CONTRIBUTION OF CORPORATE SOCIAL RESPONSIBILITY TO THE SHAREHOLDER VALUE: EXPERIMENTAL PERSPECTIVE

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Introduction

Although the topic of Corporate Social Responsibility is actually nothing new, it has become a frequently used buzzword especially in the last decade. Nowadays, the necessity of running a responsible business is (at least in their communication strategies) generally accepted by the wide range of world-leading companies, as well as by many not so noticeable small and medium enterprises. What is more, the CSR is strongly supported by some extraordinarily important institutions. In terms of Europe, this trend is represented by the European Commission and its Renewed Strategy for Corporate Social Responsibility, see [1]. In fact, even the European Commission declared its affirmative attitude to CSR in the Green Paper from 2001 [10].

There are undoubtedly many advantages of the social responsible entrepreneurship for the whole society. No matter how adorable the ethical code and care of the common good are, the main goal of every enterprise is to fulfill the wishes of its owners. Therein lies the question – is the CSR concept really advantageous even for the owners of the company? Or is the real principle of CSR a tradeoff, where the shareholders give up part of their profits so as to increase utility of the society as a whole? This topic has been recently discussed in a lot of researches and their conclusion is that the implementation of CSR, although not creating profit at the moment, is necessary in order to improve the strategic position of a company in the long run.

Nevertheless, this article focuses on the more precisely defined problem. The question is, whether the CSR can really increase the financial effect of the entrepreneurship for the shareholders. To find out the answer, two methods were used. In the first half of the article there is the general logical analysis of the relation between the CSR and the value-based management. In the second one, one concrete part of this relation is examined by the methods of experimental economics.

1. Current State of CSR Research

Thinking about social responsibility of companies is as old as business itself. The first written mentions of corporate responsibility towards the other society members can be found in the Code of Hammurabi from the 17th century BC, e.g.: *"229. If a builder build a house for someone, and does not construct it properly, and the house which he built fall in and kill its owner, then that builder shall be put to death."* [42]. As for the early Modern Times, often expressed fear of the increasing power of the East India Company is worthy of mention; as for the later period, the ideas of utopian socialists about socially responsible and value-based business forms are worthy of note [24]. According to [44, p. 82–83], the first modern debate on corporate social responsibility was conducted among legal scholars Adolf A. Berle and E. Merrick Dodd in 1931–1932 and was related to the issue, whom business managers should serve. The debate was brief and soon lost interest of other jurists. However, this debate prepared the ground for all subsequent debates about balancing managers' responsibilities to shareholders and other entities, and in general about the role of corporations in modern society. As the oldest modern sources the article [9, p. 269] mentions the books from the 1930s and 1940s – Chester Barnard: The

Functions of the Executive (1938), John Maurice Clark: The Social Control of Business (1939), and Theodore Kreps: Measurement of the Social Performance of Business (1940). Furthermore, it mentions that already in 1946 some chief executive officers were asked about their social responsibility by the Fortune magazine.

The modern development of the CSR concept was distressful. It was and still is quite often attacked and discredited, not only by its opponents, but also by originators of new and reportedly better ways of understanding the relationship between business and society. In recent decades a plenty of competing approaches has been developed. Currently there is no uniformly accepted definition of CSR. Authors usually distinguish three areas of CSR, which socially responsible companies consider: the economic one (i.e. profit), the social one (people) and the environmental (planet) one, cp. [4], [12], [45]. Here are some definitions of CSR used: *"A voluntary commitment of companies to act responsibly towards the environment and society in which they operate."* [5] or business undertaking to do such decisions and implement such procedures which are desirable in terms of values and goals of our society [8]. The CSR concept therefore brings the company quite a number of advantages, especially non-financial ones, such as brand value, public confidence in the company or reputation improvement [36]. It is therefore a marketing tool, which helps the company to build a "clean" image and competitive advantage [37].

As already written above CSR is the object of frequent discussions. Arguments advocating CSR are often divided into three categories: moral, rational and economic, e.g. [45]. Arguments against CSR can be heard not only from the theoretical economists, but also from practitioners themselves. One of the most famous liberal economists who criticised CSR for a long time was Milton Friedman, when on September 13th, 1970 the New York Times Magazine published his famous article succinctly titled The Social Responsibility of Business is to Increase Profits [20]. He published this criticism already in 1962 in a book called Capitalism and Freedom [18, Chapter VIII.]: *"This view shows a fundamental misconception of the character and nature of a free economy. In such an economy, there is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud."* A few years ago, Robert B. Reich joined the CSR critics with his book Supercapitalism: The Transformation of Business, Democracy, and Everyday Life, where he denounces CSR as a dangerous diversion that is undermining democracy, not least in his native America [40]. Reich disassociates himself from the link between CSR and financial performance of companies in the Proceedings from 2008: *"For many years I have preached that social responsibility and profitability converge over the long term. That's because a firm that respects and values employees, the community, and the environment eventually earns the respect and gratitude of employees, the community, and the larger society – which eventually helps the bottom line. But I've never been able to prove this proposition nor find a study that confirms it."* [28].

Just the relationship between corporate social responsibility and financial performance is the subject of many studies that have been going on since the 1970s. An overview of the oldest ones is given by Aupperle, Carroll and Hatfield in [2] and shows that both opinions and empirical studies do not give a conclusive result on the positive relationship of these variables. From the new Czech studies we can name the one by Kuldova [29], where she concludes, on the basis of her own empirical research, that company performance could be improved by the effective combination of CSR and business strategy or by the transformation of CSR into a competitive advantage. Studies on the CSR awareness among consumers and managers in the Czech Republic were also published, e.g.: the intuitive understanding of CSR together with the high interest of companies in its application is shown in the research [43], another research conducted by BLF in 2010 testifies to the fact that for 66 % of customers and for 80 % of employees it is important whether the company is socially responsible or not [5]; slightly higher values were published in other research from 2011 [13]. Another research oriented differently from the same year shows a positive relationship of customers to small and medium-sized companies, which the customers have direct experience with, and

it also shows that for 73 % of the population the most important CSR activity is fair behaviour towards employees and customers [30]. On the contrary, the research aimed at a relatively narrow industry of outdoor equipment importers [35] shows little involvement of these companies in fair trade. In our opinion, this is due to the nature of this industry, where consumers' pressure pushes these companies to cooperation with textile manufacturers in Southeast Asia because of the local low wages. The essence of the consumer dictate was succinctly expressed by Ludwig von Mises: *"Such is the oft-decried harshness of the entrepreneur who figures everything in dollars and cents. He is forced to take this attitude by order of the consumers, who are unwilling to reimburse the entrepreneurs for unnecessary expenditures. What in everyday language is called economy is simply law prescribed by the consumers for the actions of the entrepreneurs and their helpers. The consumers, by their behavior in the market, are the ones who indirectly determine prices and wages and, thus, the distribution of wealth among the members of society. Their choices in the market determine who shall be entrepreneur and owner of the means of production. By every dollar spent, the consumers influence the direction, size, and kind of production and marketing."* [32, p. 3] Similar ideas, but set in a historical context, can be found in [31]. Fair trade itself is seen as a direct part of the CSR strategy [14]. The origins of the fair trade approach to low wages and poor working conditions in developing countries can be explained by the values of classical moral and political theory: *"The average price of wage-labour is the minimum wage, i.e., that quantum of the means of subsistence which is absolutely requisite to keep the labourer in bare existence as a labourer. What, therefore, the wage-labourer appropriates by means of his labour, merely suffices to prolong and reproduce a bare existence. We by no means intend to abolish this personal appropriation of the products of labour, an appropriation that is made for the maintenance and reproduction of human life, and that leaves no surplus wherewith to command the labour of others. All that we want to do away with is the miserable character of this appropriation."* [33, p. 1192–3].

A brief outline of the current state of CSR research above shows the increasing popularity of this topic. For instance, the database of scientific publications ISI Web of Knowledge records a rapid growth in the number of publications of this topic, with the first ones appearing in the 1970s. The comparison of the growth rate of CSR publications with the growth rate of all publications in the ISI is shown in the following graph (Fig. 1), where the vertical axis uses logarithmic scale and thus a linear trend indicates a constant growth rate. The higher growth rate of CSR publications (slope of the row of columns) is noticeable since 2000, but with a decrement in growth rate between 2010 and 2011.

Fig. 1: **Growing rate of CSR publications in the ISI**
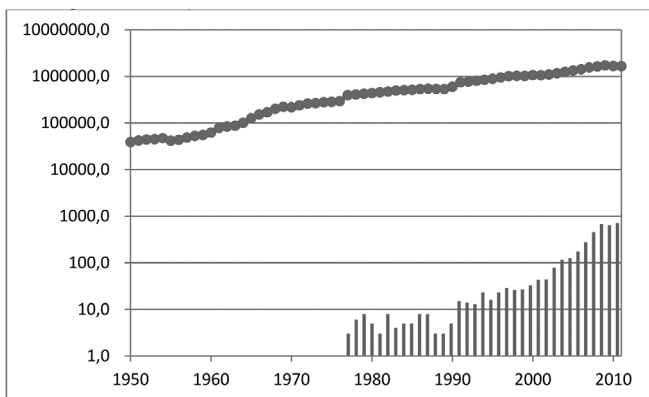
Source: ISI Web of knowledge, Thomson Reuters, http://www.webofknowledge.com/

Majority of CSR research is based on questionnaire survey and describes the actual situation in a particular period and country/ /region or in a specific sector. The fact that the questionnaires do not include a representative sample of respondents is also proved by the comparison of research from 2004 [43] with another research conducted by BLF in 2008 [38], where the number of companies familiar with CSR declined over time. It is hard to believe that some companies have forgotten this significant part of their strategy in four years. Besides, the questionnaire surveys do not focus on fundamental economic issues related to this concept. Experiments are one of the methods how to verify the consistency of various theoretical and practical concepts in economics. CSR is not directly examined in the extensive experimental literature, e.g. no article on CSR can be found in Experimental Economics Journal (ISSN 1386-4157), but the only one which deals with the topic of Social Responsible Investments [11]. Hence, our experimental research is trying to fill the gap in this interesting area.

2. Logical Analysis of CSR Contribution to the Shareholder Value

According to the traditional principles of business science, the satisfaction of the owners depended on the profit of the enterprise. But lately, especially since the nineties of the twentieth century, a new attitude towards the business performance measurement has been appearing. The amount of the profit made does not have any explanatory power any longer, and the attention of the owners is concentrated on the question, what value their company creates for them. The main goal moves from the maximization of profits to the maximization of shareholder value. But the economic theory always knows that this is true only in case of accounting profit while both goals are the same in case of economic profit.

Several complex systems are used in order to guarantee the maximal value-creation. The European Foundation for Quality Management model and Balanced Scorecard are probably the best known of them. The first of them already contains elements of the CSR, namely in the components "People," "Partnerships and Resources," "People Results" and "Society

Results" [34], while the process of CSR implementation into the BSC system is still in progress [25]. Nevertheless, these systems are too complex for our purposes, because we are interested only in the final shareholder value generated by the enterprise. That is why we reduce our following considerations to the overall indicators, which allow us to unambiguously judge the performance of the companies from the point of view of its owners – Economic Value Added and Market Value Added. From these two possibilities, for our analysis we will use the first one. This choice is based on three reasons. Firstly, unlike MVA, which is restricted only to joint-stock companies, EVA can be used for each type of enterprise. Secondly, using EVA is in practice more common, in the Czech Republic this indicator is even included in the diagnostic system INFA run by the Ministry of Industry and Trade [3]. Thirdly, under certain conditions, the level of MVA can be calculated as the sum of discounted future EVAs of the enterprise [41].

The basic method of calculating EVA can be described by the following equation:

$$EVA = NOPAT - C \times WACC \qquad (1)$$

Where *NOPAT* stands for Net Operating Profit After Taxation, *C* for total amount of Capital employed and *WACC* for Weighted Average Costs of Capital. Let us analyze how the implementation of CSR into the business strategy could influence the particular terms of this equation.

Firstly, let us consider the possible influence of the CSR on the weighted average costs of capital. This term could be (supposing the constant proportion of the borrowed and own capital) influenced either by the change of the costs of the own capital or by the change of the costs of borrowed capital. To calculate the costs of the own capital is quite a problem, because its price is not directly determined by the market. This problem is usually solved by using theoretical model such as CAPM or some kind of modular methods (in the Czech Republic, one of such methods is a part of the INFA system, see [3]). No matter which approach of these you use, the price of the own capital cannot be affected by the implementation of CSR. From the theoretical point of view, the costs of the own capital are, in fact, opportunity

costs of investing money into the best alternative option. And yield of such alternative investment is definitely completely insensitive to the possible application of CSR in the company under study.

The price of the borrowed capital is usually calculated as the weighted average of the interest rates, which are set on the granted loans [41]. No matter how extensive our search in literature and in practice was, we found no signs that companies implementing CSR would be provided with credits at lower prices than the market interest rates. Again, the economic theory is unambiguous – there are many theoretical approaches towards the constitution of the interest rates, but according to none of them CSR could not play any role in their amount. After this part of our logical analysis we are able to conclude – implementation of CSR into the business strategy cannot influence the weighted average costs of capital.

The second term of the equation (1) is the total amount of capital employed. According to the literature [41], this term could be optimized either by the assets management or by investing only in the value-creating projects. The latter optimizing method is quite general, the question whether the CSR concept can create value for the shareholders is in fact the topic of this whole article. Because of that, we will concentrate now only on the first one. There is probably no way how to reduce the need for assets in the enterprise by the implementation of CSR. Just the opposite – the asset need can be influenced by the CSR, but in the negative way. According to Kanji and Chopra, CSR means mainly that the company [26, pp. 120]:

a) *undertakes ethical practices in employment and labor by improving workplaces.*
b) *is involved in building local communities and communicates with concerned communities regarding the consequences of its policies and products.*
c) *invests in building social infrastructure.*
d) *contributes to a cleaner environment, its protection and sustainability.*
e) *contributes by way of its corporate governance to economic development at large.*

Especially points a), c) and d) are obviously potentially connected to the significant amount of additional investments, which entails growth of the company's assets. And additional assets need additional capital to be financed by. To conclude, if there is any effect of the CSR concept on the amount of capital employed, its ultimate impact on EVA must be negative. Because the more capital is employed, the bigger capital charge (C*WACC) the company has to pay and the less value (ceteris paribus) remains the shareholders.

Finally, the last term of the equation can be analyzed – net operating profit after taxes, which can be calculated as follows:

$$NOPAT = (Revenue - Operating\ Expenses)\ x \\ x\ (1 - Tax\ Rate) \qquad (2)$$

Let us consider the possible impact of the implementation of CSR into the equation (2) term by term. As for the last term, we have not found any country, where the tax rate would be depended on the level of the corporate social responsibility. Nor do we expect any change in this direction in the future – the concept of such dependence is probably too administratively demanding to be implemented in some real taxation system.

An objection can be raised that there are some states, where part of the CSR costs could be recognized as the deduction from the taxable income, which leads to the decrease in the effective tax rate. Such a possibility can even be found in §20 of the Czech Income Tax Law [46]. It seems as if the implementation of CSR could increase NOPAT due to the advantages granted by the national taxation system, supposing of course that the national legislation allows such a deduction. But unfortunately, this mechanism does not function in such an advantageous way. If a company allocates its funds to some CSR projects, it will really lower the effective tax rate. But only in exchange for the increase of expenses, which also means decrease of EBIT. The positive effect of tax shield is in fact only a small compensation for investing into socially desirable projects, but it cannot exceed the negative effect of the costs rise. With regard to this more detailed analysis, this effect of the CSR on the tax rate cannot be seriously reported as positive.

Secondly, the potential impact of CSR on the operating expenses must be considered. These costs can be definitely influenced by the implementation of CSR, but not in the positive sense. Let us use the above quoted content of

CSR defined by Kanji and Chopra again. Points a), c) and d) and most likely even the others will undoubtedly cause additional costs. For example, companies participating in the Fair Trade initiative are obliged to pay their subcontractors higher than market prices. On the other hand, there is hardly any chance that CSR could reduce other costs. Even from the theoretical point of view – if any component of CSR really had the power to reduce costs, it would have already been implemented as the standard part of optimization.

Finally, the last term of the equation (2) should also be analyzed. Can corporate social responsibility influence revenues of a company? This question cannot be simply answered, because two counteracting effects could be identified. On the one hand, implementation of CSR causes additional costs. And if the enterprise wants to keep margins at the previous level, prices must be raised so as to cover them. This reaction would lead to the decreasing amount of sold goods and, supposing the price elasticity of demand (which is a common assumption under the present conditions of extreme competition), to the decrease in sales as well.

On the other hand, there exists a potential opposite effect. The responsible way of running a business could persuade some people to prefer the products of the responsible company to the other similar goods. Of course, this strategy can be successful only with sophisticated marketing, which means other additional costs. But under the certain condition, the aura of doing the right thing could cause an increase in the amount of sold goods even despite the rising prices. In such a situation, there would be increase in the revenues, which would impact the NOPAT, and ultimately the EVA, positively.

As mentioned in the preceding paragraph, one crucial condition has to be fulfilled in order that EVA-increasing-mechanism could function. The implementation of CSR can be followed by the increase in sales if and only if the consumers on average are altruists. If they were egoists, they would undoubtedly prefer the cheaper goods, made with lower costs by socially irresponsible companies. Only if they are altruists they will be ready to pay more in order to improve life conditions of the people they barely know, and finally the sales of the company implementing CSR will rise.

Tab. 1: Schematic summary of the impact of CSR implementation on the EVA

Term of the equation	Presumable Influence of CSR	Effect on EVA
Revenues	Two effects – one caused by the rise in prices, the other caused by the willingness of customers to pay more for the social responsible goods	negative/positive
Operating Expenses	rise of the expenses caused by CSR	negative
(1 – Tax Rate)	no effect	no effect
Capital Employed	rise of the amount of capital employed due to the CSR	negative
WACC	no effect	no effect

Source: Own

3. Experimental Analysis of Human Behavior – Methodology

Let us conclude the results of the logical analysis made above, as recorded in Tab.1. The only way in which the CSR can create the financial expressible value for the shareholders is through the rise of sales. And such an increase directly depends on the willingness of consumers to pay more than they necessarily have to in order to help some other people, shortly expressed in their altruism.

Thus, before the decision of the influence of CSR on the shareholder value can be finally made, the following question must be answered – Are consumers on average altruists or egoists? This chapter is aimed at solving this problem.

As for the standard neoclassical economic models, the issue of egoism contra altruism is not very frequently considered or directly discussed. Nevertheless, the egoistic way of behavior is usually implicitly assumed. In such models, economic subjects are supposed to maximize their utility, which derives from the amount of acquired goods, money, free time or some other desirable entity. Social responsible topics are included in the utility function only in models concerning the wealth distribution. However, these models are already associated with the macroeconomics and the normative idea of social justice, which is quite distant from our topic. But, describing the individual choice during the market exchange, the standard economics anticipates people to be egoists.

Naturally, there is no need to take this simplistic view of standard theory for granted. After all, this reducing assumption only reflects the Friedman's methodology, which has no ambition to construct a hundred-percent-fair view of the reality, cp. [19]. On the other hand, there is a branch of economic science, which is aimed directly at the deeper patterns of human motivation and behavior. It is called behavioral economics and since its bigger development in the 1980s, the existence of altruistic decision in economic behavior has been one of its important topics.

For the purpose of studying this issue, experimental methodology is used by behavioral economics. First experiments on that theme were carried out in the early eighties, as part of the research of ultimatum bargaining, see [22]. Nevertheless, the problem of those experiments was their orientation. They were originally made so as to study the game theory, which means that their results must have been examined in the broader context. Fortunately, an experimental framework better suited for the study of altruist-egoist problem was introduced by Kahneman, Knetsch and Thaler in 1986 – the so called "dictator game." Compared to the ultimatum bargaining, the dictator game is simpler and what is more, it is also directly aimed at our topic, i.e. its interpretation is unambiguous.

The dictator experimental design was originally mentioned in the article written by Kahneman et al. without special emphasizing, only as one experiment among many others, cp. [27]. But thanks to its interesting results and variability, it has become a frequently studied phenomenon in the following years. Its point was trivial:

"…subjects were instructed to divide $20 with an anonymous student in the same class, with no possibility of rejection by the recipient. The allocation was made by choosing between two possibilities: $18 to self and $2.00 to the other, or $10 to each." [27, pp. 290]

As seen from this quote, the general principle of dictator game is simple. There are two players. The first of them, the dictator, has certain endowment of money (or points, as it will be explained later) and chooses how much of this amount he will allocate to his partner. From the egoistic (i.e. neoclassical economics) point of view, the dictator should give his partner nothing at all, so as to maximize his own revenue from the experiment. But in the discussed experiment, such behavior was outnumbered by the fair division – 76 % of the dictators divided their endowments evenly [27]. Similar, although not so strong anomaly was then observed even in other runs of dictator experiment – see [16] and [6].

There are several attempts to explain this phenomenon and to implement it into the mainstream economic models, e.g. [39] and [15]. However, these explanations are based on the same idea – the subjects' altruism. To sum up, based on the results of previously run experiments, the altruism of consumers could be acknowledged. But in our opinion, there is a significant imperfection of the original experimental design, which reduces the strength of those results.

The original design contained only one round (i.e. every subject could have decided only once), which had two cardinal disadvantages. The first of them is that the participants need some time and trials to really understand the principle of the game. But in the single round experiments, they are not able to gain enough experience and their decisions are then affected by their confusion. The second disadvantage of the single round design lies in its inconsistency with the real world. The real decisions about most expenses are usually made repeatedly and are parts of real life and consumer strategy.

Because of these factors we do not consider the mentioned results to be a sufficient proof of the human altruism. In order to bring some more convincing and more decisive facts about the human behavior, we created a new

experimental design of the dictator game. Its principle is described below:

1. The fundament is still the dictator game. Players are divided into pairs and sit in two rows (A and B). In each round, one member of every pair is a dictator. He/she is given 100 points and makes a choice, how many points he/she allocates to their partner. Then he/she writes the sum offered to their partner in the result sheet and shows it to them, so that their partner knows how much he/she was given. To conclude, the only recorded information in every round is the amount of points allocated by the dictator to their partner, who himself/herself records nothing at all.

2. The experimental session consists of 4 series. These series differ in the parameter called "probability of dictatorship for row A." In the first series its value is 3/4, in the second 5/6, in the third 11/12 and in the last one 1/2.

3. Every series consists either of 12 rounds or of random number of rounds, 6 at least.

4. Every experimental session is run with 20 subjects. They form pairs and get the result sheets.

5. When the first series begins, one row (i.e. one player of every pair) is randomly (probability 1/2 for both rows) chosen to be "row A." This row then has the 3/4 probability of dictatorship in every round of this series.

6. At the start of each round in the first series, a random number between 1 and 4 is generated. If the number is 1, 2 or 3 each member of "row A" is a dictator. If the

number is 4, each member of the other row (row B) is a dictator.

7. The dictator makes decision described in paragraph 1.

8. In the next round, a new random number is generated and a new dictator is chosen. In each round the dictator gets new 100 points to divide.

9. The series could end in two ways. Either, one half of the sessions ends in the twelfth round, or the other half ends randomly. After the sixth round, before the beginning of the next round, a random number between 1 and 4 is generated. If the number is 1, 2 or 3 the next round will be played, if the number is 4 the series ends.

10. In one half of the sessions, subjects change partners after each series. In the other half, the pairs remain stable for the whole experiment.

11. After the end of the first series, a new "row A" is randomly chosen (paragraph 5) and the game continues. The only difference lies in the "probability of dictatorship for row A" (paragraph 2).

12. The goal of the subjects is to maximize their total amount of points from the whole experiment. This amount is sum of the points which the subject kept back in the rounds when he/she was the dictator and of the points he/she was given in the rounds when their partner was a dictator.

To sum up, there are two variable treatments in this new design – the number of the rounds (certain 12/random) and the change of partners (yes/no), as summarized in the following table:

Tab. 2: **Variants of the experimental session**

Stable pairs for the whole session	certain end after the 12th round
	uncertain end, at least 6 rounds
Unstable pairs (changing after each series)	certain end after the 12th round
	uncertain end, at least 6 rounds

Source: Own

From this table it is obvious that there are four variants of the experiment. Each of these variants was conducted twice, which makes eight sessions in all. Each session was attended by twenty participants. Business students were

used as subjects and points for the pre-exam credit as a reward, which is a standard method in the field of experimental economics, cp. [17].

Three thousand one hundred and sixty figures were recorded in these eight sessions

and they were then subjected to the statistical data analysis so as to compare the expected values from the series and rounds. The idea of this analysis is described below:

- Supposing subjects are altruists, the expected value of points allocated by the dictator to their partner should be independent on the series or the round. In such a case, every subject should have some opinion on what the "fair distribution" of points is and should not be influenced by the strength of his/her actual position.

- On the contrary, supposing subjects are egoists, the expected value should depend on the series. The bigger "probability of dictatorship" the player in row A has, the stronger his/her position is, because the less exposed he/she is to the retaliation of their partner. And the position of their partner is weaker, because of the same reason. To sum up, egoistic subjects in row A should exploit their strong position and give their partners fewer points with the rising level of the "probability of dictatorship for row A." This effect should be especially strong in the sessions with unstable pairs, because the member of row A does not have to count on the possibility that he/she could change rows with their actual partner next time, and that their partner will then revenge from their position of strength for the low allocation in previous series. On the other hand, the allocation of players in row B will correlate with this parameter in the opposite way. The higher "probability of dictatorship for row A" applies to current series, the more dependent the player in the row B is on the decisions of their partner. It means that in the a few rounds when the player B is a dictator he/she should give their partner more points, so that he/she will not arouse the player's A resentment and moves them to the retribution in the following rounds.

- Egoistic subjects should also adjust their dictatorial behavior to the played round. The higher the number of the round is, the smaller chance their partner has to retaliate for the low allocation. Again, this effect should increase in the unstable pairs design, because of the impossibility of partner's revenge in the next series. In addition to that, this pheno-menon is logically more likely to appear in the sessions with the certain end after the twelfth round. In the sessions with the uncertain end, the dictator cannot be sure in any round that this is the last one in the series, which means that he/she is not able to exploit their position without the fear of the retribution.

Let us repeat the predicted behavior of egoistic subjects and transform it into the working Hypotheses. The dictatorial subject:
a) Donates fewer points with the rising probability of dictatorship – he/she exploits their stronger position.
b) Donates fewer points if the pairs are unstable – no threat of revenge in the next series.
c) Donates fewer points if it is certainly the last round – no threat of revenge in the next round.

To verify the validity of these Hypotheses, the analysis of variance (ANOVA) was used. Eight different tests were performed in MATLAB software. Two of them so as to test Hypothesis a):
- Comparison of all four series played by row A in all sessions.
- Comparison of all four series played by row B in all sessions.

Two of them so as to test Hypothesis b):
- Comparison across the all four series played by row A in the sessions with the stable and unstable pairs.
- Comparison of all four series played by row B in the sessions with the stable and unstable pairs.

Four of them in order to test Hypothesis c):
- Comparison of all 12 rounds played by row A in the sessions with a certain end.
- Comparison of all 12 rounds played by row B in the sessions with a certain end.
- Comparison of rounds 2, 3, 11 and 12 played by row A in the sessions with a certain end.
- Comparison of rounds 2, 3, 11 and 12 played by row B in the sessions with a certain end.

## 3.1. Test of Hypothesis a) – Results and Discussion

To test Hypothesis a), expected values of the all four series were compared in order to find the negative relation between the "probability of dictatorship for row A" and the average donation of the member of row A, as well as the positive relation between the "probability of dictatorship for row A" and the average donation of the member of row B. Five percent were chosen as the significance level.

Tab. 3: Results of the statistical testing of Hypothesis a)

	All sessions	
	All series – row A	All series – row B
EX of series 1	23.474	24.872
EX of series 2	18.586	25.600
EX of series 3	17.191	21.228
EX of series 4	19.425	19.169
p-value	5.39E-07	0.003

Source: Own computation

Fig. 2: Interval estimations of the expected values in all sessions, ordered by series
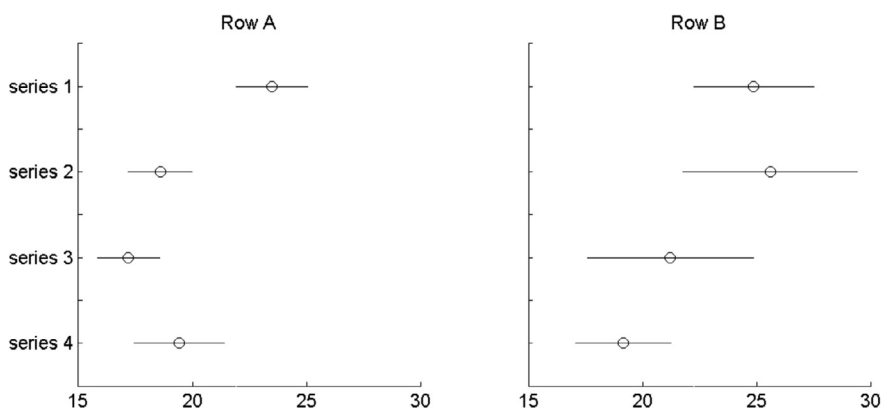
Source: Own

In Tab. 3, there are the expected values of the particular series, calculated for all the experiments. Interval estimations of the EXs, ordered by the rows and series, are recorded in Fig. 2. As can be seen in the first data column of Tab. 3, the Hypothesis was securely confirmed at the defined significance level. The p-value is only 0.00000053907, which makes the result very powerful. The same applies also to the second column, in other words to the behavior of row B.

On the other hand, the results are not exactly such as were expected. In the first column, the anticipated negative correlation would mean that the EX of series 4 should be even higher than the first one, which did not happen. There can be found one possible explanation. If we

look at the EX of series 4 for the both rows, they are remarkably similar. Therefore, we suspected subjects of managing to set some kind of collusion in the last series (i. e. after about 36 rounds of the game), so that both of them allocate the equal share to their partner. To verify this opinion, the individual result sheets were examined. In approximately one half of cases this suspicion seems to be true. This collusive behavior then distorted the results in the way described above.

The other deviation from the expected development is the EX of the third series in the second column. According to Hypothesis a), the member of row B should give their partner more points with the rising "probability of dictatorship for row A," because their own probability of

dictatorship is declining. But in the third series, this rule was broken. We do not have any explanation for this anomaly. Nevertheless, it is worth thinking that in the third series the parameter "probability of dictatorship for row A" is 11/12, which means that the member of row B will probably make only one dictatorial decision. Under such conditions an impulsive choice will absolutely dominate the final output. Relevance of this distortion is therefore, in our opinion, rather marginal.

To conclude, despite of some deviations from the expected results, Hypothesis a) was statistically confirmed at the high level of significance. The first test undoubtedly speaks against the altruism.

3.2. Test of Hypothesis b) – Results and Discussion

Test of Hypothesis b) is based on the comparison of the sessions with stable and unstable pairs. If the Hypothesis is true, the EXs in the first half of the sessions should be significantly higher than in the other half.

Tab. 4: Results of the statistical testing of Hypothesis b)

|	Sessions with the stable pairs		Sessions with the unstable pairs	
	All series – row A	All series – row B	All series – row A	All series – row B
EX of series 1	25.718	27.570	21.040	23.258
EX of series 2	21.263	33.745	15.997	19.000
EX of series 3	18.565	26.500	15.614	13.979
EX of series 4	20.061	21.411	18.819	16.824
sign test				
number of the minus signs	8			
number of the plus signs	0			
critical number of minus signs at alpha = 5%	1			
paired t-test				
t-statistics	3.750395			
critical value of t-statistics at alpha = 5%	1.894579			
p-value for the one-sided paired t-test	0.003582			

Source: Own computation

The relevant data are recorded in Tab. 4 and in Fig. 3. To test our Hypothesis b), two statistical methods were used. First of them was the sign test. It is a very simple statistical tool, which has also one important advantage, namely that there is no need to assume the normality of the tested sample. First of all, differences between the expected values of the unstable pairs and stable pairs were made. For the same character of both populations, there should be an equal number of the positive and negative differences, i. e. four plus signs and four minus signs. Nevertheless, in our sample were all differences negative. In case of eight pairs, one of minus signs is the critical count at the 5% significance level according to the statistical tables. Because in our results this count is zero, with regard to the sign test we are able to confirm Hypothesis b) at the 5% significance level.

As the second statistical tool, the one-sided t-test for paired sample was used, normal distribution was assumed this time. The statement "expected values of the first sample equal the expected value of the other" was chosen as a null hypothesis and the significance level was set at 5%. Under such conditions, the critical value of the t-statistics is 1.894579, while the calculated value was 3.750395. That means a very powerful rejection of the null hypothesis and considerable sign of the difference between average allocation in design
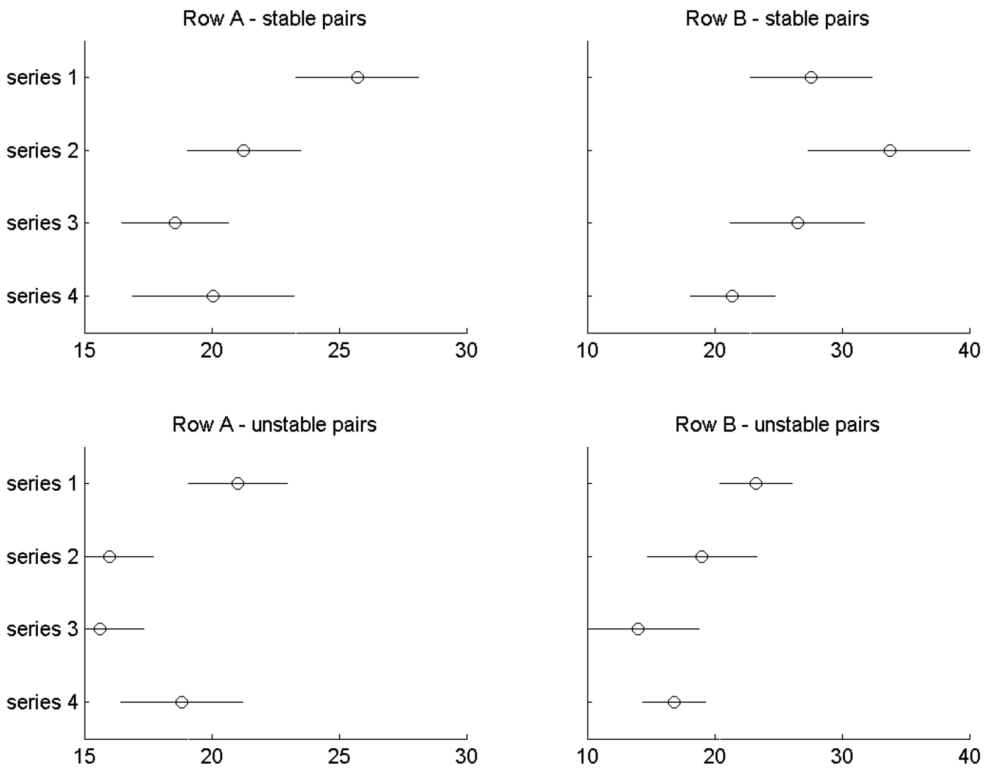
Source: Own

with stable and unstable pairs. The same conclusion can be deducted from the low p-value.

To sum up, both statistical tests strongly confirmed Hypothesis b), which gives us another point against the altruism.

3.3. Test of Hypothesis c) – Results and Discussion

In order to test the last Hypothesis, expected values for the particular rounds had to be calculated. At first Hypothesis c) was verified through the comparison of the EX of the all particular rounds, so that the potential negative correlation between the order of the round and the average donation would be discovered. Once more, five percent were chosen as the significance level.

In Tab. 5 there are expected values of the dictatorial allocations ordered by rounds. Fig. 4 then contains the interval estimation of the EX. The first way of testing did not show any statistically significant difference between the behavior in the particular rounds. Especially the p-value of the data for row A highly exceeds the 5% significance level, while for the other row the p-value is quite close to the allowed level. On the other hand, especially in row A there is an evident trend of decreasing allocation with the order of the round. It implies that Hypothesis c) could still be correct, however it cannot be statistically proven. Nevertheless, the ANOVA speaks clear – Hypothesis c) was not confirmed by the first test.

Tab. 5: Results of the statistical testing of Hypothesis c)

	All rounds – row A	All rounds – row B	Rounds 2. 3. 11 and 12 – row A	Rounds 2. 3. 11 and 12 – row B
EX of the round 1	20.016	23.381		
EX of the round 2	21.550	23.466	21.550	23.466
EX of the round 3	20.525	18.952	20.525	18.952
EX of the round 4	18.283	22.333		
EX of the round 5	18.529	19.732		
EX of the round 6	19.508	20.100		
EX of the round 7	17.805	13.452		
EX of the round 8	17.016	23.976		
EX of the round 9	16.315	22.200		
EX of the round 10	15.509	17.300		
EX of the round 11	17.580	13.115	17.580	13.115
EX of the round 12	14.539	16.145	14.539	16.145
p -value	**0.145**	**0.058**	**0.030**	**0.022**

Source: Own computation

Fig. 4: Interval estimations of the expected values in sessions with certain end, ordered by rounds
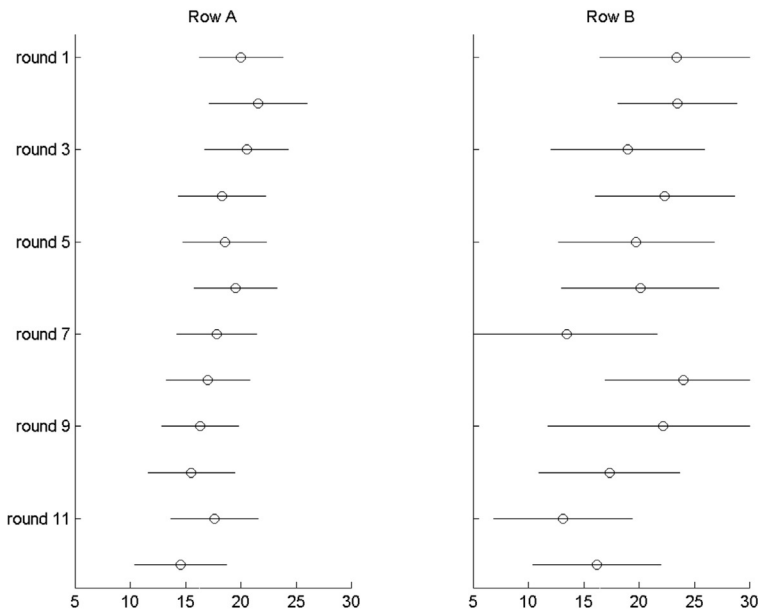
Source: Own

However, with regard to the above mentioned observed trend, we decided to run another test. Its principle is in fact the same, but this time only four rounds are compared – the second, third, eleventh and twelfth. Of course the question arises why the first round is not included. This omission is based on the widely accepted experimental practice, which shows that in the first round subjects usually do not comprehend the experimental design enough to make any coherent decision. This second test is evidently less severe than the first one. On the other hand, it is also focused directly on the issue of the behavior in the last rounds, because it cannot be distorted by the relatively indifferent middle rounds.

The second way of testing gives us then the opposite result. The difference among the average donations of rounds 2, 3, 11 and 12 were confirmed with the p-value of 0.030 for row A, respective 0.022 for row B. The other test therefore results in favor of Hypothesis c).

To conclude, Hypothesis c) was rejected under the more severe testing conditions. The other, less demanding test implies its validity, though.

Conclusion

According to the preceding experimental results, altruistic behavior of subjects cannot be taken as granted. Just the opposite, from the three egoism-proving Hypotheses, two of them were statistically confirmed and the last one should not be directly rejected. Based on these facts, human beings must be proclaimed egoists.

Let us return to the main point of this article. Even the last possible explanation of increasing shareholder value by implementing CSR into the company must be rejected, because the crucial condition allowing increase in revenues is not fulfilled. Of course we cannot claim that no consumer will behave in an altruistic way and buy the more expensive, social responsible goods. However, an average consumer will not be prepared to pay more so as to bring benefits to some unknown people. A company is naturally able to attract some new customers thanks to the CSR, but even more customers will be lost because of the increase in prices.

Our experimental research confirms that the CSR philosophy is based on the assumption that it is possible to transfer patterns of human behaviour in a small group to human behaviour in a large group. Human behaviour in a small group based on mutual affinity, which implies the perception to help other group members for human's own welfare, is genetically given. On the contrary, people are not able to behave to each other appropriately using their innate instinct in a large group of strangers [7, p. 24]. The cooperation of people and order creation in the large group arose from the recognition of the labour division benefits and market structure formation. The mutual beneficial relationship is the only factor, which made from mutually murderous members of various tribes civilized beings living in peace side by side, cp. [23] especially Volume 2 Chapter VII. General welfare and particular purposes – In a free society the general good consists principally in the facilities for the pursuit of unknown purposes, pages 139–142. The growing trend towards the use of CSR by firms is only a legitimate tool of competitors' fight, which uses our genetically encoded behaviour patterns for firms' own benefit, so it is not the question of the so-called social responsibility and public interests at all. This was also indirectly expressed by Robert Reich in an interview from August 21, 2008 for Democratiya: *"The danger is that it convinces the public that certain social problems are being addressed when they are not. Right now, every company is calling itself 'green' and pretending it is on the cutting edge of cutting carbon emissions. Nothing could be further from the truth. Some companies are doing this because they want to get ahead of legislation they see coming. But even if you add up all the efforts of every private sector company to be more environmentally responsible it's a very small effort relative to what needs to be done. Here, as in so many other areas of our public life, we are misled into thinking that the private sector, out of its own magnanimity, will tackle the problem."* [21, p. 202].

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Abstract

CONTRIBUTION OF CORPORATE SOCIAL RESPONSIBILITY TO THE SHAREHOLDER VALUE: EXPERIMENTAL PERSPECTIVE

David Martinčík, Martin Polívka

The article deals with the possibility of the Corporate Social Responsibility concept to increase the shareholder value. This value is expressed as Economic Value Added in conjunction with business science. Firstly, the theoretical analysis of separate parts of EVA is carried out and the influence of CSR on EVA is discussed. Mostly the neutral or negative effect is deducted and only one possibility of positive effect is identified, namely in the possibility of using CSR to increase the firm's revenues. This could be realized only on condition of customers' altruism. Only altruistic customers are willing to pay higher price to help some other people. The second part of the article describes and sums up our own experiment on altruism testing. We modified the standard one-round design of the Dictator Game in three ways: firstly, more rounds are played, secondly, we differentiate stable and unstable pairs of players and thirdly, we differentiate certain and uncertain ends of the game. According to the second and third points we have obtained four different experimental sessions. We used standard methods of experimental economics as regards the instructions and subjects' motivation. Each session was played twice so that one hundred and sixty students could participate on this experiment. More than three thousand figures were acquired. Then the three hypotheses of altruistic or egoistic behavior were tested. The ANOVA, the sign test, and the paired t-test were carried out. The egoistic behavior was confirmed twice and one time we could not confirm either egoistic or altruistic behavior of experimental subjects. According to these the CSR cannot increase shareholder value.

Key Words: *corporate social responsibility, experimental economics, EVA, shareholder value.*

JEL Classification: *M14, C91.*