresponding winner premium – only if he or she takes big investment risks. In concrete terms, the game can only be won if stocks or "a stock" are bought that have good potential but also carry a high risk. In the "race for first place", a mixed strategy would not be a good idea. Thus, an investment culture is being encouraged that – in the sense of a diversified capital investment strategy – would not be advisable, especially not for securing old-age provision.

The developing of a non-biased stock market simulation game is of key importance if – in times of diminishing state pension expectancies – potential investors are to understand and to use alternative provision models. Training youngsters to become “empowered citizens in the stock market” is, then, a contribution of central societal relevance.³²The guiding principle behind the developing of a stock market simulation game is to convey the necessary skills for making good investment decisions. One of the central aims hereby has to be the developing of a full appreciation by the participants that stock market buying and selling is subject to fluctuations, so that “staying power” is called for if selling in times of crisis is to be avoided. The important first step, then, is to establish a strategic financial plan as to which parts of a person’s assets should be invested in which form. Then, in a second step — in terms of a tactical financial plan – a product weighting and in a third step, a product selection can be made on the basis of key data. It is only then that business operations ensue, i.e. the selection of the right times for entering and leaving the stock market, which are based on various qualitative and quantitative aspects of the stock price performance (portfolio management). In order for an empowered consumer to take advantage of consulting services in this complex financial environment, it is

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imperative for her or him to be aware of the cost structures of the various financial products available in the stock market. There are also a multitude of fees that can potentially be due at different time stages that an investor needs to be aware of. In this context, it is also advisable to have knowledge of the brokerage fees of the sales organization, so that conflicts of interest – in terms of customer benefit and bank or sales organization benefit – may be identified during a consultation session.

Thus, the methodical and medial design of a simulation game must on the one hand convey factual knowledge, i.e. knowing and understanding key data, being able to apply these in an analysis and, finally, being able to assess alternatives. Apart from gaining these skills, learners must be encouraged to develop and actively apply this knowledge. With a suitable simulation game, both the essential training and personal experience with the consequences of decision making can be developed in school students and young trainees and apprentices as well as adults.

Part I: The Concept of Simulation Games

Simulation games date back around 5,000 years to China, where they originally served to simulate military battles. In the course of their further developments, they continued to be essentially military-oriented, because they enabled the modelling of reality structures. Such models then served as a basis for the training of skills for conflict and fighting situations.³³

³³ The information in section 1 is taken from Paape, B., Kiereta, I., Maus, C.: *Wirtschaftsdidaktik*, 2013; cf. Engartner, T.: *Didaktik des Ökonomie- und Politikunterrichts*, Paderborn, 2010, p.144ff; cf. Speth, H.: *Theorie und Praxis des Wirtschaftslehreunterrichts*, 10th edition, Rinteln, 2011, p. 369; cf. May, H.: *Didaktik der ökonomischen Bildung*, 8th, unchanged, edition, München, 2010, p.92f; cf. Geuting, M.: *Planspiel und soziale Simulation im Bildungsbereich*. *Studien zur Pädagogik, Andragogik und Gerontagogik*, edited by F. Pöggeler, Frankfurt, 1992, p.317ff; *Examples of simulation games*, e.g. Jacobs, H. (Ed.), *Ökonomie spielerisch lernen*, 2nd ed., Schwalbach, 2011, cf. Preiß, P.: *Planspiel Jeansfabrik*, Wiesbaden, 1994;

In business life, such simulation games are referred to as “business games”. Participants represent a decision level within different companies (which is particularly accommodative of the “learning fields” approach of German vocational colleges) that are competing in a common market. Over the last few years, the simulation game method has become increasingly popular in German classrooms, although the time intensity involved means that it can frequently only be used in an exemplary manner.

The basis of any simulation game is a simulation process that is set into motion by the course of play.³⁴ Grimm³⁵ defines a simulation game as a learning process “which gives the learner the opportunity to make decisions for a realistic, periodically-structured model over time and to check the quality of these decisions on the basis of

the quantified results of one period”³⁶. In other words, within a very short time span, the learner experiences the long-term, particularly high-risk transactions emphasized by the model. The impacts of the decisions that the players make are elaborated and assessed. The simulation game is, then, a complex role-playing game consisting of opposing interests and decision pressure. A simulation game has the goal of simulating decision-making processes within the framework and limitations of a periodic structure period.³⁷

In contrast to a case study, which ends with the solution to a situation, with the simulation game, the end situation of a period, as determined by the students – is also the starting situation for the new period. The problems are always concrete and usually complex. Whereas the case study only moves through the decision making procedure once, the simulation game moves through this process several times.

The following presents the ideal structure of the course of a simulation game:³⁸

- The preparation phase serves to confront students with the starting situation of the game, whereby the core problem and the various interests of the players are identified.
- In the second preparation phase the active players prepare themselves for the game by establishing playing strategies or assembling the game materials. Those

Ahlgrimm, E.: Die Werkzeugbox. Planspiel für das Kaufmännische Berufskolleg, issued by Landesinstitut für Erziehung und Unterricht, Stuttgart, 1997; Amann, H., Stumpf, M.: Handlungsorientierter Unterricht in den kaufmännischen Fächern im DV-Anwendung – Der Fischereikonflikt, ein Planspiel, issued by Landesinstitut für Erziehung und Unterricht Stuttgart, Stuttgart, 1995; Weitz, B.O.: Planspiel Accomdel, in: Wirtschaft und Gesellschaft im Beruf, H.6/1996, p. 249ff; Taylor, J. L., Walford, R.: Simulationsspiele im Unterricht, Weiler, 1974; Warmdt, L. u. C.: Planspiel Videorecorder, Darmstadt, 1996.

³⁴ Cf. May, H.: Didaktik der ökonomischen Bildung, 8th, unchanged, edition, München, 2010, p. 92ff; cf. Speth, H.: Theorie und Praxis des Wirtschaftslehreunterrichts, 10th edition, Rinteln, 2011, p.369; cf. Engartner, T.: Didaktik des Ökonomie- und Politikunterrichts, Paderborn, 2010, p.144f; cf. Mattes, W.: Methoden für den Unterricht, Paderborn, 2011, p.164; Kaiser, F.-J.: Neue Aus- und Weiterbildungsmethoden – ein pluralistisches Methodenangebot in einer weithin monistischen Methodenpraxis, in: Euler, D., Sloane, P.F.E. (Ed.), Duales System im Umbruch, Pfaffenweiler, 1997, p. 328f; cf. also Steinmann, B., Weber, B.: Handlungsorientierte Methoden in der Ökonomie, Neusäß, 1995, p.29ff.

³⁵ Grimm, W.: Das Unternehmensplanspiel. Wirtschafts- und sozialpolitische Grundinformation, IV, No. 32, Köln, 1968, p. 7; cf. Also Hoffmann, B., Langefeld, U.: Methoden-Mix. Unterrichtliche Methoden zur Vermittlung beruflicher Handlungskompetenz in kaufmännischen Fächern, 4th, revised edition, Darmstadt, 2001, p. 131ff.

³⁶ Authors' own translation.

³⁷ Cf. Gehlert, B., Pohlmann, H.: Praxis der Unterrichtsorbereitung, 4th edition, Köln, 2011, p. 69f. Cf. for implementation, Mattes, W.: Methoden für den Unterricht, Paderborn, 2011, p. 164f. Cf. also the computer simulation game Makro21, as shown in Geisenberger, S., Nagel, W.: Aktivierung in der ökonomischen Bildung, Norderstedt, 2002, p. 71ff.

³⁸ Kaiser, F.-J., Kaminski, H.: Methodik des Ökonomie-Unterrichts. Grundlagen eines handlungsorientierten Lernkonzepts mit Beispielen, Bad Heilbrunn, 1994, p. 167, cf. Also Spetch, H.: Theorie und Praxis des Wirtschaftslehreunterrichts, 10th edition, Rinteln, 2011, p. 370,; cf. May, H.: Didaktik der ökonomischen Bildung, 8th, unchanged, edition, München, 2010, p. 94f; cf. Mattes, W.: Methoden für den Unterricht, Paderborn, 2011, p. 164ff.

students who are not taking part in the game can decide on observation targets or work through pre-formulated observation tasks.

- In the first phase of play, the students are primarily acquainting themselves with the game model. The follow-up assessment of the game aims to clarify any questions that have arisen.

- The assessment focus of the reflection phase is on a discussion of the results of the game and the course of the game. At the same time, the causes and impacts of a particular game behavior can be analyzed and strategies developed for the next phase of the game. The reflection phase is intended for the implementation of a comparison of the model with real situations, whereby students should gain access to a societal reality as seen from various perspectives and potentially by using different media.

- In a second game period, the results of the reflection phase can be processed and new game strategies can be tried out.

The interplay between action and reaction leads to continually changing starting data. According to Hoffmann/Langefeld³⁹, games of this kind enable a representation of “the dynamic character of economic reality. The simulation game is furthermore a method which is especially suitable for – apart from imparting knowledge – achieving other aims, such as recognizing contexts and processes, developing decision-making skills, and practicing specific behavior roles”.⁴⁰ Thus, simulation games – just like case studies and role playing, can fulfill those requirements particularly well which are stipulated by the learning field-oriented and action-oriented didactics of economics. For this reason, simulation games have found implementation within a set framework at vocational colleges. Each year, a lot of the banks organize a stock market simulation game “Börse”, in which groups of players play the stock market with a fictive starting capital and buy and sell stocks and shares and bonds, etc., and increase (or decrease!) their capital within a previously defined time limit.

Mathes sums up the pros and contras of

Pros and Contras of Using Simulation Games	
Pro	Contra
<ul style="list-style-type: none"> • Simulation games are motivating • Simulation games reduce the dominance of teachers • Key skills qualifications can be developed through the use of simulation games Examples of corresponding skills: • Analyzing the starting situation • Analyzing and assessing results • Implementing alternative planning, and decision making • Documenting and presenting decisions and results (in the framework of a report)¹ 	<ul style="list-style-type: none"> • Time-intensive • “Decision processes in simulation games cannot be guaranteed to directly transform to reality, because in reality, several factors are present that cannot be taken into consideration in a game; (...) Solutions for reality cannot be anticipated. (...) There is a risk that the game situation will be translated into reality uncritically, thus encouraging preconceptions. Each simulation game presents a simplified, abstract model of reality – and it is precisely this point that can constitute a significant deficit”.¹

Source of table: Mathes, C.: Wirtschaft unterrichten. Methodik und Didaktik der Wirtschaftslehre, 7th, revised and expanded version, Haan-Gruiten, 2011, p. 214.

³⁹ Hoffmann, B., Langefeld, U.: Methoden-Mix. Unterrichtliche Methoden zur Vermittlung beruflicher Handlungskompetenz in kaufmännischen Fächern, 4th, revised, edition, Darmstadt, 2001, p. 131.

⁴⁰ Authors' own translation.

Part 2: Deliberations on the Planning and Implementation of the Simulation Game “Empowered Citizens in the Stock Market”

1. Analysis of Prerequisites, and Pedagogical Consequences

The simulation game presented here – “Empowered Citizens in the Stock Market” is primarily intended for vocational college students who have no prior knowledge of stock market activities. However, on account of scholastic socialization, the media, or the influence of parental interest in the stock market, it may be assumed that students will have various degrees of prior knowledge. The usual factors of an analysis of prerequisites – as foreseen by the “Berliner” model of didactics with its anthropological and socio-cultural classifications (age, sex, social background, etc.) are not in the focus here, however. This analysis is more concerned with the question of whether those students who have prior knowledge of the stock market can be identified. If they can, then the teacher must ensure that these students are evenly allocated to the various groups.

2. Didactical Analysis and Focus

As a result of stock market turbulences in the last decades - for instance, the new economy/dot-com bubble that burst in 2000 or the Lehman Brothers collapse and the subsequent bank/ economy crisis in 2008, which brought significant crashes with it - plenty of private investors turned their backs on the stock market. Surprisingly, despite the lack of stock market investments by the German general public, the stock market continues to enjoy a massive media presence (as evidenced in Germany by the daily stock market reports that are transmitted at prime time (7.50 p.m.) on one of the country’s leading TV channels!).

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In this context, banks are already approaching secondary school pupils and young trainees and apprentices, seeing these as future customers who can be motivated by stock market simulation games to become financially active in the market. However, the banks are either consciously or unconsciously propagating investment strategies which enable an investor to win the simulation game – and the corresponding winner premium – only if he or she takes big investment risks. In concrete terms, the game can only be won if stocks or “a stock” are bought that have good potential but also carry a high risk. In the “race for first place”, a mixed strategy would not be a good idea. Thus, an investment culture is being encouraged that – in the sense of a diversified capital investment strategy – would not be advisable, especially not for securing old-age provision.

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3. Learning Goals to be Reached and Competencies to be Acquired by Playing the Simulation Game

If one takes a look at the didactical and methodological guidelines in the curriculum frameworks for teaching at German vocational colleges, it is immediately clear that extensive vocational, societal and personal competencies are the goal, whereby the focus is, amongst other things, on independent, socially responsible and democratic action within cultural, political and professional environments (personal and societal action competence).

3.1 Developing Competencies by Playing the Simulation Game

Competence development in the subject of business administration and accounting is aligned to the respective programs of the vocational college. Students should develop skills that enable them to form a well-founded opinion on business problems and to develop solutions to these problems; students are able to critically engage with economic causalities, can differentiate between empirical findings and plausible constructs, can recognize the interactions between them and make use of appropriate evaluation indicators.

Students should also develop the ability and willingness to understand economic reality as being dynamic, networked, functional, and influenced by interests. This includes the ability to comprehend different lines of

reasoning by which concrete economic interests are expressed, to be able to distinguish these lines of reasoning from each other as well as to analyze and assess the respective interests and value orientations.

Decision making and action competence in this context mean the ability to efficiently handle different types of information, to assess economic risks and to autonomously make individual economic decisions under restrictive conditions. This competence is closely linked to the ability to formulate one's own interests and to implement these, but at the same time being able to cooperate and to compromise. Decisions made by the students should be differentiated and reflected on from both an individual and societal perspective as well as from the aspect of sustainability.

In order to reach all of these goals, it is necessary for instruction to be a combination of a conceptually and objectively systematic, action-oriented and problem-oriented learning approach coupled with critical and constructive reflection – which is the aim of the simulation game presented here.

3.2 Learning Goals of the Simulation Game

The vocational college students are aware of the main concepts of the stock market environment: (price-to-market ratio, dividends, shares, annuities, etc.). They can differentiate between strategic asset allocation, tactical asset allocation and portfolio management. They know what the different tools are (direct investments in shares and annuities, investment funds, exchange traded funds and certificates) for entering into share and pension opportunity and risk profiles. The students understand that a strategic asset allocation must take place at the start of each decision making action, after the objectives of the investment have been established. They understand that a tactical decision for increasing or lowering individual investment classes can follow on from a strategic investment decision in order to deal with the risks and

opportunities of specific market phases, and that only in a final step will the choice of financial products and the buying and selling time of these products be made (allocation to share A, B.....and to annuity A, B...).¹ The students understand that customers and banks have very different agendas, since costs (inter alia, commission) for specific products have a substantial impact on the opportunities to make a profit or a loss for banks and customers.

Students can use the individual factors to evaluate firms on the stock market (e.g. price-to-market ratio and dividend yields, etc.) in order to make a considered selection of shares and funds. They are aware that these are only exemplary and that they do not suffice to make a secure, good quality decision. They can implement by themselves the strategic asset allocation in different tasks. At intervals, students can evaluate decisions already made and are in a position to potentially reconsider these decisions after an intensive process of reflection. They are willing to learn from their own mistakes.

3.3 Learning Goal Indicators

The students make strategic investment decisions which, over the rounds of the game, have enhanced results, whereby decisions can be reconsidered on account of the experiences made. With regard to their investment decisions, they can quote short stock market sayings, such as "Don't try to catch a falling knife".

4. Learning and Teaching Processes

The simulation game present here is intended for a single classroom period for the introduction, a double period for the actual game and a further single period for reflection. In the introduction period, selected cartoon images depicting the stock market and the conduct of banks in the

¹ In favor of didactic reduction, an intensive handling of tactical asset allocation and portfolio management (selection of individual investments) is avoided, in order to emphasize the strategic investment decision, because it is this decision that has the dominant impact on the success of an investment.

stock market or in their dealings with their clients as well as the problems involved with shrinking pensions should be shown. All of these aspects are intended to allow the students to realize how the phenomenon “stock market” impacts on them personally. For the process of identifying appropriate cartoon images, it is necessary to carry out an up to date Internet search, whereby keywords for the search could be, for example, “bonus”, “bankers”, “stock market”, “population pyramid”.

When the cartoon images have all been shown, in order to “set the mood”, one of them is noted on the board (or, alternatively, fixed by an overhead projector or a computer with beamer). Keeping the students’ contributions “fixed” helps to emphasize the relevance of the students’ ideas. There follows a steered discussion in class, during which the students develop the stock market into their “own topic”(!). The “fixing” of the students’ answers culminates in the formulation of a concrete and tangible topic to which they can personally relate. This formulation is written on the blackboard (along the lines of: “We won’t allow ourselves to be...: empowered citizens in the stock market”). The teacher can then go on to explain how the simulation game works, absolute transparency being vital.

One aspect of this transparency is – apart from a description of the game – an explanation of why actually playing the game is more meaningful than a teacher-centered lesson on this topic would be. Clearly defined time limits should be given, and roles clearly allocated: simulation leader, facilitator, time-keeper, dice-thrower, question reader, whereby female and male student roles should be switched around, and “traditional” roles of the female students doing the written work, and male students doing the presenting, should be avoided. Finally, the situations experienced should be subjected to a product and process reflection. The rules of the game are explained during the remaining introductory

period and materials are given out. The students are also allocated to different groups, whereby it should be ensured that those with prior knowledge of the stock market are evenly distributed among the individual groups.

Students are given at least 15 minutes to look at the playing materials. The teacher must ensure by asking the relevant questions whether students have understood everything thoroughly and whether the significance of the preparations have been made clear to them via the glossary that they have been provided with. In the actual game period (double period), the game board must be set up and any further questions answered after a short, newly motivating repeat introduction has taken place. About 40 questions about the stock market are positioned and are asked according to the corresponding dice-throw. Answering the questions is similar to the process in the game “Trivial Pursuit”, i.e. there is either a right or a wrong answer. For correct answers, a sum of money is allocated to the player, whereby about 60 seconds are allowed for a question to be answered. Risky questions (optional play) and challenge questions can be allotted to a particular number on the dice. This is intended to keep the game interesting. There are also action squares on the board, which when landed on, entail all groups having to solve a concrete investment problem. Good (i.e. correct) solutions are rewarded, and missed targets (e.g. not achieving a minimum remaining capital) are penalized via monetary reductions. The investment decisions are evaluated via real data and are awarded points (the corresponding annual figures are established by dice throws, in order to exemplify the unpredictability of the stock market within short time horizons).

At the end of the period, the results of the game (the amounts of profit) are announced. The “prize ceremony” should be carefully organized and take place in the next single period, allowing for sufficient time for it to be done properly. The

interpretation of the results is also intended for this next period. It is of central importance to allow sufficient time for process and product reflection (i.e. what it was like for the individual groups and their members and why specific strategies turned out to be successful). A repeating of parts of the game can be planned as a didactical reserve measure, and the risk of making wrong decisions could be made tangible

during the reflective phase (this is not vital, as it has already been done in the first cycle of the simulation game (the repeating would “only” serve to consolidate).

Appendix

Glossary (to appear on www.wd.rwth-aachen.de)
Details of Internet sources found on Google (key words: stock market, bank, banker, bonus, bailout).

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