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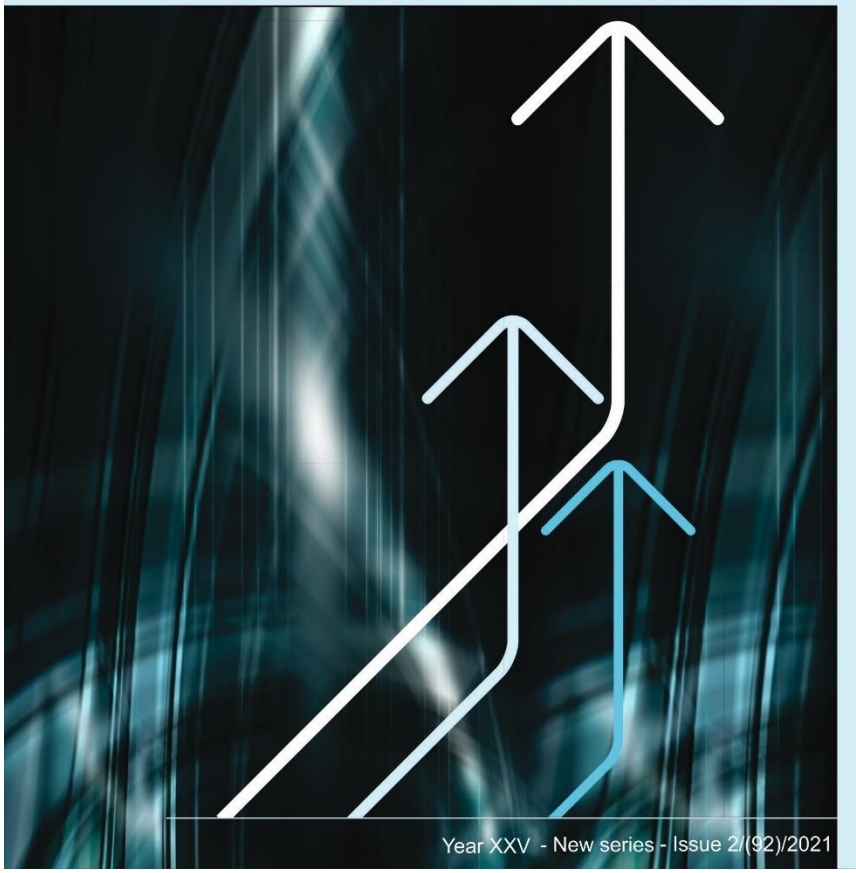

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"VICTOR SLĂVESCU" CENTRE FOR FINANCIAL
AND MONETARY RESEARCH

FINANCIAL STUDIES

ROMANIAN ACADEMY
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Contents

ROLE OF EARLY WARNING SYSTEMS IN PREDICTING THE STOCK PRICE CRISIS: WHAT WE LEARNT FROM GRASSHOPPER AND ANTS FABLE

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Abstract

Early warning systems are too important tools in predicting the crisis in financial institutions say banks and stock markets. A consequence of crashes in a specified stock or stock market is financial crisis. This paper considers designing an early warning system based on random walk theory and maximal inequality. First, mathematical tools are presented, and the early warning system is designed, then some real data sets are analysed. The performance of system is evaluated by some different criteria. After it, using a dynamic programming approach, a modified version of mentioned early warning system is proposed. Finally, a conclusion section is given.

Keywords: Crash indicator; Dynamic programming; Early warning system; Stock market; Variance ratio

JEL Classification: G21

1. Introduction

The famous grasshopper and ants fable teaches us to worry (now in one warm spring day) about chance of occurring bad winter and food shortage (happening bad events) in future. There, grasshopper learnt it is necessary to prepare for tomorrow and work today for what you need in future. Like this tale, a similar case exists for financial environments and institutions. Although, there is no crises and crash in a specific bank, insurance company or financial institution, however, there is no guarantee for a bad event in even near future, similar event could happen for grasshopper. There are many types of

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financial crisis including banking crisis, currency crisis, speculative bubbles crashes, wider economic crisis, and international financial crisis. Most important causes of financial crisis are regulatory failures, uncertainty and herd behaviour, asset-liability mismatch, the risk of bankruptcy because of leverage, contagion and recessionary effects (see, Friedman and Posner,2010). One of dramatic type of financial crisis is the stock market crash at which stock prices drop rapidly and suddenly. It leads to speculative bubbles and economic crisis (see, Sornette, 2017).

Different economic crises such as banking, financial, and currency lead to high economic costs and have negative impact to whole society. Development of early warning systems could help in prevention of economic and business crisis, while they present a systematic forecast of unwanted events. Early warning systems are used primary for detecting crises before damage has been made and for reducing false alarms of possible crisis.

There are different approaches to develop a EWS; such as signal approach, binary classification tree and logit model, see Cashin and Duttagupta (2008). In its simplest version, the early warning systems (EWS) are warning systems designed to detect imminent disasters in financial systems. There are interesting EWS methods for stock market crashes say signal extraction methods, logit models, Bayes network, hidden Markov models, switching linear dynamic systems, naive Bayes switching linear dynamic system (see, Dabrowski *et al*., 2016). Acar *et al*. (2011) detected the stock market crashes using adaptive neuro fuzzy inference system (ANFIS) model. EWS's are also designed using data mining and machine learning techniques like artificial neural network, support vector machine and decision trees like classification and regression trees (CART) and chi-squared automatic interaction detection (CHAID). For comprehensive review in EWS for financial crisis, see Acar *et al*. (2011). For an overview of empirical studies on EWS, see Ivashina and Scharfstein (2010) and Monnasoo & Mayes (2009). They have used different macroeconomic variables. Indeed, the economic variables associate crises with the conditions of financial sectors, external sectors, and real sectors. With regard to the latter, a few studies, see Walter and Willett (2012).

Acar (2010) studied the behaviour of stock market crash index $C_t = x_t s_t^2$ in Istanbul stock exchange (ISE) where x_t is the ISE national

100 index, $p_t = \frac{x_t - x_{t-1}}{x_{t-1}}$, s_t^2 is ten-day rolling variance of p_t and $r_t = \frac{s_t^2}{s_{t-1}^2}$ is the variance ratio index. Each financial time series has two important components which increase at each component results financial crises.

These components are the level of time series which is x_t and its variance s_t^2 (or volatility, if, s_t is used in C_t, instead of s_t^2). Thus the combined multiplicative index of these components is $C_t = x_t s_t^2$.

Notice that $C_t = C_{t-1} r_t (1 + p_t)$. Let $c_t = \log(C_t)$. Then,

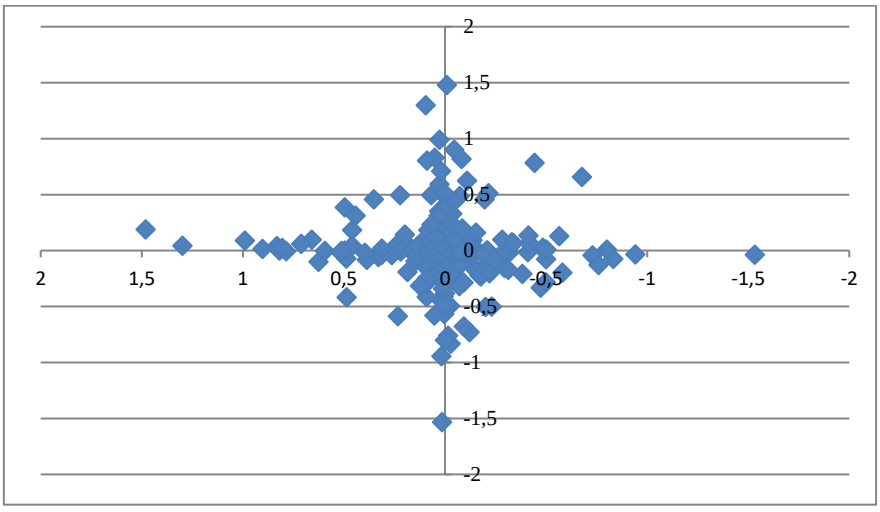
$$c_t = c_{t-1} + \log(r_t) + \log(1 + p_t) \cong c_{t-1} + \log(r_t) + p_t = c_{t-1} + u_t.$$

The last equation uses identity $\log(1 + x) \cong x$ for small x. This equation defines a random walk structure for c_t, the logarithm (in natural base) of crash index. Here, the behaviour of increment process $u_t = \log(r_t) + p_t$ is studied. First, the $\log(r_t)$ is considered. The real data set is the daily stock price of Apple Corporation for one year time period of 2 March of 2017 to 2 March of 2018. Although, it is better to do this result for the stock market index, however, a single share such as *Apple co*. may have more fluctuations which shows the validity of theoretical result better than the stock market index. In that case, because of diversity of different stocks, their volatilities may offset by each other and researcher should be wait to see a considerable crises.

The following figure shows the scatter plot of $\log(r_{t-1})$ versus $\log(r_t)$. It is seen that there is no serial correlation in $\log(r_t)$.

Figure 1

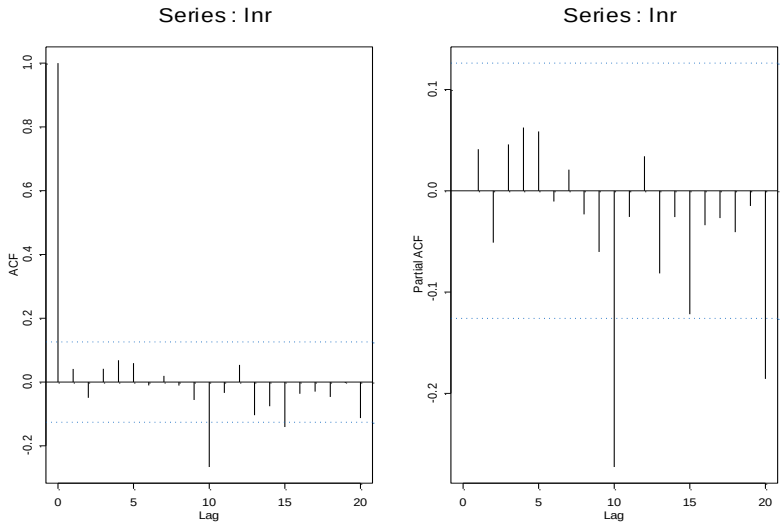
Plot of $\log(r_t)$ vs. $\log(r_{t-1})$



The autocorrelation (ACF) and partial autocorrelation (PACF) functions are plotted as follows:

Figure 2

ACF and PACF of $\log(r_t)$

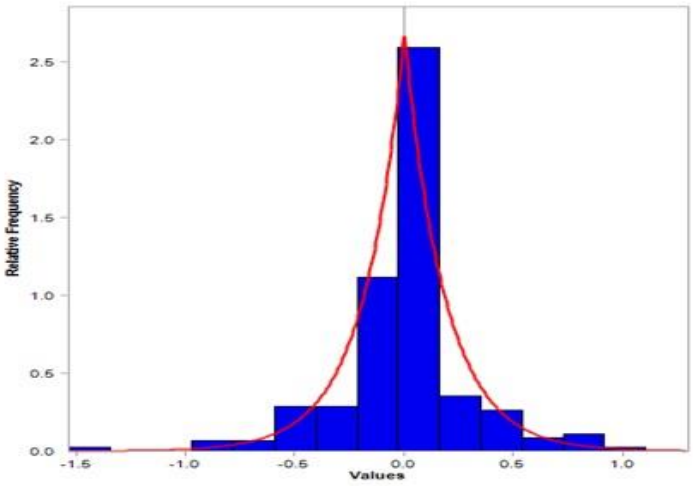


Again, it is seen that there is no time series pattern of $\log(r_t)$. As follows, the cumulative sum and cumulative sum of square plots of $\log(r_t)$ are given to check the existence of change points in mean or variance of $\log(r_t)$ which shows that there is no change point in mean and variance of $\log(r_t)$.

This facts show that the $\log(r_t)$ is an independent sequence of random variables. To find the distribution of $\log(r_t)$ it is seen that a Laplace distribution is best fitted to data with location parameter almost equal to zero and scale parameter 0.2637. It is done using the *Modelrisk* software.

Figure 3

Histogram and fitted density of $\log(r_t)$



The second part of u_t is p_t at which there are many famous models say geometric Brownian motion (GBM) which is fitted well to x_t. Next, the existence of correlation between p_t and $\log(r_t)$ is surveyed. The sample correlation is 0.025 which implies the independence of p_t and $\log(r_t)$. Thus, $c_t = \log(C_t) = c_{t-1} + u_t$ and $u_t = \log(r_t) + p_t$ at which $\log(r_t)$ has central Laplace distribution with scale parameter 0.2637 independent of p_t where x_t is a GBM process with parameters $\mu = 0$ and $\sigma = 0.0123$. Throughout the paper, this structure is kept fixed and using standard theorems in random walk theory, some useful features of stock market crash index C_t are derived.

This paper is organized as follows. In the next section, some mathematical aspects of this model are derived. Some real data sets are studied in section 3 and the performances of EWS's are surveyed in section 4. Dynamic programming solution is proposed in section 5. Conclusions are given in section 6.

2. Mathematical results

Let x_t denote the price of a stock (stock market index or a specified stock) at time t, and its return be p_t, L-day rolling variance (volatility) of p_t be s_t^2, and $r_t = \frac{s_t^2}{s_{t-1}^2}$ be the variance ratio index. Then,

the logarithm (in natural base) of stock crash index is given by $c_t = \log(C_t) = c_{t-1} + u_t$ at which $u_t = \log(r_t) + p_t$ where p_t's are independent with common $N(0, \sigma^2)$ distribution and $z_t = \log(r_t)$ has Laplace distribution with density $\frac{1}{2\theta} e^{-\frac{|z|}{\theta}}$ $-\infty < z < \infty$. This method can be considered as a signaling approach to EWS 's approaches.

It is easy to see that $E(u_t) = 0$ and $cov(u_t, u_{t+h}) = 0$ for $h \neq 0$ and $var(u_t) = \sigma^2 + 2\theta^2 < \infty$. Let γ denote the threshold at which $C_t > \gamma$ is equivalent to stock (market) crash. Then, for large t's, the probability of crash, using the central limit theorem (CLT), is given by $P(C_t > \gamma) = p(c_t > \log(\gamma)) \approx 1 - N\left(\frac{\log(\gamma)}{\sqrt{t(\sigma^2+\theta^2)}}\right)$, where N is the standard normal distribution function. When, p_t's are independent with time varying $N(0, \sigma_t^2)$ distributions, then

$$p(c_t > \log(\gamma)) \approx 1 - N\left(\frac{\log(\gamma)}{\sqrt{\sum_{i=1}^{t}(\sigma_i^2 + 2\theta^2)}}\right).$$

Also, since $E(u_t) = 0$, thus, c_t is a martingale. Let the stopping time τ_γ be first time at which C_t passes γ, indeed,

$$\tau_\gamma = \inf\{t; C_t > \gamma\} = \inf\{t; c_t > \log(\gamma)\}.$$

Thus,

$$P(\tau_\gamma \leq t) = P(max_{0\leq s\leq t} c_t \geq \log(\gamma)) \leq \frac{E(c_t^2)}{(\log(\gamma))^2} = \frac{t(\sigma^2 + 2\theta^2)}{(\log(\gamma))^2}.$$

For the last inequality, the Doob martingale inequality, see Bjork (2009), is used. When, p_t's are independent with time varying $N(0, \sigma_t^2)$ distributions, thus, using the maximal inequality for partial sum, it is seen that

$$P(\tau_\gamma \leq t) \leq \frac{\sum_{i=1}^{t}(\sigma_i^2 + 2\theta^2)}{(\log(\gamma))^2}.$$

Suppose that the upper bound of $P(\tau_\gamma \leq t)$ is considered as the probability of crash, therefore, $P(\tau_\gamma = t) \propto \frac{\sigma_t^2+2\theta^2}{(\log(\gamma))^2}$ for discrete time points t's. For example, assume that $t = 1, \ldots, n$, therefore, $P(\tau_\gamma = t) = \frac{\sigma_t^2+2\theta^2}{\sum_{i=1}^{n}(\sigma_i^2+2\theta^2)}$.

Remark 1. Notice that, using Doob inequality, $P(\tau_\gamma \leq t) \leq \frac{E(f(c_t))}{f(\log(\gamma))}$, for every strictly increasing positive function f. This stylized fact

changes the values of probabilities, however, here, the probability is a tool that its large values at a specified time point shows the possible potentially crash and it is enough and it isn't important which type of probability function (what is f) is applied.

Remark 2. Notice that $P(\tau_\gamma \le t) = P(max_{1\le j\le t}|c_j| > \log(\gamma)) \le \frac{1}{(\log(\gamma))^2} E(c_t^2)$. Then, to bound the probability of crash, let

$$\frac{1}{(\log(\gamma))^2} E(c_t^2) \le \varepsilon,$$

for some predefined threshold ε. Then, $E(c_t^2) \le \varepsilon(\log(\gamma))^2$. An estimate for $E(c_t^2)$ is the average of $c_k^2, k = t-2, t-1, t$, that is, $\overline{c^2}_t$. Let

$$\tau_\gamma^* = \inf\{t; \overline{c^2}_t > \varepsilon(\log(\gamma))^2\}.$$

This new stopping time also defines a new index for timing the crash of stock (market) index. To find γ or ($\log(\gamma)$), notice that $E(c_t^2) = \sum_{j=1}^t E(u_j^2) = \sum_{j=1}^t (2\theta^2 + \sigma_i^2)$. Thus, $\frac{E(c_t^2)}{(\log(\gamma))^2} < \varepsilon$, implies that $\log(\gamma) > \sqrt{\frac{\sum_{j=1}^t (2\theta^2+\sigma_i^2)}{\varepsilon}}$. When, $\sigma_i^2 = \sigma^2$, then $\log(\gamma) > \sqrt{\frac{t(2\theta^2+\sigma^2)}{\varepsilon}}$. When, study period is $t = 1, \dots, T$, then

$$\log(\gamma) = \sqrt{\frac{T(2\theta^2+\sigma^2)}{\varepsilon}}$$

Another estimate for $E(c_t^2)$ is to substitute it by the sample variance of c_t.

3 Real data sets

Here, the above methods like probabilities (CLT, stopping time based) and criterion of remark 2 are studied for some real data sets.

(*a*) *Apple Co. data set*

To plot CLT probabilities, it is assumed $\log(\gamma) = 1$, hypothetically.

Figure 4

CLT based probability of crash

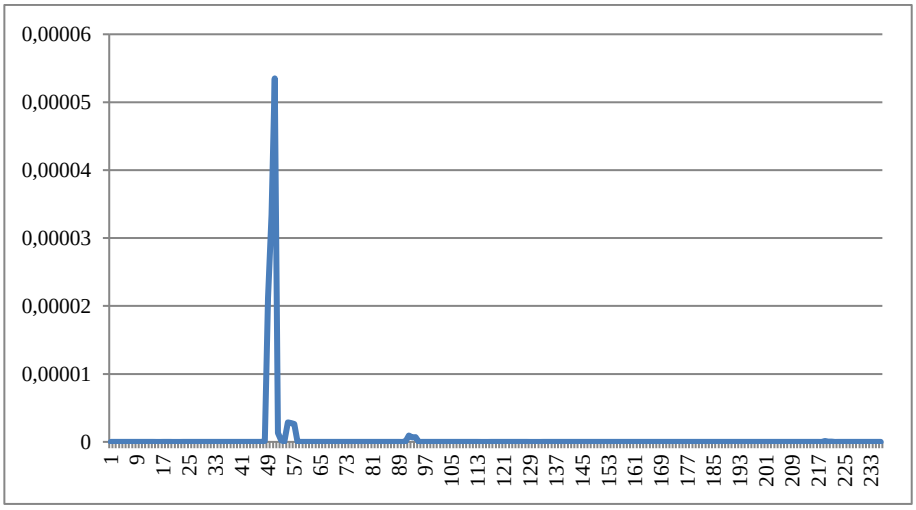
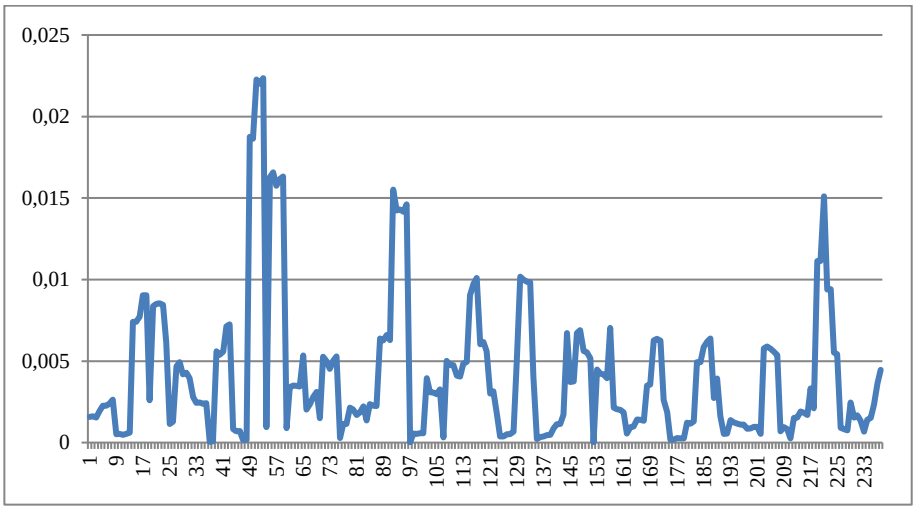


Figure 5

Stopping time-based probability of crash



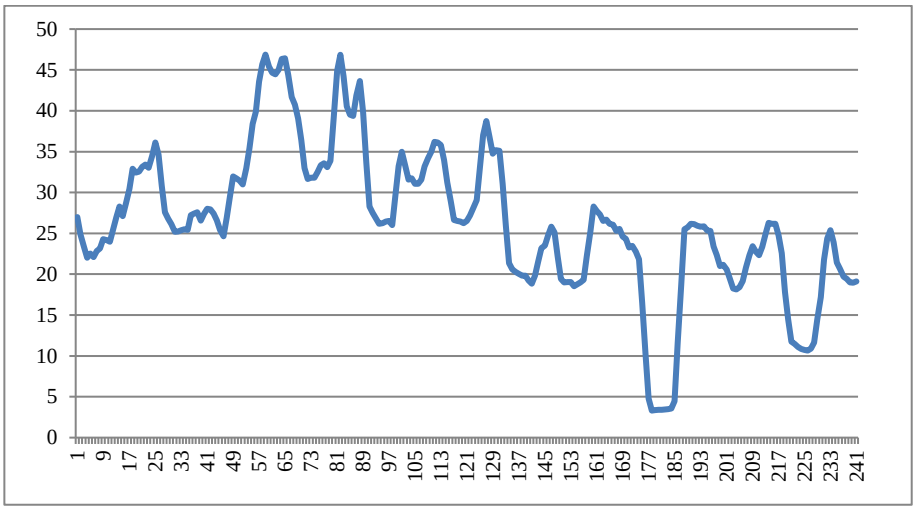
Each probability indicates that there is a tendency to crash in time point numbered 49 which corresponds to the 26 May 2017.

(*b*) *General Motors (GM) company*

Using the method of remark 2, the daily stock price of General Motors (GM) company is studied during 9 March 2017 to 9 March 2018. The following plot shows the time series plot of $\overline{c^2}_t$, where the ten days variance are computed and then $\overline{c^2}_t$ are calculated.

Figure 6

Time series plot of $\overline{c^2}_t$



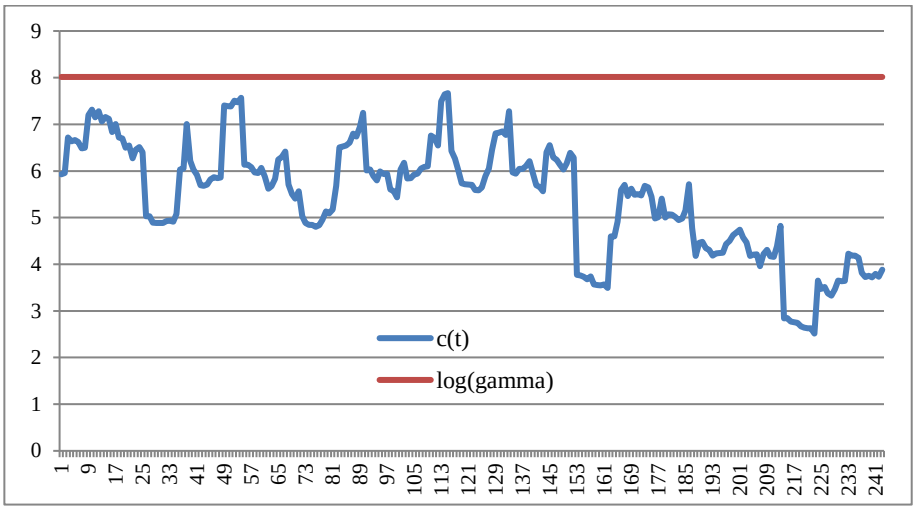
It is seen that the $\overline{c^2}_t$ goes up around $t = 56$ and 78 which are 15/6/2017 and 18/7/2017, respectively.

(*c*) *Intel Company*

Here, the Intel stock price is studied during 9 March 2017 to 9 March 2018. The sample variance of c_t is 0.6424 and assuming $\varepsilon = 0.01$, then $\log(\gamma) = 8.015$. The following figure gives the time series plot of c_t in the presence of threshold 8.015. It is seen that there is no chance for crashing of stock price of Intel Co.

Figure 7

Time series plot of c_t



(*d*) *JPMorgan Chase & Co*

Here, the empirical distribution of $\tau_\gamma = \inf\{t > 0; c_t > \log(\gamma)\}$ is obtained as follows. To this end, the *JPMorgan Chase & Co* stock price data set is studied during 9 March 2017 to 9 March 2018.

The $var(c_t) = 0.4433$ for sub-period of 9 March 2017 to 28 July 2017. Assuming $\varepsilon = 0.02$, then $\log(\gamma) = 4.71$.

A geometric Brownian motion is fitted to the stock price of *JPMorgan Chase & Co* with $\mu = 0.001008$ and $\sigma = 0.011$. Running 1000 iterations of Monte Carlo simulation yields the following histogram of $\tau_\gamma/257$. The mean and standard deviation are 0.1525 and 0.1536, respectively and skewness and kurtosis measures are 1.84 and 7.13. Fitting a generalized extreme value (GEV) distribution gives the estimated location, scale, and shape parameters 0.1018, 0.1038 and 0.4098, respectively.

Figure 8

Histogram of $\tau_\gamma/257$

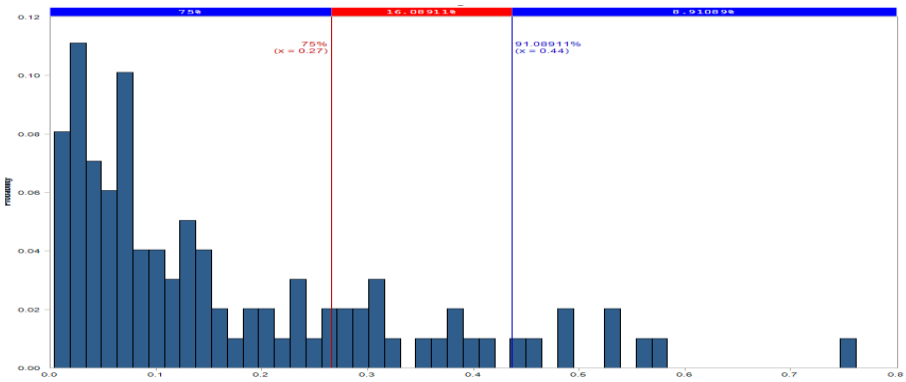
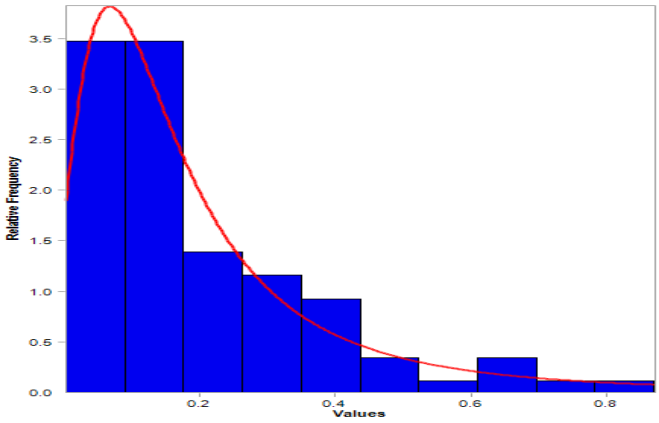


Figure 9

Density estimate of $\tau_\gamma/257$



4. Performances

Here, three measures are proposed to study the performance of above-mentioned procedures. Performance criteria are the probabilities of type I and type II errors measures and signal to error criterion.

4.1 Type I error. Again, consider the historical stock price of Intel Company, part c, section 3. Let $\varepsilon = 0.01$, then $\log(\gamma) = 8.015$. Suppose that T is 9 March 2018 and it was seen that there is no crisis during this period of study. Notice that the probability of type I error, that is $\alpha = P(\tau_\gamma \leq T) = P(max_{1\leq t\leq T}|c_t| > \log(\gamma))$. As follows, the second probability is simulated using the Monte Carlo simulation. To this end, the path of process of stock price of Intel Company x_t is simulated using the GBM process with $\mu = 0.00149$ and $\sigma = 0.01478$ and then ten-day variances are computed and thus the c_T is simulated. In this case, $\alpha = 0$. The following table gives several values of α's based on several choices for ε.

Table 1

Type I errors for various selects of ε

ε	0.005	0.01	0.015	0.02
$\log(\gamma)$	11.34	8.015	6.544	5.66
α	0	0	0.27	0.997

It is seen that for a small change in ε, unfortunately, α grows too fast. However, if one selects too small values for ε, no crisis is detected, spuriously. This shows the inadequacy of upper bound $\log(\gamma) = \sqrt{\frac{\widehat{var}(c_t)}{\varepsilon}}$ where $\widehat{var}(c_t)$ is the empirical estimate of $var(c_t)$. To overcome this difficulty, it is enough to find the null hypothesis (of no stock crisis) distribution of $max_{1\leq t\leq T}|c_t|$ and find $\log(\gamma)$ such that $P(max_{1\leq t\leq T}|c_t| > \log(\gamma)) = \alpha$.

The following table gives the values of $\log(\gamma)$ based on various selects for α.

Table 2

Various values of $\log(\gamma)$

α	0.01	0.025	0.05	0.1
$\log(\gamma)$	7.387	7.173	7.032	6.852

4.2 Type II error. Notice that the probability of type II error is $\beta = P(max_{1\leq t\leq T}|c_t| < \log(\gamma))$ when there is at least one crisis in stock price, in reality. Again, the following table gives the β. To induce stock crisis, during simulating stock price of Intel Company x_t, its values are

changed to $x_t - 20$ for $t = 100, \dots, 106$ and to $x_t - 26$ for $t = 216, \dots, 223$. It is seen that values of β's are too close to α's, surprisingly.

Table 3

Various values of β

α	0.01	0.025	0.05	0.1
β	0.015	0.023	0.047	0.098

4.3 Noise to signal ratio. Following Bryde-Erichsen (2016), the noise to signal ratio (NSR) is defined as the proportion of false positive rate to true positive rate, that is

$$NSR = \frac{\frac{FP}{FP+TN}}{\frac{TP}{TP+FN}},$$

where FP, FN, TN, TP are elements of confusion matrix as follows

Table 4

Confusion matrix and its elements

Decision/Real situation	Crisis exists	No crisis
Crisis exists	TP	FP
No crisis	FN	TN

Here, the data set of General Motors (GM) company, part (b) of section 3, is used to compute the NSR criterion. First, a GBM process is fitted to stock price of this company with $\mu = 000107$ and $\sigma = 0.0177$. Then, $max_{1 \le t \le T}|c_t|$ is simulated using Monte Carlo simulation to compute the 99 percent quantile of this random variable which is 7.25. Here, supposing there is no crisis, then, $FN = 100$ and $TN = 100$. For constructing a crisis, a decline in μ is made and it is assumed that after $t = 150$ (after 10 October 2017) μ is changed to 0.00005. Again, it is seen that $TP = 749$ and $FP = 251$.

The confusion matrix is given as follows

Table 5

Confusion matrix for GM company

Decision/Real situation	Crisis exists	No crisis
Crisis exists	749	251
No crisis	100	900

Here, the NSR is 0.247 which is a small number and shows the accuracy of method.

5. Dynamic programming solution

In this section, a dynamic programming approach is proposed for designing the early warning system. Notice that $c_t = c_{t-1} + u_t$, $u_t = \log(r_t) + p_t = p_t + z_t = g(p_t, z_t)$ where $z_t = \log(r_t) = \log\left(\frac{s_t^2}{s_{t-1}^2}\right)$. Here, it is assumed that crisis at stock price x_t occurs at time t at which z_t is large. Thus, a modified c_T criterion is given by

$$c_T = max_{\{z_j\}_{j=1}^T} \sum_{j=1}^{T} g(p_j, z_j).$$

The Bellman equation is given by

$$c_t = max_{\{z_{t+1}\}}\{c_{t+1} + g(p_{t+1}, z_{t+1})\}.$$

Thus, a backward induction is used to obtain all values of z_t and the time of crisis is estimated by τ at which $c_\tau = \max(c_t)$. Equivalently, $\mathrm{z}_\tau = \mathrm{argmax}_{1\le t\le T} \mathrm{c}(\mathrm{z}_t)$. Here, the data set of Exxon Mobil Corporation (XOM) during 16 March 2017 to 16 March 2018. Here, again, a Laplace distribution is fitted to the z_t with location and scale parameters -0.0171, 0.260425, respectively. The 99 percent quantile of simulated $\max_{1\le t\le T} c_t$ is 2.074. For simulating $\max_{1\le t\le T} c_t$, first, 7 samples are drawn of Laplace distribution with location and scale parameters -0.0171, 0.260425 and its maximum is taken. Then, this value is added to p_t and u_t is simulated. Finally, c_t is computed.

6. Conclusions

As stated in the introduction of paper, there are many approaches for seeing warning alarm soon to prevent or reduce huge losses of financial crises in different markets and institutions, such as banking, stock market, or even insurance. These approaches are mainly data mining and data science-based methods. However, the nature of stock prices and returns are probabilistic and statistical distributions and stochastic processes govern on them. Also, there are many strong techniques such as Doob-inequality in modern probability literatures. Therefore, it is interesting to use these useful results to build a EWS. To this end, in this paper, the logarithm of crash indicator (and consequently its variance) is decomposed to its lag (variance of lag) and L-rolling volatility ratio (variance of L-rolling volatility ratio). This decomposition constructs a basis for upper bounding the probability of existence of crisis defined by some suitable stopping times. Simulation

results show the good performance of EWS in terms of type I and II errors.

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IMPACT OF BOARD TRAITS ON ORGANISATIONS' DIVIDEND PAYOUT. EVIDENCE FROM PAKISTAN

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Abstract

The study aims to evaluate the impact of board traits on the organizations' dividend pay-out ratio. For the purpose, quantitative research approach was being utilized. The data of non-financial companies, listed on Pakistan Stock Exchange, was scrutinized over a period of seven years, 2012-2019. Thereafter, the panel data was analysed through panel least square (PLS) random effect model. The results unveiled that the board size, board tenure, board subcommittees tenure have a positive and statistically significant effect on the dividend pay-out ratio. On the same theme, board skills development has significant but negative effect on the dividend pay-out ratio. Nonetheless, the board gender diversity has a positive and insignificant effect while, board independence has a negative and insignificant effect on the dividend pay-out ratio. To encapsulate, well-organized board can enhance shareholders' wealth. The findings of the study will help companies to familiarize them with the amicable board traits and their impact on the performance, consequently, it will enable companies to affectively compose their boards. Further, it will provide insights to the policymakers and regulators of companies to adequately account for the shareholders' wealth maximization while devising policies regarding internal governance of the companies, under a distinct legal framework, exists in the countries of emerging economies such as Pakistan

Keywords: Dividend pay-out ratio, corporate governance, gender diversity

JEL Classification: G32; G34; G35; O16

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1. Introduction

The relation of board traits with the dividend pay-out is a most prominent topic in the financial management of the developing countries such as the emerging economies of Asian countries which have distinctive ownership structure. The ownership structural has a great influence on the performance of an organisation, as it determines the remuneration of the top management and their efforts toward the strategic goal of the organisation (Jensen & Meckling, 1976; Desender, 2009). The legal implications of the ownership structure in Pakistan are different in various ways from the other countries and thus have a unique impact on the organisational performance and dividend pay-out policy.

The strategic decisions of organisations are being undertaken by the board of the organisations, thus delineates that the board is the most effective forum or a subgroup within the top management (Ormiston & Wong, 2019; Mahadeo et al., 2012). Delegacy and efficiency of the board yield high profitability for the organisations. Lintner (1956) find out the direct relation of management perception with the dividend. Prime responsibility of the board relates to the strategic functions, which include scrutiny, discipline, financial matters, corporate agreements and contracts (Ferguson et al., 2019; Triana et al., 2014; Wellage & Locke, 2013; Lincoln & Adedoyin, 2012).

The dividend pay-out policy, apart from minimizing agency cost, apprise shareholders on the performance of the organisation. Further, the control structure that determine efficiency of the organisation, has a significant influence on the dividend policy (Maury & Pajuste, 2002).

The board of directors, being on the top of hierarchal structure of the companies, have certain impact on the companies' performance and dividend pay-out. Various attributes and traits of the board may influence the performance of a company either in a positively or negatively way. Therefore, in order to improve the efficiency of the organisations and to enhance their corporate governance, the relation of board with the dividend pay-out needs to be evaluated.

The Code of Corporate governance and the Companies Act, 2017 applicable on the companies, registered with Security & Exchange Commission of Pakistan, obligate the companies to follow certain control and ownership structure. Further, there are some traditional norms in the business conductivity in Pakistan. Therefore, the influence of the board traits on the companies in Pakistan could be

different from the other countries. The dividend, which is a main concern of the shareholders, could vary with the board composition and the attributes of the board, which needs to be evaluated to find the nexus between the board traits and shareholders' wealth. The current studies undertaken in the field in Pakistan are limited in their scope and the field needs to be further explored. Tahir et al. (2020) find the impact of board attributes on the firms' dividend pay-out policy, wherein they provided an evidence from the listed companies of Malaysia. Their study was limited to Malaysian listed companies and with limited attributes; however, the results were promising and compelling. Hence, this study will be conducted on Pakistani Companies considering some additional traits explained as under.

Board delegates some of its authorities and responsibilities to its subcommittees which is also comprised of the board members. The committees assist the board in its various decisions and increase the governance level. The board with large number of subcommittees and where the committees held more meeting during the year, has probably some impact on the performance of the organisation and its dividend pay-out policy. The effect of the subcommittees has never been evaluated. This study considers and tend to evaluate the effect of the board subcommittees meetings during a year on the organisations' dividend pay-out.

Further, in Pakistan, it is mandatory for companies to give orientation training every year to its board of directors. Some companies also give directors training which may have some effect on the performance of the organisations and consequently, on the dividend pay-out. The area has never been explored; hence the study will ascertain this effect.

The paper is comprised of four chapters. First chapter introduces the purpose, background, and objectives of the research. The second chapter synthesizes literature and develops hypothesis. The third chapter describes the conceptual framework, sample of the study and methodology utilized for the study. The fourth chapter presents empirical results and then concludes the study.

2. Literature Review

Ownership structure is an important internal mechanism in corporate governance (Cvelbar & Mihali, 2008). Further, the corporate ownership has a direct relation with the shareholders' wealth

maximisation (Gharaibeh et al., 2013; Sindhu et al., 2016; Miko & Kamardin, 2015). As an affective indicator, corporate governance provides information regarding risk diversification for shareholders and the agency issues and problems in the corporate management (Leal & Carvalhal-da-Silva, 2005). Further, regarding shareholders' wealth maximisation, the conflict amongst big and small shareholders could be resolved by the dividend policy as the dividend maximizes the profit of both types of shareholders i.e., small, and big (Faccio et al., 2001).

2.1. Board Size and dividend pay-out

Mansourinia et al. (2013) conducted study on the 140 firms of Tehran, for which, they collected data from Tehran Stock Exchange from 2006-2010, wherein, they found a positive relation between board size and dividend pay-out. Using regression analysis, Olmamide and Francis (2015) also found a significant relation between dividend pay-out and board size. Firms with large board size and the firms that are family owned, yield more dividends (Subramaniam et al., 2011).

H1: There is a positive relationship between board size and dividend pay-out

2.2. Board gender diversity and dividend pay-out

The diversified board, in terms of the gender, augments firm performance, creativity and innovation (Galbreath, 2018). There is a nexus between board's gender diversity and firm performance as female board members has significantly influenced the dividend pay-out (Post and Byron, 2015). Further, the board with a diverse gender composition has more tendency to spend on the corporate social responsibility activities (Shaukat et al., 2016).

H2: There is a positive relationship between board gender diversity and dividend pay-out

2.3. Board tenure and dividend pay-out

This term is referred as the number of meeting of directors held during the year. The newly appointed directors are generally having less authority in view of the stakeholders and thus, they face hurdles while making strategic decisions. The directors with more experience in the company, have more decision power and authority amongst all the stakeholders. Hence, they make their decisions independently and thereafter; their decisions are smoothly implemented, which shows that long terms of directors have a positive relation with the organisational

performance (Subrarmaniam et al., 2011). The members with a prolong experience, have more expertise and they may be more diversified and intellectual. Past research has shown the relation of dividend with the board characteristics such as board size and average age & skills (Van Pelt, 2013; Serfling, 2014). Badu (2013) while using fixed and random effect techniques on the Ghana's registered financial institutions for the period ranging from 2005-2009, find a positive but insignificant relation between board traits (liquidity and age) and the profitability and dividend pay-out.

H3: There is a positive relationship between board tenure and dividend pay-out

2.4. Tenure of board subcommittees and dividend pay-out

Board subcommittees is an effective mechanism to control various issues, such as agency problem. Further, board subcommittees are considered as an amicable tool by the Security and Exchange Commission for monitoring corporate activities. Research work has shown a positive relation between effective decision-making and the board subcommittees (Vafeas, 1999; Anderson et al., 2004). According to Tao and Hutchinson (2013), nomination & compensation committee and audit and control committee can reduce the probability of risk exposure and provides a roadmap to carryout various activities independently and efficiently. The delegation of activities of board to its subcommittees enhances the quality of board activities (Ruigrok et al., 2006). Reeb and Upadhyay (2010) witnessed a positive relation between the subcommittees of the board and the performance of the organisation.

H4: There is a positive relationship between board subcommittees' tenure and dividend pay-out

2.5. Board members' independence and dividend pay-out

Those members of the board that are performing their duties separately from the administration are called independent directors (Gregory, 2000). Researchers unveiled the relation of independent board members with the performance of the organisations. According to Li and Zhang (2019) a greater number of independent directors on the board of a company shows that the company has a strong coherent board. Further, the independence of the board can be well evaluated if there are more independent directors on the board and which are not connected with the senior management of the board or they are not

involved in the day to day business of the organisation (Abdullah, 2016). Further, there is a positive relation between the dividend pay-out ratios and board composition (Abor and Fiador, 2013).
H5: There is a positive relationship between board independence and dividend pay-out

2.6. Board skills development and dividend pay-out

Many companies arrange directors' trainings programs for their board to equip them with the new amendments in the relevant laws and to conduct their business in efficient way. Bart and Turel (2020) have evaluated the role of the board in the IT governance, and they state various impediments that hamper governance and organisational performance. Tahir et al. (2020) find a positive relation between board research & development and dividend pay-out.
H6: There is a positive relationship between board skills development and dividend pay-out

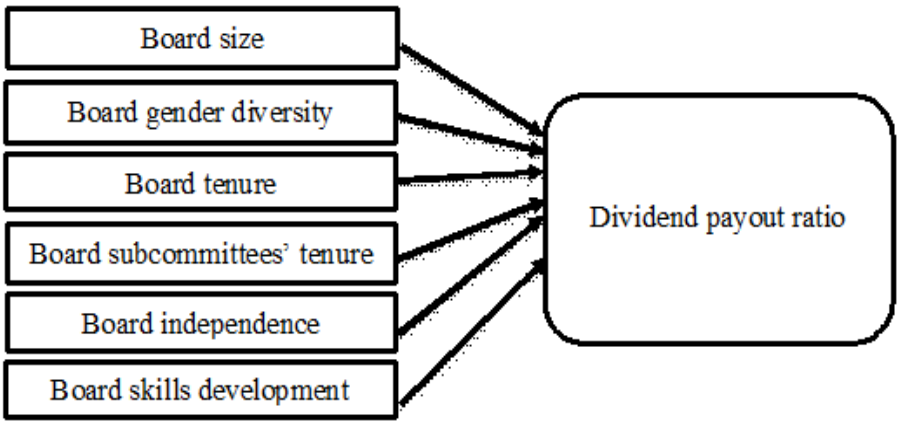
3. Method and Findings

The study utilizes interpretivism philosophy with inductive approach and while using quantitative method to find the impact of board traits on the organisations' dividend pay-out as used by Tahir et al. (2020). The nature of data is secondary, panel data, which was collected from five sectors of non-financial firms listed on Pakistan Stock Exchange, ranging from the period 2012 to 2019. The requisite information was extracted from the annual reports of the companies. The companies with incomplete information regarding the variables were being excluded. Hence, three companies per sector were selected.

The dependent variable is dividend pay-out ratio, which is a reliable source of measuring firm performance and dividend pay-out (Byoun et al., 2016). The independent variables are board size, board gender diversity, board tenure, board subcommittees' tenure, board independence, board skills development.

Figure 1

Conceptual Framework



Source: Authors' work

Board size is measured as the number of members on the board of a company. Board gender diversity is measured as the number of female board members on the board of a company. Board tenure is measured as the total number of board meetings held during the year. Board subcommittee tenure is measured as the number of board subcommittees meetings held during the year. Board independence is measured as the number of independent directors on the board. Board skills development is considered as 1 if during the year, the board underwent through an orientation and directors training activity, otherwise it is deemed as 0.

Following model would be used for the research:

$$DIVD(i,t) = \alpha + \beta_1(BZ) + \beta_2(BGD) + \beta_3(BT) + \beta_4(BST) + \beta_5(BI) + \beta_6(BSD) + \varepsilon_i$$

Where: i stands for company, t stands for time, α is the constant term of the regression, β_1, β_2, β_3, β_4, β_5 and β_6 are the estimated coefficients of explanatory variables and ε_i stands for the error term.

All the explanatory variables are tabulated below:

Table 1

Variables of the model

Dependent Variable	
DIVD	Dividend pay-out ratio
Independent Variables	
BZ	Board size
BGD	Board gender diversity
BT	Board tenure
BST	Board subcommittees' tenure
BI	Board independence
BSD	Board skills development

3.1. Descriptive statistics

Table 2 shows the results of the descriptive statistics, wherein, dividend pay-out has a mean of 43.2, standard deviation of 23.5, with a maximum value of 87.7 and a minimum value of 0. The board gender diversity depicts the mean of 0.3, maximum value of 87.7 and a minimum value of 0, while standard deviation is 0.6. The board tenure reported a mean of 5.5, standard deviation of 1.4, with maximum value of 9 and minimum value of 0. The board subcommittees tenure which have values ranging from 4 to12, have a mean of 7.1 and standard deviation of 2. The board skills development has a maximum value of 1 and minimum value of 0, with a mean of 0.6 and standard deviation of 0.5. Board size has a mean of 8.2, standard deviation of 1.8 and its values ranges from 6 to 13. Board independence value dispersed from 0 to 3 with a mean of 1.1 and standard deviation of 0.6.

Table 2

Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Max	Min
Dividend_payout	120	43.2	23.5	87.7	0
Gender__diversity	120	0.3	0.6	2	0
Board_tenure	120	5.5	1.4	9	4
Board_subcommittees tenure	120	7.1	2	12	4
Board_skills_development	120	0.6	0.5	1	0
Board_size	120	8.2	1.8	13	6
Board_independance	120	1.1	0.6	3	0

3.2. Correlation Matrix

The correlation matrix shows that board gender diversity has a positive relation with dividend pay-out. Further, the board tenure and the board subcommittees tenure have a comparatively strong correlation with the dividend pay-out. On the same theme, board size and board skills development have a small positive effect on the dividend pay-out. Nevertheless, the board independence has a small negative effect on the dividend pay-out. The relations amongst the independent variables are ranging 0.036 as lower value to 0.6 on the higher side. However, the values are acceptable to proceed with the analysis.

Table 3

Correlation Matrix

Variables	1	2	3	4	5	6	7
DIVIDEND_PAYOUT	1.00						
GENDER__DIVERSITY	0.34	1.00					
BOARD_TENURE	0.51	0.20	1.00				
BOARD_SUBCOMMITTEES_TENURE	0.50	0.02	0.49	1.00			
BOARD_SKILLS_DEVELOPMENT	0.03	0.08	0.12	0.15	1.00		
BOARD_SIZE	0.11	-0.01	0.23	0.65	0.04	1.000	
BOARD_INDEPENDANCE	-0.07	0.22	-0.130	-0.08	0.07	-0.006	1.00

3.3. Multi-collinearity Test

In order to check the multi-collinearity amongst the independent variables, variance inflation factor is being used. The cantered VIF values for gender diversity is 1.128, for board independence, the value is 1.101, for board subcommittee tenure VIF is 2.309, for board skills development is 1.044, for board size the value is 1.819 and for board tenure VIF is 1.452. VIF value above 5 shows that the independent variables are moderately correlated. Herein, all the values are below 5 and closer to 0 which depicts that there is no problem of multi-collinearity.

Table 4

Multi-collinearity Test results

Variable	Coefficient Variance	Uncentered VIF	Centred VIF
C	93.64384	38.71335	NA
GENDER__DIVERSITY	6.730745	1.437657	1.128483
BOARD_INDEPENDANCE	7.928913	4.889529	1.101510
BOARD_SUBCOMMITTEES_TENURE	1.387308	31.42454	2.309046
BOARD_SKILLS_DEVELOPMENT	10.52918	2.611725	1.044690
BOARD_SIZE	1.363941	39.73386	1.819412
BOARD_TENURE	1.923257	26.23813	1.452152

3.4. Multivariate Analysis

Through panel least square, the data is analysis and results are shown below:

Table 5

OLS Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GENDER_DIVERSITY	4.251511	2.330889	1.823987	0.0708
BOARD_TENURE	8.996621	1.044502	8.613309	0.0000
BOARD_SUBCOMMITTEES_TENURE	4.477824	0.953682	4.695303	0.0000
BOARD_SKILLS_DEVELOPMENT	-6.725774	2.730257	-2.463421	0.0153
BOARD_SIZE	-4.064375	0.927725	-4.381011	0.0000
BOARD_INDEPENDANCE	-1.032649	2.342686	-0.440797	0.6602
C	-6.293413	7.105895	-0.885661	0.3777

To check the suitability of fixed and random effect model, Hausman test is conducted, which is used to decide the usage between random and fixed effect models. The result of the test is shown in Table 6 below which shows that the test is not significant, hence random effect model is suitable to be applied.

Table 6

Hausman test results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.543946	6	0.1035

In view of the Hausman test, random effect model is used, and results of the aforementioned model is used to test the hypotheses.

The result of the test in tabulated as under:

Table 7

Random Effect model results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GENDER_DIVERSITY	1.972421	2.807185	0.702633	0.4837
BOARD_TENURE	4.793654	0.944486	5.075411	0.0000
BOARD_SUBCOMMITTEES_TENURE	5.480698	0.771584	7.103178	0.0000
BOARD_SKILLS_DEVELOPMENT	-3.052939	1.575300	-1.938005	0.0551
BOARD_SIZE	1.552214	0.671418	2.311843	0.0226
BOARD_INDEPENDANCE	-2.385724	1.498320	-1.592266	0.1141
C	-35.28496	5.584789	-6.318047	0.0000
R-squared	0.805955	Adjusted R-squared		0.795652
F-statistic	78.22334	Durbin-Watson stat		1.068408

Board size has a positive and significant effect on the dividend pay-out hence H1 is accepted. Board gender diversity has a positive and insignificant effect on the dividend pay-out, thus H2 is being rejected. The Board tenure has a positive impact on the dividend pay-out and highly significant, hence H3 is being accepted. The board subcommittees tenure has also a positive and highly significant effect on the dividend pay-out ratio therefore H4 is accepted. Board independence has a negative and insignificant effect on dividend pay-out and hence H5 is rejected. Board skills development has an insignificant and negative impact on dividend pay-out ratio, thus H6 is rejected.

The value of adjusted R squared is 0.79 and the F-statistic is 78.22 which shows that the model is a good fit and the essential variables are being included in the study.

4. Discussion

The aim of the study was to find out the impact of board traits on the organisations' dividend pay-out. For the purpose, board size, board tenure, board subcommittees' tenure, board gender diversity, board independence and board skills development were taken as independent variables and dividend pay-out ratio was selected as dependent variable. The listed companies on Pakistan Stock Exchange were selected and the panel data of five sectors were collected ranging from 2012 to 2019.

Quantitative research techniques were used in the study. Table 2 provides the descriptive statistics of the data which shows that the data is normally distributed. Table 3 depicts the correlation between the variables. Thereafter through PLS, the impact was evaluated as given in table 4. For the purpose of suitability of model amongst fixed and random effects, a Hausman test was conducted which revealed that the random effect model is the most suitable one as tabulated in table 5. Hence, table 6 shows the result of the random effect model. Accordingly, H1, H3, H4 and H6 are accepted and the remaining two are rejected.

The first hypothesis that there is a significant relation between the board size and the dividend pay-out ratio is accepted. The results are in consistent with the research work of Mansourinia et al., (2013). A board with a big size enjoys several typed of compensations and

money is being investment to hone the board's skills, thus they try to maximize the shareholders' wealth.

The second hypothesis is regarding a positive effect of board gender diversity on the organisation's dividend pay-out. In contrast with many studies which have shown a positive and significance relation between board gender diversity and dividend pay-out ratio as evaluated by Post and Byron (2015), the study delineated insignificant relation and hence, the second hypothesis is rejected. The reason may be that there are negligible number of female members on the board of companies. Keeping in view the findings of the past studies, significant impact may be revealed if the number of female directors would be increased.

The positive relation between board tenure and dividend pay-out ratio supports the third hypothesis of the study. The finding is in line with the research work of Subrarmaniam et al., (2011). More meetings of the board during a year help the directors to actively discharge their duties and hence, bridge a way to enhance shareholders' wealth, by paying dividend.

Board subcommittees tenure is positively impacting the dividend pay-out ratio and supports the fourth hypothesis. Reeb and Upadhyay (2010) also found a positive relation between the board subcommittees and the organisation's performance. Further, subcommittees perform activities as delegated by the board and assist the board to smoothen decision making, thus results in handsome dividends.

Board independence has been found to have a negative and insignificant relation with the dividend pay-out ratio, in contrast with the fifth hypothesis of the study. This may be of the reason that most of the businesses in Pakistan are family owned and there is less empowerment for the independent directors to control the activities of the companies. Further, their strengths on the board of listed companies are much lesser as compared to other directors, therefore may not significantly affect the activities of the companies. The research finding is in consistence with the research of Tahir et al. (2020) who also found an insignificant relation.

The sixth hypothesis of the study was to test positive relation of Board skills development with the dividend pay-out ratio. The results of the regression shown that there is a negative but significant relation. Directors' training enhances board performance but to improve

operational efficiency and build more capacity as enhancement of business, the board may retain money to reinvest at in the business.

4. Conclusion

This research investigated the relation of board traits on the organisations' dividend pay-out ratio. The study was conducted on the listed companies of Pakistan Stock Exchange. For the purpose, secondary data was extracted from the annual reports of the companies. Thereafter, through panel least square the hypotheses were tested. Hausman test was conducted to decide between the fixed and the random effect and random effect was founded to be suitable for the study. The results delineated that three board traits, i.e. board size, board tenure, board subcommittees tenure and board skills development have a significant effect on the dividend pay-out ratio. Instead, two traits viz; board gender diversity and board independence were found insignificant, while board skills development has a negative but significant relation.

The results of the study will provide insight to the policymakers and to the regulators of the companies, to formulate their policies in the best interest of the stakeholders especially the investors, which subsequently will smoothen a way to the economic development of the country. However, the study selected a limited number of companies, and the field could be further explored by including financial companies, by adding some control variables and by exploring the field across several countries.

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MODERATING EFFECT OF SACCO SIZE ON THE NEXUS BETWEEN GOVERNANCE COSTS AND FINANCIAL SOUNDNESS OF DEPOSIT TAKING SACCOS IN NAIROBI CITY COUNTY, KENYA

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Abstract

In an effort to reduce agency problems the members of Deposit Taking Savings and Credit Co-operatives elect board of directors to offer governance in attaining their economic, social and cultural needs. Nevertheless, governance costs have increased by 36 percent since 2014 to 2019 leading to reduction in surpluses which have rendered an aggregate of 47.32 percent of the Deposit Taking Savings and Credit Co-operatives financially unsound, thus putting 341-billion-member savings at risk. This necessitated the assessment of the moderating effect of SACCO size on governance costs and financial soundness. A descriptive cross-sectional survey design was adopted where data collection sheet was used in secondary data collection. A binary logistic regression results established that with presence of a moderator in the nexus between predictor and response variable, the strength of relationship between variables registered a significant change (15.6 percent to 18.3 percent) as well as with introduction of interaction term (15.6 percent to 19.3 percent). The study concluded that SACCO size portrayed a statistically significant moderating effect between predictor variable and response variable. The study recommends that small size

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Deposit Taking Savings and Credit Co-operatives should merge with other Deposit Taking Savings and Credit Co-operatives who are of a similar common bond or interest to form larger Deposit Taking Savings and Credit Co-operatives in term of Size so as to achieve financial soundness.

Keywords: governance costs, SACCO size, stewardship theory, deposit taking savings and credit co-operatives

JEL Classification: G21; G32; G33

1. Introduction

A Deposit Taking SACCO (DTS) is a financial co-operative enterprise offering financial intermediation on behalf of members so as to attain their common financial, social and cultural needs in line with the international co-operative principles (SACCO Societies Regulatory Authority [SASRA], 2018). A board of directors who have managerial skills and technical knowledge is elected by the members during the annual general meeting to reduce the complexity of managing the DTS and the agency problem between management and members. They are entitled with monitoring the operations of the enterprise (FinAccess, 2019). Globally the Deposit Taking SACCOs are required to have directors consisting of an odd number of not less than five and not more than nine members. All costs incurred by directors in their position of offering governance is borne by the DTS (Niederkohr & Ikeda, 2005). However, the directors are opportunistic and pursue to engage in more expeditious activities that favour them (Desrochers & Fischer, 2003). Governance expenses are exaggerated mostly by board of directors that consist of lower income level professionals who earn less than the managerial remunerations. Where the internal controls are weak, the board may request for compensation for expenses incurred on personal matters (Westley & Branch, 2000).

In Africa the board of directors are made of volunteers who possess their selfish agenda at heart. The financial soundness of the DTS has been affected when the volunteer board of directors are entitled to making decisions such as expenditures determination, directing managers and approving loans rather than offering governance expertise (Allen & Maghimbi, 2009). They tend to attend more unnecessary training and unprecedented meeting in expense for governance allowances in addition to issuing themselves loans and

friends even if they are not credit worthy (Njekang & Afuge, 2017). In Kenya Deposit Taking SACCOs have been offered a cost friendly good governance guideline by their supervisory body though this is not the means to an end as board of directors have the responsibility of formulating governance procedures and policies for their enterprises. Directors do not receive remuneration though for any cost incurred when rendering services to the SACCO they are reimbursed (SASRA, 2015). This cost has increased by 36 percent thereby affecting the financial soundness of an aggregate of 47.32 percent of Deposit Taking SACCOs as it consumes more of the income earned (SASRA, 2018). Members expect board of directors to offer sufficient returns in their investment thus, in case there is no returns they consider directors as liabilities to them (Onyim, et al., 2017).

In an effort to reduce agency problems the members of Deposit Taking SACCOs elect board of directors to offer governance in attaining their economic, social and cultural needs (FinAccess, 2019). However, governance costs have increased by 36% since 2014 to 2019, leading to reduction in surpluses which have rendered an aggregate of 47.32% of the Deposit Taking SACCOs financially unsound, thus putting 341-billion-member savings at risk. This is even after SASRA issuing a cost friendly good governance practice guideline to assist Deposit Taking SACCOs remain financially sound (SASRA, 2018). Thus, the governance costs incurred has not reduced the threats of achieving a going concern that offer valuable and less expensive financial services to the members in enhancing their living standards. Moreover, the aim of sustainable development goal of collaborating with financial institutions to industrialize economies faces a challenge as it is a major financier of start-up businesses and their expansion. A continued deregistration of the Deposit Taking SACCOs will affect the 5.8% GDP inversely due to reduction in inventions and increase in unemployment (CBK, 2016).

Deposit Taking SACCOs incur governance costs that does not yield to financial soundness even after the SACCO regulator i.e. SASRA issuing a cost friendly good governance practice guideline. Thus, a solution is of necessity since members will incur more governance costs and end up losing their deposits as they do not have deposit protection facility to insure them. In addition, even during poor economic times SACCOs have to maintain an external borrowing to total assets ratio of not more than 25% (SASRA, 2018). Elucidation to this puzzle will assist Deposit Taking SACCOs members examine cost

and benefits of incurring governance costs in an effort to maintain a financially sound SACCO. The study therefore will assist SACCO members and SASRA management in setting appropriate governance costs that can advance financial soundness and thus reduce the license revocation rate. Consequently, a study needs to be carried out to enjoy the proceeds of financially sound Deposit Taking SACCO. Since, lack of seeking a solution may lead to members incurring more governance costs and end up being liquidated. Henceforth, the study intended to pursue a solution of shaping-up the tendency. However, research existing globally are in disagreement in their findings on the relationship between governance costs and financial soundness. For example, Gurbuz et al. (2016), Abdulrahman (2014) and Gul, et al. (2012) found that there exists a negative relationship between governance costs and financial performance, while Njenga (2012) was in contrast. Hence the need to carry out the research. Nevertheless, large size SACCOs governance costs have been lower than the small size, owing to the economies of scale enjoyed. Hence, the objective of the study is to determine the moderating effect of SACCO size on the nexus between governance costs and financial soundness of Deposit Taking SACCOs.

2. Literature review

Stewardship theory was developed by Donaldson and Davis (1991) who contends that individuals are inherently driven to successfully perform a delegated task that they have been entrusted. It assumes that individuals are collectively minded and pro-organisational and therefore aims at attaining societal goals since by so doing it gives them higher level of satisfaction. The stewards thus need to be individuals who have reached the self-actualization level of Maslow hierarchy of needs. It also holds that there is no agency problem between the owners and individuals delegated to perform. The principal-steward relationship is necessary in presence of lower requirement for incentives and monitoring. Furthermore, the stewards are selected to a position based on their expertise so as to add value to an enterprise (Danaldson, 2008). Thus, stewards will better their services so as to make an enterprise financially sound in expectation of sharing returns with the owners. Schillemans & Bjurstrom (2020) argued that stewardship theory creates a harmonious structure between stewards and owners offering unified direction and durable

command. Moreover, the executive is motivated to offer efficient and effective service as their roles are clear and not hampered. Stewardship theory is thus applicable in studying governance of autonomous enterprises such as Deposit Taking SACCOs.

The theory however faces objections in that it is not empirically grounded on nature of individuals and what motivates them in real enterprises. This requires an appropriate alignment of organizational and social interests so as to merge organizational goals with morals of the stewards. Moreover, the theory is static in the fact that when the steward interacts with agents, they may end up taking an agent position due to betrayal feelings (VanSlyke, 2006). Moreover, the theory strengthens the steward's egos and their roles are exaggerated and impractical (Cossin et al., 2015). Deposit Taking SACCOs principle of democratic member control negates the theory by giving any member right to be elected as representative irrespective of their profession. This makes the enterprise to incur more costs in training the board of directors on governance matters. They, thus spend more time in acquiring more knowledge rather than offering expertise on improving the financial soundness of their enterprise.

Empirical review concerning the study variables was carried out. Abdulrahman (2014) conducted a study on the nexus between the governance costs and Kenya listed firms' financial performances. The study was anchored on agency theory. A descriptive research design was applied where all the 52 listed firms participated. The collected secondary data was subjected to a multiple linear regression where the results indicated a positive relationship between the governance cost and financial performance. Thus, organisations were advised to consider the governance costs while making financial decisions as it affects the financial performance significantly. However, the study did not justify the choice of the study period of 2008 to 2012.

A descriptive research design was adopted by Njenga (2012) in the study on the nexus between agency costs and financial performance of Deposit Taking SACCOs in Githunguri district. The board of directors are entitled to monitor the SACCOs professionals who carry day to day activities. It leads to increased governance costs as they are paid hefty allowances. Regressed data revealed a non-significant nexus between governance costs and return on assets which was used as financial performance parameter. However, a significant relationship was evidenced with introduction of total deposits, total assets and gross loans as study moderators. On the

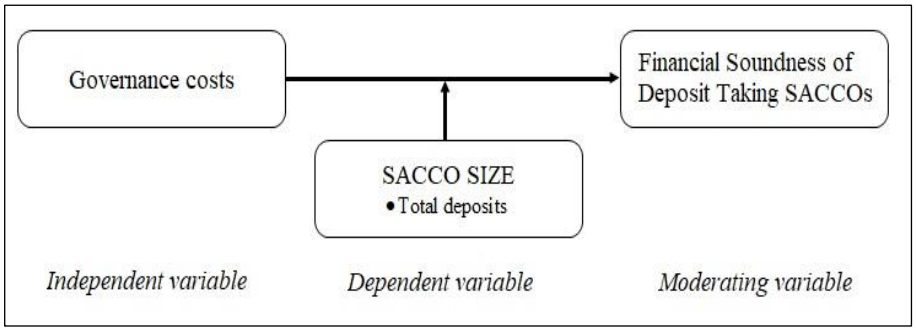
other hand, the scope of the study choice was not justified. Hence, the study cannot be used as a representative for Deposit Taking SACCOs in Kenya.

Gul, et al. (2012) indicated that increasing the remunerations of the board of directors would motivate them to monitor the Pakistan companies, but increase the governance costs. The study was carried out in the Karachi Stock Exchange for a period of 2003 to 2006. The regressed data indicated that governance costs influence the ownership structure significantly. The study was however limited for four years; thus, it is not representative of the periods beyond and is not anchored on any theory. Presence of board of directors carrying out monitoring duties in the enterprise do not diminish the governance costs. This improves the enterprise financial soundness (Hastori, et al., 2015).

The interaction of predictor variables of this study (governance costs) with financial soundness is portrayed in the conceptual framework under fig 1. It also depicts that SACCO size have a moderating influence on governance costs and financial soundness of Deposit Taking Saving and Credit Co-operative Societies in Kenya.

Figure 1

Conceptual Framework



Source: Authors' illustration

3. Research methodology

The study adopted a descriptive cross-sectional survey research design to assess and analyse the moderating influence of the nexus between governance costs and financial soundness of Deposit Taking SACCOs in Nairobi City County. All the 42-Deposit Taking SACCOs in the County that are regulated by SASRA participated in

the study. The choice of the Nairobi City County was based on the fact that it is the County with the highest number of Deposit Taking SACCOs in Kenya and it encompasses all the five cluster of SACCOs in accordance with original field (Government based, Teachers based, Private based, Community based, and Farmers based). Secondary data was collected from annual report of the licensed Deposit Taking SACCOs for the years 2014 to 2018. Collected data was analysed using descriptive statistics. A hierarchical Binary logistic regression model was used to test the moderating effect of SACCO size on the nexus between governance costs and financial soundness as is shown in equations below:

$$Logit\ [p] = \beta_0 + \beta_1 gc + \varepsilon \quad (1)$$

$$Logit\ [p] = \beta_0 + \beta_1 gc + \beta_2 SZ + \varepsilon \quad (2)$$

$$Logit\ [p] = \beta_0 + \beta_1 gc + \beta_2 SZ + \beta_3 gc * SZ + \varepsilon \quad (3)$$

Where: β_0 is a constant; β_1, β_2 and β_3 are coefficients; *P* is the probability that a DT-SACCOs will be financially sound; *gc* – is the predictor variable (governance cost); *SZ*- SACCO Size; gc*SZ= governance cost * SACCO Size.

Nagelkerke's R-Square change tested the strength of the association between predictor variable and response variable. Wald test was carried out to test the significance for individual predictor variable at 5% significance level for the P-values.

4. Results and discussions

4.1 Nairobi City County Deposit Taking SACCOs Characteristics

Deposit Taking Savings and Credit Co-operative Societies offer front office services activities, are licensed, and regulated by SACCO Societies Regulatory Authority and they have to be fully registered under the Cooperative Societies Act CAP 490 (SASRA, 2019). The study described the characteristics of the DTS in terms of field of membership and total deposits. The findings of the DTS characteristics that participated in the study are presented below:

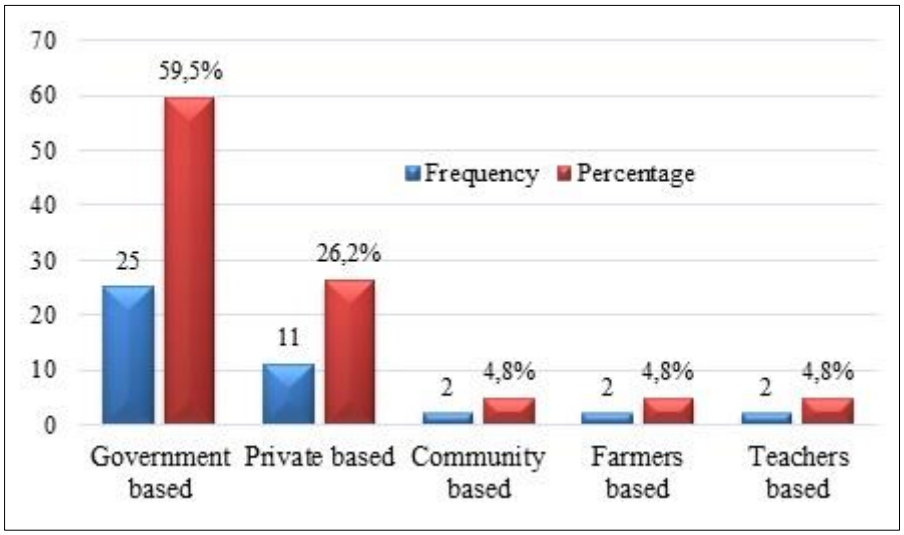
- ***Deposit Taking SACCOs Field of Membership***

Deposit Taking Savings and Credit Co-operative Societies originated from a particular common bond linkage which form the basis for the field of membership. Despite the DTS having an original

common bond linkage it has been argued that they opened their common bond to attract more membership in the effort of maintaining a financially sound enterprise (Mumanyi, 2014). The DTS were formed based on the members occupations, operations, and associations. The DTS from which data was collected originated from the common bond of teachers based SACCOs, private based SACCOs, community based SACCOs, government based SACCOs and farmers based SACCOs. The government based SACCOs were 25, 11 private based SACCOs while famers based SACCOs, teachers based SACCOs, and community based SACCOs had 2 SACCOs each as shown in Figure 2. The results show a representation of DTS in all cluster per original common bond linkage of membership.

Figure 2

Deposit Taking SACCOs Field of Membership



Source: Data analysed by authors.

According to Figure 2, Deposit Taking Saving and Credit Co-operative Societies included in the study represented all original common bond. DTS in the government-based cluster had the highest representation followed by private based, teachers-based, farmers-based, and finally by the community based. The responses are a representation of the DTS population for all the five clusters since government-based cluster have the largest number of DTS, followed

by private-based, the farmers-based, teachers based and lastly the community-based cluster.

- ***Deposit Taking SACCOs Total Deposits***

The Deposit Taking Saving and Credit Co-operative Societies that participated in the study were from the various field of membership. As shown in Table 1, the government based DTS had the highest share of 61 percent of the total deposit raised from members. They were followed by teachers based DTS which had 20.51 percent, private based DTS with 12.01 percent, farmers based DTS with 4.03 percent and community based DTS with 2.46 percent.

Table 1

Deposit Taking SACCOs Total Aggregated Deposit

Bond	Total Aggregated Deposits	Percent
Government based	118,254,781,926.46	61.00
Teachers based	39,752,723,291.25	20.51
Private based	23,276,999,443.48	12.01
Farmers based	7,806,656,304.12	4.03
Community based	4,770,159,059.89	2.46
Total	**193,861,320,025.20**	**100.00**

Source: Data analysed by authors.

From Table 1, the Deposit Taking Saving and Credit Co-operative Societies that participated in the study represented all field of membership cluster. Members from all the DTS in Nairobi City County had saved more than 193 billion. Deposit Taking Saving and Credit Co-operative Societies members in the government-based cluster had the highest aggregated deposits, followed by teachers-based DTS, private based DTS, farmers-based DTS and community based DTS respectively. This shows that teachers-based DTS members had made more deposits than the private-based DTS despite being less in number.

4.2. Governance Costs, SACCO size and Financial Soundness

The study tested the null hypothesis that SACCO size has no significant nexus between governance costs and financial soundness of DT-SACCOs. Moderation effect of SACCO size results on independent variable and financial soundness are indicated in Table 2.

Table 2

Hierarchical Regression Results

Predictors	Model 1			Model 2			Model 3		
	Beta[a]	Wald	P	Beta[a]	Wald	P	Beta[a]	Wald	P
(Constant)	5.182	3.558	.128	10.888	2.211	.137	46.537	.475	.491
gc	-.938	2.315	.059	-.884	2.995	.084	-5.932	.394	.530
SZ				-.661	.824	.364	-4.511	.384	.535
gc*SZ							.544	.287	.592
Nagelkerke R^2			.156			.183			.193

Source: Data analysed by authors.

As shown in Table 2, the binary logistic regression model for the study; Logit of (Financial soundness) = 5.182 – 0.938 governance cost. The log of odds of a DT-SACCO being financially sound was negatively related to governance costs. Thus, an increase in one unit of governance cost will lead to a decrease in financial soundness by its coefficient. The study further established that governance cost was not statistically significant in prediction of DT-SACCOs financial soundness (Wald statistic value = 2.315, a P value of 0.059 and an odd ratio of 0.391). This is in agreement with the studies carried out by Abdulrahman (2014) and Gul et al. (2012) who established that governance costs have no significant relationship with financial soundness. This is in contrary to the study conducted by Njenga (2012).

The addition of a moderator in Model 2 resulted to a significant change in Nagelkerke R square (from 15.6 percent to 18.3 percent). Thus, the moderating effect of SACCO size did explain extra variation in predictor variable and financial soundness. Additionally, with introduction of interaction term, Nagelkerke R Square changed from 15.6 percent to 19.3 percent. This means that there was significant increase in the variations which was determined by the study variable. Therefore, from the study results it is evident that the relationship improved as interactions effects were introduced in the models. The increased strength in the relationship between predictor and response variable due to introduction of a moderator variable, indicates the significance of the moderator in the study (O'Connell, 2006). The study therefore rejects the null hypothesis that, SACCO size is not statistically significant in moderating governance costs and financial

soundness of DT-SACCOs in Nairobi City County. This in agreement with Njenga (2012) who observed that SACCO size have a significant moderation effect on the predictor variable and response variable.

5. Conclusion and recommendation

The study assessed the moderating effect of SACCO size on the nexus between governance costs and financial soundness of DT-SACCOs in Nairobi City County. The SACCO size was evaluated through total deposits. The study concluded that SACCO size portrayed a statistically significant moderating effect on the nexus between independent variable and dependent variable. Several recommendations were further made by the study:

In an effort to enhance confidence in the sub-sector, the DTS members should elect members with financial knowledge to the position of board of directors. This would reduce the cost incurred in training them on financial matters to enable them carry out their governance role. The training institutions can also offer a cheaper training workshop and seminars to enlighten them on co-operative governance matters.

The DTS in collaboration with SASRA should set a maximum amount that can be incurred by the board of directors. This can be facilitated by setting enterprise policies that limit the board of directors from going beyond their budgeted amount. This would reduce the governance costs in an effort to improve the financial soundness of the enterprises.

There should be a limit to the number of meetings held by the board of directors in a year. Holding of many meetings by the board of directors is a cost to the DTS since they are reimbursed any cost incurred in their supervisory and monitoring role. This can be pegged on the level of amount of deposits a DTS has.

The SACCO size has been found to have a moderating effect on the nexus between governance cost and financial soundness of DT-SACCOS. Thus, small size SACCOs may not have a future. Hence, they should merge with other SACCOs who are of a similar common bond or interest to form larger SACCOs in term of Size so as to achieve financial soundness.

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REFLECTIONS ON THE CONSEQUENCES AND RISKS OF AN ECONOMY'S INDEBTEDNESS

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Abstract

The paper aims to present some risks and consequences of the indebtedness of an economy. The article is based on the results of a research project[1] and it describes the negative effects of a high level of indebtedness of an economy, the elements that influence the risks of an economy's indebtedness, some aspects of debt sustainability, the factors influencing the risk of default of public debt, as well as the negative consequences of non-repayment of sovereign debt. The conclusions of the article show that the effects of loans on the debtor economy depend on how they are used; also, the risks of a country's (sovereign) indebtedness depend primarily on country-specific risks and affect debt sustainability. After highlighting the multiple negative effects of a high level of debt, we emphasize the importance of ensuring debt sustainability.

Keywords: loans, effects, default risk, debt sustainability

JEL Classification: F34; H63

1. Introduction

A country borrows capital when it has not enough domestic income to support the economic growth, and as a result, it makes costs at the expense of burdening future generations.

From a theoretical point of view, *the increase in the indebtedness of an economy occurs due to several causes*, among which we list:

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[1] *Milea Camelia (coord.) (2020). Indebtedness and sovereign debt management. Requirements for Romania, Research Project, "Victor Slăvescu" Centre for Financial and Monetary Research, Bucharest.*

- support for the economy from governments, through fiscal stimuli, in times of economic and / or financial recession,

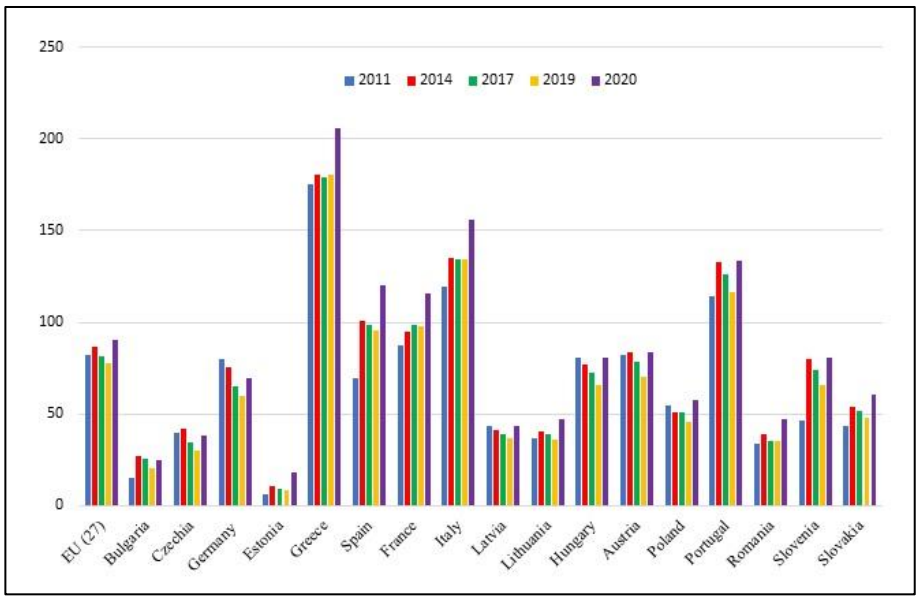
- making investments in the economy aimed at supporting economic growth and eliminating regional disparities, which are not fully supported by domestic funds from savings,

- covering budget deficits.

The public debt has increased significantly in most European Union countries as a result of the global economic and financial crisis of 2008, but also following the measures taken in order to stop the spread of Covid-19, in 2020 (see Figure 1).

Figure 1

The trend of the government consolidated gross debt in EU countries (% of GDP)



Source: Eurostat

In this context, we consider that the theme addressed in the article is topical.

The objective of the paper is to highlight some risks and effects of a high degree of indebtedness. The approach involves a descriptive and analytical analysis of the literature, qualitative evaluations, interpretations and correlations, and the drawing of conclusions.

The article consists of two parts, plus an introduction and conclusions. The first part highlights the consequences (especially the negative ones) of a high level of debt. In the second part of the paper, the risks of a country's indebtedness are reviewed and analysed, and characteristics of debt sustainability (which is affected by the risks of a country's indebtedness) are presented. The risk of debt default is also discussed, highlighting aspects regarding the consequences of debt non-payment, as well as the factors influencing the risk of public debt default.

Looking ahead, unpredictable events and imbalances at national and global level can hinder sustainable macroeconomic recovery, threatening a country's financial stability.

2. About the consequences of high indebtedness of an economy

For "healthy" governments, borrowing costs are usually low, as investors prefer to invest in government debt which is considered safer compared to private sector investments. The explanation lies in the fact that investors assume that government tax revenues from the entire economy give them a better chance of paying back their debt up against private entities.

But when public debt becomes too high (some economists suggest debt levels equal to 90-100% of GDP), international investors / creditors are no longer so confident in the state's ability to pay back the debt. As a result, debt yields increase (the cost of borrowing). Thus, *an important effect of a high level of indebtedness is the increase in the cost of borrowing* (Reinhart, C., Rogoff, K., (2010)).

The increase in yields leads to a vicious circle that makes high levels of debt to be even less sustainable. There takes place also an increase in borrowing costs for the private sector.

High debt has multiple negative consequences, including: the eviction of private investments, the country's vulnerability to "sudden stop" of capital inflows, the loss of policy flexibility, "debt-overhang" and debt restructuring. In this context, *we emphasize the importance of ensuring debt sustainability.*

The main consequence of high debt is the *high vulnerability to sudden stops in obtaining financing*. If the sentiment of private investors changes, either as a result of a change in global risk appetite

or of an adverse shock in that country, capital inflows can stop quickly. There may be even capital outflows from residents or non-residents.

Highly indebted countries are more vulnerable to capital restrictions from international financial organizations.

The effects of sudden stops can be devastating. In the case of public debt, sudden stops can put the government in a position to implement drastic spending cuts. Currency crisis, banking crisis, recession, and even default can also occur. In addition, interest rates may increase significantly due to the rise in the country's risk premium, amid the high level of debt. This can lead to private investment eviction, but also to reducing the flexibility to combat countercyclical policy, as the government can no longer increase spending during the recession (the economic cycle minimum), when debt is already high.

Debt overhang can occur due to the limited ability of the government to commit and represents the situation where the tax burden expected to finance the debt is so high that it is an obstacle / constraint to current investment and consumption, causing the slowdown in economic activity, as investors reduce their investment on the background of expectations that taxes will increase. Decreased investments lead to lower economic growth and reduced government revenues. As a result, there will be insufficient funding for primary expenditures and the risk of default will increase.

Debt overhang is also an obstacle to risk-sharing due to the existence of a high debt stock. Sachs (1989) and Krugman (1988) analyse debt overhang for sovereign debt. If the debt is assumed to be exogenous, the total or partial reduction of the debt (debt relief) leads to an increase in investments.

A vicious circle can be noticed in the case of debt overhang. Thus, if there are concerns about debt sustainability, even the capacity of the state to finance itself is called into question. Under these conditions, investors will become increasingly disinterested in investing in that country, due to higher taxes, leading to diminishing economic growth. And worries about economic growth raise concerns about the deficit, due to the scissor effect. In the case of low economic growth, more pro-cyclical spending is needed. Increasing deficits leads to a rise in the risk premium, and the boost in interest rates directly contributes to the increase in the deficit, which amplifies the concerns about sustainability.

Research shows (e.g., Reinhart and Rogoff) that many countries pay their debt, and overcome the situation of debt overhang, but in a very long time.

Aguiar and Amador (2011) offer another explanation for the difference between the rate of reduction of net foreign liabilities from one country to another, namely the political factor. So, their studies show that countries have different growth rates depending on the distortions of economic policies, thus a more politically distorted economy is growing at a slower pace. This theory explains the situations of some countries which have long periods of stagnation in which debt is high and economic growth is low, while other countries have high levels of economic growth, being net exporters of capital. We can say that economic growth leads to a decrease in net public external liabilities. The model of Aguiar and Amador (2011) suggests that distortions of economic policies do not prevent an economy from eventually reaching high levels of national income, but it suggests that the process will be longer.

Renegotiation / restructuring is another effect of a high degree of indebtedness. Although this measure leads to reducing debt service, restructuring can have important consequences, including political and economic penalties.

One important side effect of debt restructuring is the contagion with other economic sectors, especially when banks hold a large share of public debt. Another important side effect is the contagion from one country to another.

Benjamin and Wright (2008) show that debt restructuring is a long process, lasting on average 8 years. Also, according to the results of the studies of these economists, the longer the negotiations take, the greater the losses associated with restructuring. The restructuring process seems to depend on the evolution of production. Thus, the periods of recession lead to longer restructuring, and the achievement of new agreements usually occurs when domestic output improves.

Given that debt renegotiation is carried out under the threat of default, creditors are likely to accept milder conditions than in the original contract. The studies of Sturzenegger and Zettelmeyer (2008), Benjamin and Wright (2009), Cruces and Trebesch (2011) show that renegotiated debt is about 30% -40% lower than the initial one. Another result of these studies refers to the fact that investors' losses vary considerably from case to case in individual default episodes.

In recent years, sovereign debt comes mostly from the sale of bonds to the detriment of bank loans (including in Romania). As a result, more creditors are involved in the renegotiation process, which requires a certain level of coordination between them. The difficulty involved in coordination may lead to increased renegotiation costs and may extend the debt restructuring period.

Pitchford and Wright (2012) show that there is an incentive to refuse to reach an agreement in the debt renegotiation process, because the last to agree on a settlement has much greater bargaining power due to its veto on the agreement. Pitchford and Wright (2012) argue that this incentive to resist in debt renegotiations can create delays in debt restructuring. A solution suggested to counteract such delays is collective action clauses in which restructuring can be accepted and implemented by a part of the bondholders (usually a majority). Pitchford and Wright (2012) show that somewhat paradoxically, this can serve to increase the delay, because negotiation is expensive also with only a part of the bondholders needed to reach an agreement, existing an incentive to get free ride on negotiation costs.

Bolton and Jeanne (2007) and Bolton and Jeanne (2009) show that a difficult debt restructuring can cause the borrower to pay his instalments. Studies by these researchers also suggest that there is an individual incentive for one or a group of creditors to make their bonds relatively difficult to restructure; this is particularly relevant in a dynamic environment, as the government is tempted to weaken the power of existing bondholders by issuing new bonds that are more difficult to restructure. As a result, some bonds may become *de facto* superior to other issues, as bonds that are more difficult to restructure are more likely to be repaid.

Bondholders will accept a loss of capital on their bonds if government decisions subsequent to the issuance of the bonds held by them increase the likelihood of default. Bondholders are supposed to have no mechanism to punish dilutions.

Given that a capital loss for bondholders is an implicit transfer to the government, there is an incentive for the government to issue new bonds in order to “dilute” / reduce the value of existing bonds. This idea was highlighted by Bulow and Rogoff (1991) in reverse; namely, Bulow and Rogoff argued that it is sub-optimal for a government to rebuy its own debt in secondary markets. A buyback generates a

capital gain for bondholders, which is an implicit transfer from the government to bondholders.

We can conclude that the effects of loans on the borrowing economy depend on how they are used. Thus, an inefficient use of loans (with lower yields compared to the cost of borrowing) does not produce economic growth, but, on the contrary, generates distortions in the sphere of macroeconomic activity, perpetuates borrowing, causing the diminishment of the country's access to (external) financing, capital flight and the reduction of available private savings. To avoid this situation, the (external) indebted country must have a sound financial structure, materialized in the existence of strong financial institutions, able to minimize the risk of financial crises and to achieve effective mobilization of domestic savings, in order to avoid tax increases or funds attracted from abroad. The argument against excessive tax increases is presented suggestively by the economist Arthur Laffer's chart, according to which a high taxation discourages economic activities.

3. About the risks of an economy’s indebtedness

The risks of a country's (sovereign) indebtedness depend, first and foremost, on the risks specific to each country. The fiscal risks posed by the private sector imbalances and by the contagion between countries must also be analysed. The economic and fiscal behaviour in response to shocks must also be taken into account.

In addition, the risks of a country's (sovereign) indebtedness depend on the markets’ perception of the debtor state, but also on the structure of the debt in terms of maturity, which is measured by the debt payment profile and by the share of short-term debt in the total debt. Also, there are important the currency structure of the debt, the degree of diversification of the investors’ base, as well as the availability of liquid assets and the creditors' base, especially the share of non-resident creditors.

Thus, the lower is the share of short-term public debt service in the total public debt service and the more diversified is the investors’ base, the less risky is the debt. A smaller share of short-term public debt means a lower likelihood of entering a liquidity crisis and less interest costs on the budget. The diversification of the investment base refers both to the types of investors and to their geographical

distribution, and it shows the long-term confidence in the economic development of the respective country.

In the case of external debt, we consider the most important risk to be the foreign exchange risk, which consists in the depreciation of the national currency against the foreign currencies in which the debt is contracted, with effects in the direction of increasing the debt burden.

The risks of a country's indebtedness affect the debt sustainability.

From a pragmatic point of view, *debt is sustainable* when projected debt-to-GDP ratios are stable or declining, reaching a sufficiently low level in order to avoid defaulting on debt. In practice, the increase in debt should not exceed GDP growth, while the ability to repay must also be ensured. (IMF)

From the point of view of the economic policy, *debt is sustainable* when the government of a country does not get into the situation to fail to pay its debt, or it does not resort to renegotiating or restructuring its debt and / or it does not make major adjustments to its policy (IMF).

Long-term debt sustainability depends both on the debt stock and its associated service, but also on the growth rate of new loans, the evolution of the fiscal situation and the ability to repay the debt. Thus, debt is unsustainable if the borrowing country accumulates debt at a faster rate than the increase in its ability to pay its debt service, especially in the long run.

From a qualitative point of view, debt sustainability depends on the effects / consequences of debt in the economy: yield, destinations (economic activities - consumption or production -, sectors of activity, development regions), contribution to economic development by financing objectives / projects of national and / or regional interest, to eliminating regional and social discrepancies.

We can say that debt sustainability refers, first of all, to the payment of debt service, and it can be defined as the absence of the risk of default. The non-payment of the debt refers to the impossibility of paying the instalment at the due date from the contract, with effects in the sense of renegotiating the debt, a process that, in practice, is long and expensive, as shown above.

Reinhart and Rogoff (2009) show that defaults occur several times over time in an economy, and that debt repayment problems affect several countries simultaneously. The same economists argue that debt defaults often coincide with major financial crises. They are

interconnected because there are pressures due to bank failures simultaneously with the deterioration of the public fiscal situation.

Tomz and Wright (2007) show that default of sovereign debt occurs mainly during periods when domestic output is small, but there are many exceptions. Thus, the recession is neither necessary nor sufficient for a country to be unable to pay its outstanding rates on sovereign debt.

According to incomplete market models, non-payment is punished less severely when it occurs in countries with a lower level of output (Arellano, 2008).

Other studies show that, in general, observed defaults are not severely punished (for example, sovereign foreign assets are protected, and economies regain access to financial markets), which means a high frequency of sovereign debt defaults.

- ***The factors influencing the risk of default of public debt***:

- the level of public expenditure on goods and services,

- the level of tax revenues, the potential evolution of budget revenues, the availability of additional sources of budget revenues, the potential trend of the collecting rate of budget revenues,

- the level of the interest rate paid on the debt,

- the existence of liquid financial assets,

- the presence of contingent liabilities, particularly in the financial-banking system,

- the share of debt in foreign currency. The higher the foreign currency debt, the greater the risk of default in the event of the depreciation of the national currency,

- the evolution of the exchange rate of the national currency. The depreciation of the national currency increases the risk of default,

- the share of non-resident creditors in the total number of creditors. The higher their share, the greater the risk that they will quickly sell their government bonds in the event of a crisis, and thus the risk of default,

- debt dynamics. If debt increases rapidly, the risk of default increases,

- public debt dynamics compared to GDP dynamics. The faster growth of public debt compared to GDP contributes to increasing the risk of default.

- maturity of the debt. In the case of short-term debt, problems may arise for debt refinancing, but also for quick disinvestment in the

event of a shock, and thus the risk of default increases directly proportional to the share of short-term debt in total debt,

- the degree of openness and transparency of the government regarding the management of public debt. The availability of information on a country's public debt influences market expectations, and thus the behaviour of economic agents,

- market expectations (the behaviour of economic agents) indirectly influence the level of public debt by increasing the real interest rate,

- political stability and the ability of politicians to make the decisions needed to achieve fiscal consolidation, the degree of predictability of a country's economic policy contributes to reducing the risk of default,

- the country's financial reputation and creditworthiness (past episodes of debt default, high levels of inflation, banking crises, the stability of the national currency),

- the level of development and liquidity of the national financial market,

- the situation on the international financial market, changes in global liquidity, in investors' sentiment, their reaction to shocks,

-the external demand for the country's sovereign debt and other financial instruments and the international role of the national currency. This factor shows the readiness of financial markets to finance high levels of public debt of that economy.

- ***Consequences of sovereign debt default***

The effects of sovereign debt default include the worsening of the country's rating and of the international political prestige. Cole and Kehoe (1998) show that the loss of reputation in the debt market is reflected in other economic spheres, namely trade, output, investments. Thus, episodes of sovereign debt default have led to a significant reduction in trade (according to the studies of Rose (2005) and Martinez and Sandleris (2011)) and to a worsening of the current account / capital flight (Mendoza and Yue, 2012). Empirical studies show that high levels of sovereign debt have led to lower investment levels, especially in countries with modest macroeconomic performance.

Domestically, the negative effects generated by debt default consist in the poor performance of government functions (including the provision of public goods); significant tax increases, and even the

implementation of expropriation measures, which violate the right to property and economic freedom; high inflation; depreciation of the national currency; banking crises; loss of private savings; burdening certain segments of society; undermining public confidence in the government; domestic political destabilization.

In order to avoid the negative effects of non-payment of due debts, debt must be sustainable, so that the funds borrowed ensure a sustainable, sinuous, without constraints, shock-free and without tensions economic development.

Volatility is one of the factors that often generates debt default. Aguiar and Gopinath (2007) argue that in emerging markets, the significant shocks to the trend of economic growth rates increases the probability of default in the equilibrium. This explains the interdependence between the volatility of economic growth and the frequency of sovereign debt default in an economy.

Political uncertainty, as a source of volatility, is one of the factors influencing the risk of sovereign debt default (Cuadra and Sapriza, 2008 and Hatchondo et al., 2009).

The existence of a portfolio of bonds with different maturities contributes to reducing the risk of default and allows for a better enforcement mechanism.

The studies of Broner et al. (2013) and Arellano and Ramanarayanan (2012) show that in the case of a temporary increase in the probability of default during a crisis, the reversal of the yield curve is noticed on the data, reflecting the change in the risk premium from creditors, rather than causes for debtors hedging.

4. Conclusions

We can conclude that the effects of loans on the debtor economy depend on how they are used. Thus, an inefficient use of loans (with lower yields compared to the cost of borrowing) does not contribute to economic growth, but, on the contrary, generates distortions in the macroeconomic activity, perpetuates borrowing, causing the reduction of the country's access to (external) finance, capital flight and the reduction of available private savings. In order to avoid this situation, the (external) indebted country must have a sound financial structure, materialized in the existence of strong financial institutions, able to minimize the risk of financial crises and to achieve

effective mobilization of domestic savings, in order to avoid the increase of taxes or of funds attracted from abroad.

The risks generated by a country's (sovereign) indebtedness depend primarily on the country-specific risks and affect debt sustainability.

Following the analysis of the multiple effects of a high level of debt, we *emphasize the importance of ensuring debt sustainability.* Debt sustainability means avoiding the negative effects of defaulting the due debts, so that borrowed funds ensure sustainable, sinuous, without constraints, shock-free and tensions-free economic development. It is found that the risk of default can materialize at different levels of public debt, sometimes even very low.

There is no universally valid rule for determining a "secure" level of public debt. Each country needs to set its maximum level of public debt based on its own and other countries' macroeconomic and financial experience but taking into account its own characteristics. Given that the risk of non-payment depends on many factors and sometimes on unforeseeable circumstances (shocks, etc.), the maximum level of indebtedness must be set at a low level, while maintaining a sufficient margin of safety.

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IMPLEMENTING QUANTITATIVE TECHNIQUES IN ASSESSING THE RISK ATTITUDES[1]

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Abstract

The financial risk does not only affect the future of a company, but also the dynamic of the economy itself. Therefore, a thorough examination of the risk in the decision-making process of a company represents a substantial aspect. Although research in this direction has been made, most of the approaches neither integrate qualitative variables with the measurable ones, nor consider historical data of the companies that are being evaluated. The empirical management has evolved, allowing us to compare and choose from different quantitative techniques in order to find answers to complex managerial problems. No matter the context, the decision-making process cannot be established without a comprehensive analysis of information that helps explaining trends, relationships and changes that can occur in the variables. Risk assessment expects that the term of risk to be defined not only in an explicit way, but also in a determinable way. The aim of this paper is to contribute to the advancement of the theory, but also to strengthen the practical utilization, being helpful in upgrading the research on risk. By finding the most suited models and techniques for an optimal risk assessment, the companies can benefit from having a rational support in the investment process.

Keywords: quantitative risk models, Bowman's paradox, prospect theory, risk-return association

JEL Classification: G32; D81

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1. Introduction

Risk has become an imperative variable in most of the fields of strategy research. It has been covered in papers on business strategy, together with the characteristics of the industries, diversification of the companies and organizational systems and processes. Sometimes, the notion of risk is used to emphasize managerial decisions that are correlated with doubtful outcomes, while other times represents a component that has to do with companies experiencing volatile incomes.

The financial risk does not only affect the future of a company, but also the dynamic of the economy itself. In business decision theory, the notion of risk expects a solid knowledge of probabilities or their distribution regarding unpredictable future events. This is why, the risk management should be seen as a process, a sequence of events in time, in a dynamic form. To consider the risk management a static and one-time event is a mistake, and its consequences will be shortly observed at all levels in an organization. Although the identification of business risks that exist in the framework of corporate activities cannot be easily characterized in a unitary form, the risk assessment expects the notion of risk to be defined in a measurable and accurate way.

The correlation between risk and return has received significant amount of debate from researchers in the field of economics, finance, business administration and management science. As for their correlation, the traditional economic knowledge indicates a positive relation between risk and return (Brealey & Myers, 1981). This article pursues to examine the function of behaviour towards risk not only in the field of management, but also in the area of the strategic risk and in the same time to improve the comprehension of the Bowman's risk-return paradox.

"*Implementing quantitative techniques in assessing the risk attitudes*" is structured in 4 sections, as follows: part two reveals the meaning and the differences between risk measurement and risk analysis, together with some examples of quantitative and qualitative evaluation. The next section demonstrates the fact that between risk and return we cannot always find a positive relation, as it was initially thought to be true and that the risk attitudes may change the risk-return profile. The last part briefs the main ideas of the paper.

2. Risk measurement and risk analysis

It has long been thought that risk and uncertainty are directly associated (Knight, 1921). Despite this fact, researchers in economics and in the related fields managed to demonstrate that we can find differences between these two variables. In this manner, March and Shapira explained risk as the probable variation of outcomes of a choice, while uncertainty emphasizes the unpredictability of a given choice (March & Shapira, 1987). In a more detailed picture, a risky alternative can either create a generous reward or it can produce a severe loss even though the distribution of the outcomes was a well-known one.

Many of the theories on risk share the same elemental presumption that risk has a negative connotation. On the other hand, every statement has its contradictions. In this case, there were many researchers that had an opposite opinion, considering risk to represent a potential opportunity. Some examples are Myers' paper (Myer, 1977), the Austrian School of Economics (Schumpeter, 1934) and some entrepreneurial theories (Shane, 2008), where the attention is given to the opportunities that are integrated in the risk component. Basically, the above-mentioned approaches manifest different spotlights in explaining what inspires people to accept a certain amount of risk and to select between preventing a failure and making good use of a promising possibility.

Risk has become an imperative variable in most of the fields of strategy research. It has been covered in papers on business strategy, together with the characteristics of the industries (Andersen et al., 2007; Oviatt & Bauerschmidt, 1991), diversification of the companies (Belderbos et al., 2014; Amit & Livnat, 1988) and organizational systems and processes (Jemison, 1987). Sometimes, the notion of risk is used to emphasize managerial decisions that are correlated with doubtful outcomes, while other times represents a component that has to do with companies experiencing volatile incomes.

The past shows us that during years companies handled various types of risks. For instance, in 1981 Bannister & Bawcutt suggested that risk management involves numerous disciplines that have to cooperate in order to face the unknown future. The same two authors highlighted the importance of a bond between risk management, corporate governance and strategy (Bannister &

Bawcutt, 1981). Continuing this idea, Andersen acknowledges three risk viewpoints (Andersen, 2008):

a) Conventional risk management practices – they aimed their attention at the restraint of the economic risks and environmental threats

b) Enterprise risk management approaches – they see operational risks as part of an integrative structure, which is regularly fulfilled in correlation to an internal audit and with the help of some control systems.

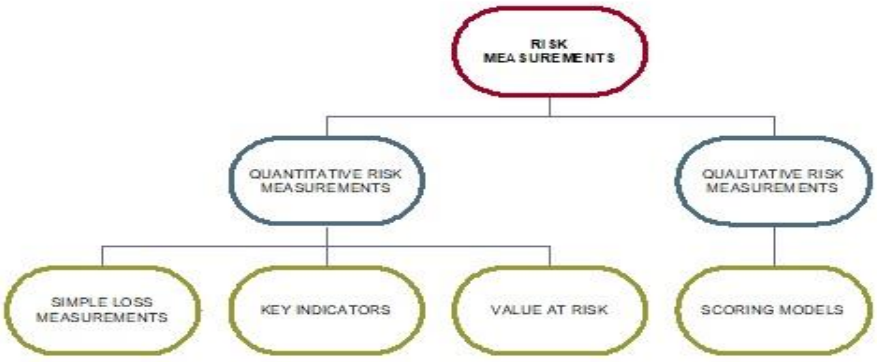
c) Total risk management perspective - all risk categories are being approached from a more holistic angle, including strategic risks.

The idea that enterprise risk management includes not only the traditional risks, as accidents, but also the strategic ones, such as competition was expressed in 2015 by Bromiley et al. (2015). Their contribution can be observed in this standardized and unified approach in regard to the importance of managing the total number of risks which a company has to encounter. An integrative risk management technique involves a whole framework of the total exposure that a company has. Although this is not an aspect that can be easily achieved in practice, elements such as marketing, product development or strategy have to be taken into consideration into the risk assessment.

Risk measurement represents the core of risk management. In order to be able to control and plan, firstly the risks have to be identified and measured. Although a generalization is not always accessible to obtain, some instruments can be incorporated in the process of risk recognition. A proper systematization of the risk types can be seen as well in the following figure, starting from two main categories: quantitative and qualitative risks.

Figure 1

An overview of risk measurements



Source: Risk Management (Wolke, 2017)

The simple loss measurements rely on probability calculations. This way of quantifying the risk has its drawbacks in the incomplete framework of the current and suitable risk substance, especially in a prospect of a conceivably essential risk supervision. In practice, because of this aspect, the simple loss measurements have a secondary role. On the other hand, they still present an advantage: despite their flaws, being easy to use and calculate them, they can provide an approximate estimation for creating a larger structure for some other complex measurements.

In order to overcome the shortcomings of the simple loss measurements, further risk measurements can help improving the results. The second category of the quantitative risk measures is represented by the key indicators, more commonly known as the statistical methods. This category consists of volatility, which measures the variation range, and therefore represents an anchor for the risk assessment. An absolute measure of the volatility includes variance, standard or mean deviation and ranges, whereas the relative measure of dispersion consists of the variation coefficient, which stipulates the volume of the risk that is exposed in correlation to profit.

Among volatility, the sensitivity analysis is frequently used, showing the response of an asset value to a shock occurred in the market parameters. In an efficient risk management, the sensitivity analysis should not be the only evaluation test. The explanation lies in the fact that a change applied to a factor represents a totally subjective

hypothesis without a proper risk assessment. Moreover, the probability of new hidden changes that can occur in the decisive factors is not taken into consideration. If a factor is considered to have a determinant role in the risk management, then the use of the sensitivity analysis should be limited. Relying more on the relevant and decisive factors, the risk management can perform more effectively, especially with the help of some influencing variables.

In a third category of the quantitative risk measurements, we find Value at risk, which is being characterized by its loss-oriented profile. VaR or this risk measurements that correct possible differences in assets in the loss field are also referred to as shortfall or downside risk measures. The value at risk depicts in monetary value the modelled amount of loss, incorporating all risk metrics in a sole possible loss image.

The risk measures discussed above have all as a common characteristic the evaluation and assessment of risk in monetary units. In case of the scoring models, the basic principle of their application lies in the quantification of the influencing qualitative factors. This process can be found in various forms, but the foundation consists in the first phase of weighting those qualitative factors.

The most valuable aspects of the scoring models can be compiled as follows:

a) The scoring models display the opportunity to combine both the intangible and tangible components of the risk and to provide in this manner comparable substitutes.

b) The target level of the scoring methods can provide a starting point for additional quantifiable methods regarding risk.

c) The choice of the significant components and their weighting are chosen in a subjectively manner, being implemented by every individual.

After a comprehensive measurement of the existing risks, the next mandatory step is represented by the analysis of the measurement results, together with the future plan that can be extracted from these outcomes. But the risk analysis counts on the risk attitudes of the decision maker or investor, at an individual level, or of the entire company. Although the array comprises risk-averse attitudes, together with the risk-seeking ones, the extremes are not to be wanted. A complete risk aversion attitude it’s not suitable for a

business activity, because every economic activity is associated to a business risk at some point in its existence. Moreover, a complete risk avoidance would diminish the profit anticipations. These examples show that when we talk about risk analysis, we cannot expect some consolidated principles to serve as patterns for all firms.

3. Behavioural decision theory and the risk-return relation

According to economic research work and knowledge, comparing the risk assumed by a firm and its returns we can find a positive correlation, implying the fact that firms are risk-averse regardless their returns. Existing research studies, which are summed up in the first half of Table 1, have supported to a great extent the positive risk-return association. Nevertheless, a comprehensive review of the empirical literature on this subject exposes a relationship which is not always in this manner. For instance, researchers have found a negative interdependence among risk and return across and within various industries. These papers are also summarized in Table 1, together with the corresponding time periods, samples and their conclusions in regard to the risk-return association.

Of particular interest and the pioneer in this subject is Bowman's work (Bowman, 1980), being the fundament of the so called "risk-return paradox". He described his results as a paradox for strategic management because the conclusions are contrary to the traditional understanding of a positive association. In a later article, the same author highlighted an explanation for his finding, affirming that a firm's risk attitude may determine the risk-return profile and also the fact that "troubled companies take more risk" (Bowman, 1982).

Two major explanations can be found behind this statement: the first one has to do with the efficient managers, who can boost the returns and in the same time diminish risk, causing in this manner the contrary risk-return relation; the next one, managers are rather risk seekers, not risk averse as it was presumed. He also expressed the fact that the notion of *risk seeking* corresponds with the theories of the behavioural decision, an important role being played by the reference level in studying the uncertain choices. The same idea was expressed in 1980 by Laughhunn, Payne and Crum in their paper that tackled the managerial risk preferences (Laughhunn et al., 1980).

What seems to be promising in this respect is represented by Kahneman and Tversky's prospect ideology, where the risk attitudes

are not established by the degree of the outcomes, but by the event's association to a reference point (Kahneman & Tversky, 1979). Additionally, human being is not consistently risk averse, but instead they embrace a conglomeration of behaviours: not only risk-averse, but also risk-seeking.

From a research point of view, it is mandatory to question whether the results of the observation on individuals' attitudes regarding risk and the risky choice behaviours can be used in the analysis of corporate organizational behaviour. In his 1982 article, Bowman remarked that the literature of economics has provided examples, usually described as rational-actor models (Allison, 1971), where firms could behave similar to people. His study, established on a study of firms within three industries, validated the assumption that organizational behaviour resembles with the attitude of the individual decision makers.

By defining utility as a profit-loss base, Kahneman and Tversky managed to extract testable hypotheses regarding a firm's attitudes towards risk: when the efficiency is situated underneath a certain aim point, the ones involved in the decision-making process are risk-seeking (a convex value function) and vice versa, meaning when the outcomes exceed the objectives, then they are risk-averse (a concave value function). Indeed, this evidence was found also in other papers, proving that when the returns are below the target, most individuals are risk seeking and vice versa (Mao, 1970; Siegel, 1957). This means that in terms of risk-return relationship, in a conglomerate of companies that register returns beyond a target level, the risk and the return are in a positive interaction, while in other group of firms with returns that are framed below the target point, the risk and return would have a negative correlation. The explanation lies in the fact that a riskier alternative, having a high variance can provide to a decision maker a greater possibility of obtaining the needed result than a safer opportunity.

In 1988, Fiegenbaum and Thomas used accounting data in order to test Bowman's risk-return anomaly as to prospect theory and behavioural decision concept. For each industry that was examined, firms were divided into two main groups: those with returns that are above target and those with returns below. The target point was established and computed as the industry's mean return, which automatically indicates the fact that in each industry both groups consisted of an equal number of firms. Not only in the two groups, but

also on the entire data set across industries the resulted analysis of the alliance between the notions of risk and return firmly validates the prospect theory predictions (Fiegenbaum & Thomas, 1988).

In another research Marc Jegers, a professor of management and accounting at a university in Brussels, published in 1991 a replication of the Fiegenbaum and Thomas's calculations, using in the methodology Belgian accounting data. For an additional robustness check, the author added other risk and return variables, not only ROE, which displays a shareholder point of view. The return on total assets (ROA) has been as well calculated as a managerial performance index, a measure that accounts for all the earnings of a firm before distribution to creditors and owners (Jegers, 1991). As measures for returns, not only ROE and ROA were taken into consideration, but also cash flow on equity, together with cash flow to which were added other financial outlays regarding the total assets. In the prior study of Fiegenbaum and Thomas, the variance of returns has been used as an absolute measure. As for the 1991's study, Jegers chose the coefficient of variation, a relative variability measure.

Combining the results of the two papers leads to the conclusion that prospect theory is conceivably of great use and meaning in describing the observed liaison that exists between risk and return at a firm level. In a prospect theory framework, Jegers's conclusion indicates that risk is consider as an absolute notion by the decision makers in the firms with above target level returns and as a relative conception in the below target level firms.

The similarities between Fiegenbaum and Thomas's approach and Jegers's methods can be easily found at any level, whether we are referring to the group below or above the target level and also to the analyses made within and across industries. Moreover, all these outcomes strongly comply with the predictions on prospect theory. For the firms that register a performance below the industry's median, the negative risk-return relations are prevailing. Evidence of this preponderance can be found in the high percentage of industries in which such firms exhibit significant negative risk return rank correlations or negative association ratios above the value of 1. The same conclusions can be highlighted as well in the category of the above target level firms.

Johnson's publication from 1994 expresses the risk-taking approach in the banking system, or in other words in a structure that is based on behavioural finance, having as a starting point Fiegenbaum

and Thomas analysis, but the difference can be seen in the usage of another measure of risk, meaning the one proposed by Fishburn (Fishburn, 1977). In his article, the author tests various measures for return and risk, like ROA, ROE, but also primary capital ratio. As for the risk, it is computed as the standard deviation of the effects. The aim of the paper is to analyse the historical information and to decide whether the results lead to an evidence compatible with the prospect theory. In the end, the results gathered validate as well Fiegenbaum and Thomas's results (Johnson, 1994).

Additional practical investigations in this field have demonstrated the influence held by a firm's way of diversification, its market power, and earlier risk analysis over the stability of the company's performance (Bromiley, 1991; Chang & Thomas, 1989; Deephouse & Wiseman, 2000; Miller & Bromiley, 1991, Veliyath & Ferris, 1997; Woo, 1987). For instance, Woo has revealed that the companies which possess market power achieve greater levels of profits, but in the same time lower risks. Hence, the market power is supposed to be in a direct relationship with the return, and contrarily corelated to risk. This may be seen as one of the elements that can explain the Bowman's paradox.

Table 1

Synopsis of the primary empirical views regarding the risk-return relationship

Studies	Time period	Samples	Risk-return association
Conrad & Plotkin (1968)	1950 - 1965	783 U.S. companies; 59 industries	Significant positive association
Fisher & Hall (1969)	1950 - 1964	11 U.S. industries	Significant positive association for both firm and industry level
Cootner & Holland (1970)	1946 - 1960	315 U.S. companies; 39 industries	Significant positive association for both firm and industry level
Hurdle (1974)	1960 – 1969	228 U.S. firms; 85 industries	Significant positive association for both firm and industry level
Armour & Teece (1978)	1955 – 1973	28 U.S. firms	Negative, but not significant association
Neumann, Bobel & Haid (1979)	1965 – 1973	334 West German industrial stock companies	Significant positive association for the whole sample; when the sample was divided into big and small companies, positive and negative association was found
Bowman (1980)	**1968 – 1976**	**1572 U.S. companies; 85 industries**	**Significant negative association within industries; negative but not significant association across industries**
	1972 – 1976	11 industries	

Studies	Time period	Samples	Risk-return association
Treacy (1980)	1966 – 1975	1458 U.S. companies; 54 industries	Significant negative association within and across industries
Bowman (1982)	1979	Food processing, computer, and container industries in U.S.	Significant negative association within industries for troubled companies
Bettis (1981) Bettis & Hall (1982) Bettis & Mahajan (1985)	1973 – 1977	80 U.S. companies	Significant positive association for unrelated firms; significant negative association for related firms; no statistically significant association for related-linked firms
Fiegenbaum & Thomas (1988)	1960 – 1979	2322 companies; 47 industries	The robust results support the basic propositions of prospect theory; negative risk-return association for firms having returns below target levels and positive association for firms with returns above target.
Jegers (1991)	1977 – 1982	3250 Belgian manufacturing firms	Results strongly corroborate prospect theory's predictions; for firms with performance below an industry median, negative risk-return relations are predominant
Johnson (1994)	1970 – 1989	142 banks	The results support prospect theory
Miller & Bromiley (1990)	1978 - 1982	526 firms	The existing risk level of a firm can also influence performance of the firm
	1983 - 1987	746 firms	

Source: Fiegenbaum & Thomas (1988) and personal contributions

4. Conclusions

Many of the theories on risk share the same elemental presumption that risk has a negative connotation. On the other hand, every statement has its contradictions. In this case, there were many researchers that had an opposite opinion, considering risk to represent a potential opportunity. In essence, these approaches reflect different spotlights in explaining what motivates people to take a certain amount of risk and to select between preventing a loss and taking advantage of a promising possibility.

The risk measurement represents the essence of the assertion of risk management. In order to be able to control and plan, firstly the risks have to be identified and measured. By finding the most suited models and techniques for an optimal risk assessment, the companies can benefit from having a rational support in the investment process.

Although in some cases is difficult to gather historical data in order to extrapolate the future possible results and to be able to correctly estimate the rates, without this process the measurement of risk would not be efficiently applied. It is for certain that the benefits of these techniques exceed the inputs. The empirical management has evolved, allowing us to compare and choose from different quantitative techniques in order to find answers to complex managerial problems. No matter the context, the decision-making process cannot be established without a comprehensive analysis of information that helps explaining trends, relationships and changes that can occur in the variables.

After a comprehensive measurement of the existing risks, the next mandatory step is represented by the analysis of the measurement results, together with the future plan that can be extracted from these outcomes. But the risk analysis counts on the risk attitudes of the decision maker or investor, at an individual level, or of the entire company. When we talk about risk analysis, we cannot expect some consolidated principles to serve as patterns for all firms.

Many and important studies have analysed the risk-return models in diverse industry context. This is the reason why the positive risk-return relations have frequently materialized in researches which are cross-sectional, that assess not only the industry level, but also the firm-level data. As for the negative risk-return relations, these occur in moments when alternative methods are included in the examination. Such means differ depending on the characteristics of the industry, the firm's size, strategies, the time period examined, risk measures and risk attitudes. Moreover, the risk attitudes determine affected firms to seek greater risk, which leads to a negative risk-return association.

Bowman's findings have a massive importance in organizations' risk-attitudes perspectives, because they serve as a support for the risk-return paradox. From a pragmatic perspective, firms will be more prepared to supervise their performance if they tolerate the fact that is not impossible to evolve into risk-averse attitude when operating less than expected, transforming to risk-seeking when their results deteriorate. These developments and relationships are indispensable in order to be able to thoroughly understand economic decision making and can help the processes to be made more effective.

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CATEGORIES OF TAXPAYERS VS. TAX OPTIMIZATION AND EVASION. STUDY ON THEIR FORMS OF MATERIALIZATION FROM THE PERSPECTIVE OF THE TYPE OF TAXPAYER - NATURAL PERSONS VERSUS LEGAL PERSONS[1]

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Abstract

Tax evasion can be defined as the circumvention, under any form, of the payment of taxes, duties and contributions owed to the state, in the shelter of the law or eluding the legal provisions. The taxpayers, be they legal persons or natural persons, manifest their desire to defend wealth, of fortune, thus choose to carry out their economic activity in the form in which their wish is satisfied best. The choice is influenced both by the economic factors, which determine the fiscal burden (fiscal pressure), as well as the social factors (education, level of living, social services offered by the public system). In order to be able to speak about tax evasion, according to the legislation on the matter, there must exist the intentional character of the deed, the guiltiness of the person resulting from the taxable person's desire to circumvent the payment of the taxes and duties. The limit between the contraventional liability and the criminal one is determined by intention, by the whether the crime was committed intentionally or not, here having a major role the professionalism of the empowered control

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bodies in proving this intention. This study proposes to analyze which are the preferences of the taxpayers in the matter of tax evasion and optimization, depending on the form of property and which are the most encountered techniques which they approach in their intention to circumvent the payment of taxes and duties fully or partially, in relation to the type of taxpayer. The study is based on specialized practice.

Keywords: Tax evasion, optimization, natural persons, legal persons

JEL Classification: L26; M13

1. Introduction

The state, with all its components, be it a developed state or an emerging one, cannot function without the financial resources collected from to the budget from its taxpayers, money that originates from the taxes and duties established by the national legislations. However, together with the first fiscal norms that "affected" the peoples' desire to preserve their added value created through their businesses and which "would favor" the state, whose manner of operation implies the need of resources for financing of the budgetary expenses, appeared the tax evasion phenomenon.

According to the Scottish economist Adam Smith, the author of "The Wealth of Nations", each entity is fully entitled to adopt policies and techniques that are as favorable as possible, if by using them, it does not violate the law. Nevertheless, he admits, within his studies, that there can be tax evasion that is sheltered by the law, the legal framework allowing the decrease of the taxable matter. Precisely the law-maker, although most certainly this was not his intention, removes form the sphere of the contravention or crime this type of evasion, leaving, within the context of the laws, room for interpretations. This is possible because in many countries it can remove from the incidence of taxes certain pieces of income or components of wealth which would normally fall under the scope of taxation if the principles of the generality and equity of the taxation were to be complied with in a rigorous manner. Because of the legislative imperfections, as well as due to the way the laws are understood and applied in favor of the economic agents, this form of evasion is developed mainly in the periods preceded by legislative modifications which include new forms of taxation or when new types of economic operators appear.

From the study of the specialized doctrine and, mainly, the practice of the law years, it is noted that the means used for the significant diminishing of the fiscal obligations or even the circumvention of their payment are many and they take ever more varied forms from one taxpayer to another, depending on its legal form, depending on the company's age on the market and the purpose for which it established the economic entity.

In the second section, we will approach the conceptual framework of this issue, understanding the terminology being an important step in clarifying especially the legal aspects on this matter. The third section approaches aspects regarding the main motivations that determine the taxpayers to choose the manner in which they register as a form of organization and, moreover, which is their motivation for resorting to evasion. There are multiple methods of fraud and their vary from one type of taxpayer to another, an issue approached in the fourth section of this study. The fifth section aims to underline the main legislative breaches that allow the natural and legal persons to avoid taxation or to resort to fiscal fraud. In the 6th section we propose to bring to attention the way in which the applicable framework of sanctions influences the voluntary compliance of the taxpayers and imposes certain fears in what regards resorting to evasion. At the same time, it determines the taxpayer to accept more or less easily the verification of the state's control body.

2. Conceptual framework - principles and notions

In the inter-war period, the origin of tax evasion was attributed within the fiscal fraud, tax evasion being an extensive form thereof, as being part therefrom. Subsequently, the two notions started to be assimilated. Thus, the crime committed in the fiscal field is called fiscal fraud or it is more frequently encountered as the fraudulent tax evasion. Under its different forms, the fiscal fraud or the fraudulent tax evasion implies that the taxable subject finds different manners to shirk, to circumvent the payment of the taxes by hiding the taxable source or by diminishing the value of the taxable mass, to evade the legal framework by various ingenious combinations which the law did not foresee, with the sole purpose to minimize the fiscal burden or, how the European Commission defines it, as being an ensemble of "illegal mechanisms by way of which the obligation to pay the tax is hidden or ignored". From this behavior lies the flagrant breach of the law, therefore the

fiscal fraud is committed in general, with intention. The European Commission defines within its reports the fiscal fraud as being one of the forms of tax evasion, committed intentionally and which makes the object of certain criminal sanctions.

The fiscal fraud acts across borders, and the magnitude of this phenomenon is differentiated depending on the legislation in force and the economic market of each state in part. Regardless development level of the country in which it manifests, the effects of the fiscal fraud are destructive, affecting both the state budget, as well as the financial resources of the offenders' commercial partners. The fiscal fraud has negative effects over the economic market, and one of the consequences is the social inequality from the perspective of the abuse and the predisposition of certain taxable subjects to fraud. Certainly, the phenomenon remains unraveled, the financial schemes being extremely complex, and the fraud mechanisms are one of the most laborious ones and in a permanent improvement, the evaders finding new means by way of which they can illegally attract financial resources.

According to the specialized literature, the illegal tax evasion presents itself in various shapes depending on the evaders' modus operandi, this being divided into four categories: traditional, legal, accounting evasion and evasion by evaluation (Șanta 2017).

In order to fully understand the modalities in which the taxpayer chooses not to pay his debts to the state, using legislative gaps which favor one of the organizational forms in comparison with another, using fiscal facilities granted to one of the categories, identifying ingenious optimization solutions and even the reason for which one of the two categories resorts to fiscal fraud, it is important to clarify the terminological aspects, reason for which we consider it to be necessary to deepen the understanding of the following notions.

- ✓ **Tax evasion**: is effected by the deeds provided under article 8 and 9, paragraph (1) from Law no. 241/2005, committed by the taxpayers with the purpose to circumvent the fiscal laws and, implicitly, to circumvent the fulfillment of the fiscal obligations.
- ✓ **Fiscal obligation** - the obligation to pay any amount due to the general consolidated budget, consisting of the main and accessory fiscal obligation.
- ✓ **Supporting documents** - the documents that stand at the basis of the operations recorded within the accounting. The document that stands at the basis of the recordings into the accounting can acquire

the capacity of supporting document only in the condition in which it supplies the information provided by the legislation in force. According to article 6 of Law no. 82/1991 The law of Accounting, any economic-financial operation is noted at the time at which it was performed in a document that stands at the basis of the recordings into the accounting, thus acquiring the capacity of supporting document. The supporting documents that stand at the basis of the recordings into the accounting carried the liability of the persons who prepared, stamped, and approved them, as well as that of the persons who registered them into the accounting, as the case may be.

✓ **The accounting records** as provided by the Law of Accounting no. 82/1991 rep. the accounting records must be kept according to the primary documents representing any kind of supporting document for the operations performed and the mandatory accounting registers, respectively the accounting log, the inventory log, and the ledger.

✓ **Fiscal records**. The Code of Fiscal Procedure, under article 108, paragraph 1 provides the obligation for the taxpayers to conduct fiscal records, according to the legislative framework in force. Fiscal records are considered the registers, the situations, as well as any documents the preparation of which falls under the obligation of the natural or legal person who carry out activities that bring income. Their preparation contributes to establishing the fiscal de facto state of the taxpayer subjected to verifications and implicitly, to establishing the tax-based claims. The tax records are considered to be: the sales and purchases log, the register journal, the tax record book, the transfer pricing documentation.

✓ **Taxpayer** - any legal or natural person who owes taxes, duties and contributions and other amounts to the general consolidated budget, under the conditions of the law. (Cârlescu, 2015) and, according to the provisions of Article 1, Paragraph 4, Law no. 207/2015 rep. concerning the Code of Fiscal Procedure, the taxpayer is any natural or legal person or any other entity without a legal personality which owes, according to the law, taxes, and social contributions.

✓ **Self-employed person** is defined in the legal dictionary as being the natural person who is authorized to carry out any form of economic activity allowed by the law, using mainly his/her workforce (article 2, letter i) from the Government Emergency ordinance no. 44/2008. According to the Article 5 of Law no. 259/2004, the applicant of the authorization assumes responsibility for carrying out the activity in compliance with the legal dispositions in force.

✓ **The legal person** According to the Legal dictionary, from a legal standpoint, this is a collective civil right subject who participates in its own right in the legal relations, having a civil liability; a human collective formed directly by the natural persons or by way of association with other legal persons as a rightful subject, having a standalone organization and a distinct set of assets, affected to the realization of a purpose determined in accordance with the public good. And from a fiscal perspective, the Fiscal Code realizes a delimitation depending in the law that governs the respective entity. The legal person of a Romanian nationality is any legal person that was established in accordance with the legislation of Romania, according to article 7, pt. 29 of Law no. 227/2015 rep. The income of the Romanian legal person is taxable in Romania, regardless of the place where it is realized. The legal person established in accordance with the European legislation is any legal person constituted under the conditions and through the mechanisms provided by the European regulations.

✓ **The form of organization**. The first step in the initiation and in carrying out an economic activity is the establishment of a company or the constitution of a legal form of organization. The legal form of organization is chosen depending on the field of activity, the capital involved, on certain criteria of optimization, such as the type of taxation or the fiscal facilities granted by the state.

Table 1

Legal persons vs natural persons, conditions

Natural persons	Legal persons
Form of organization: • Self-employed person • Familial entrepreneurship • Individual entrepreneurship	Form of organization: • Limited liability companies • Collective companies • Shareholding companies • Limited partnership • Limited joint-stock partnership • Limited joint-stock partnership
Incidental provisions: Government Emergency Ordinance 44/2008 concerning the carrying out of the economic activities by the self-employed persons, the family/individual enterprises, with subsequent amendments	Incidental provisions: Law no. 31/1990, concerning the commercial companies

Natural persons	Legal persons
Conditions for carrying out the activity: • The age of the holder must be above 18; • Qualification in the field of activity, professional training, or professional experience, necessary for carrying out the proposed economic activity; • He/she does not have any mentions within the fiscal record certificate	

Source: authors' work

From the perspective of the activity carried out, the framework of a self-employed person for carrying out the activity is limited to the activities for which he/she is qualified. At the same time, the establishment of a limited liability company allows the taxpayer to carry out a wide spectrum of activities which are legally possible, within the limits of the matters written within the Articles of Association, regulated by the NACE nomenclature, without having the obligation for the shareholders or directors to be qualified and to have certified studies in the fields in which the activity is carried out.

3. Taxpayers and the motivation for choosing the form of organization

The taxpayers frequently choose the form of organization having in view the aspects concerning the easiest way an economic activity can be carried out, both from the perspective of the owed fiscal obligations is the taxpayer is a natural person or if it is a legal person, which one is more favourable from the perspective of the liability.

Regarded from the perspective of the costs which are involved by the establishment, the Self-employed person is not charged by the Trade Register, the costs being limited only to the notarial taxes that do not exceed 100 lei. Also, a self-employed person must not constitute a share capital. In the situation of the limited liability company, the costs with its establishment are higher, consisting of taxes at the Trade Register, notarial taxes, permits and authorizations, but also the constitution of the share capital of a minimum of 200 lei.

At the same time, over the course of carrying out the activity, the entity owes only the income tax determined as a difference between the income and the deductible expenses, base to which the share of 10% is applied according to the regulations in force. The self-employed person may opt to pay tax according to the actual income

system or according to the income standard (flat-rate tax whose share depends on the field of activity in which the economic entity activates). Also, another cost of the self-employed person occurs at the time when the net monthly income exceeds the national minimum wage 2230 lei, social contributions are due according to the level of the minimum national wage (e.g. for 2019, 25% national insurance contributions and 10% health insurance fund).

A form of optimization, reason for which the taxpayers choose to register as self-employed persons and not as a legal person is the fact that the monies representing collections from the economic activity (the income of the entity) can be used at any time for personal interest, without the obligation to declare or to pay any additional tax and without the need to prepare supporting documents in this regard, the single-entry bookkeeping that the self-employed person carry out obliges them only to keep the register of collections and payments.

From the perspective of reducing the costs, this form of accounting record is much simpler, and it does not require qualified personnel to maintain the accounting, the single-entry accounting being the simplest form of accounting record and it involves only the register of collection and payments and the inventory register, so that the costs with the bookkeeping are almost zero, obviously, in most cases depending on the field of activity.

In the case of legal persons there is the obligation to calculate, declare and pay the income tax of 1% for micro-enterprises, if the company has at least one employee and 3% if the company does not have any employees. In the case if the plateau of a turnover of 1.000.000 EUR/year is exceeded- the company will become a profit taxpayer and will pay a tax of 16% applied for the differences between the taxable income and the deductible expenses. The accounting records must follow rigors, norms, and regulations; thus, a qualified person is necessary, who will be compensated, the expenses being higher in comparison with those of the self-employed person. From the perspective of the legal person, the monies cannot be used at the discretion of the shareholders, for their own interest, this being possible only on a quarterly or annual basis, within the limits of the profit obtained, as dividends which are taxed with a share of 5%. The liability in the event of a prejudice is made with the company's assets and the legally constituted share capital.

From the perspective of the legal framework and the sanctioning regime, the laws are much more permissive with the self-

employed persons, making frequent distinctions between the self-employed person and the limited liability company. The only "minus" which this option represents for this form of organization could be the engagement of liability in the event of a prejudice, the personal wealth of the holder being the one with which the self-employed person is held liable.

Another distinction of which the natural persons that carry out illegal activities takes an advantage is made in what regards the access of the fiscal bodies into the seats or premises belonging to the taxpayers. According to article 65, paragraph 3 of the law of accounting concerning the Tax Code, the taxpayer has the obligation to allow the control body or the persons empowered by the control bodies access into the premises or the seats or on lands, in view of performing certain on-site acknowledgments, to the extent that this is necessary in order to make acknowledgments for a fiscal interest. In the case of the legal persons, the fiscal bodies have the right to enter the seat of the legal persons without the authorization of the court. Nevertheless, the natural persons shall be notified about the fact that they are entitled to refuse entry to their domicile or residence. Thus, entering the domicile or the residence of the natural person shall be made only with the agreement of the competent court, the dispositions of the Code of Civil procedure being applicable (Cârlescu,2015). Thus, even if there are comprehensive indications that the natural persons carry out undeclared activities, holds goods without documents of origin, the fiscal body cannot enter his/her residence without a court order, which is a major impediment in carrying out the control action and an opportunity for those who carry out illegal activities to circumvent the verifications.

4. Methods of evading according to types of taxpayers and fields of activity

At the level of the European Union, of which Romania is a part of, one of the classifications of the underground economy, a great generator of tax evasion, has in view two activities of the informal economy, classified in two distinct categories: licit (legal) undeclared productive activities (black-market economy) and illicit (illegal) productive activities of goods and services (Olteanu and Pascu, 2017). This begs the question of what kind of taxpayer resorts most frequently to carrying out illegal or undeclared activities. One of the criteria for

classifying tax evasion in the specialty literature is precisely this function of natural or legal persons activating in the underground economy, respectively the author of the tax evasion deed, the classification distinguishing between the tax evasion committed by the natural person and the tax evasion committed by the legal persons.

Regarding the matter from this perspective, it is evident that the small evasion encountered in the case of the self-employed persons, individual enterprises and family enterprises cannot be compared from the point of view of the amounts involved with the large evasion produced by fraud schemes or by the large companies. Under the aspect of not declaring/hiding the taxable sources, it is obvious that non-taxation and fueling the underground economy by the small evaders amplifies the field of evasion and it deprives the state's budget of considerable amounts, however, the commercial companies that are involved in the chains of fraudulent transactions, in community fraud, produce a much more powerful impact upon the economy and the state budget.

Regardless from the activity carried out, if it is generating income, the taxpayer has the obligation to register with the competent fiscal body. According to the data existing at the National Agency of Fiscal Administration (NAFA) from the middle of 2020, in Romania there were 2,140,982 of which 640,706 with independent activities and the difference of 1.500.276 as legal persons, as it results from the table below.

Table 2

The number of registered taxpayers according to the type of taxpayer, on June 30 2019 vs. 2020

Type of taxpayer 30th June	Total taxpayers 2019	 2020
Total	2,079,843	2,140,982
Self-employed/ Family/ Individual enterprise	625,813	640,706
Legal persons	1,454,030	1,500,276

Source: authors' work, NAFA (2020)

The major problem for the empowered bodies is to answer the question "which is the number of taxpayers that are not registered as carrying out economic activity?" and subsequently, "which are the modalities by which they could be identified and/or determined to declare themselves to the fiscal bodies?"

From the practice in the field, as a typology for not declaring the activity carried out, taking into the account the frequency of these cases, the trade with second-hand cars is highlighted. In the past 20 years, this activity flourished in Romania, Bulgaria and other counter in progress of development. Together with the development of this kind of business, the number of persons that practice it increased considerably, however, without registration at the fiscal authority and at the Trade register Office under any kind of organization. The sale of second-hand cars is an extremely profitable activity for the traders in this sector, that either do not declare these activities at all, or they use various natural or legal persons as a shield, in order to hide the activity carried out and its volume.

Another field of activity hidden from the eyes of the fiscal administration is that of the consumer goods and services offered directly to the population, where the collection is made in cash.

Of all the deeds that a taxpayer commits with the purpose if circumventing taxation, not declaring the income is by far the most serious of them all. The deed is difficult to discover by the control bodies and it generates high costs, the amounts recovered being often insignificant in relation with the prejudices brought to the general consolidated budget of the state and with the generated costs. Often, the cases of circumvention of declaring and paying the fiscal obligations are discovered and solved in an untimely manner, after many years, when the taxpayer can no longer be held liable from a contraventional, fiscal or criminal point of view and the goods and the amounts, in many cases, can no longer be identified, seized, or capitalized upon. Having in view the matters shown, the law maker provided Law 241/2015, under article 1, letter a, not declaring income as being the most serious form of circumventing the payment of the fiscal obligations, the tax evasion deed, and sanctions proportional with the seriousness of the deed are also provided, respectively imprisonment for a period from 2 to 8 years.

One of the serious tax evasion offenses, as it is qualified by the specialized doctrine, is represented by the act of recording within the accounting documents or other legal documents, of the expenses that do not have real bases or the highlighting of other fictitious operations, these being committed by legal persons.

As a solution for combating tax evasion in the fields with a high degree of evasion, in a generalized manner, the legislator applied measures of fiscal relaxation, so as to make this segment less

attractive for the taxpayers, less corrections (the share of 5% VAT for bakeries, vegetables, fruits, tourism) or fiscal measures of VAT simplification (delivery of ferrous/non-ferrous waste, wood pulp, IT products), specific taxation- tax on the activity in the field of hotels, HORECA restaurants) or the minimum salary according to the branch (constructions- with granted fiscal facilities).

From the recovery of the amounts owed to the state budget, the control body can institute ensuring measures, when there is the danger that the persons involved in committing the tax evasion deeds to circumvent or to hide or to waste their assets, endangering or considerably hinder collection.

The importance and the efficiency of the control actions is noted by way of a simple analysis of the tax on VAT consumption, thus analysing the part from the VAT which the state expects to collect in a certain period (in one year, for example) and by comparing the VAT which in not collected or which is not reflected in the treasury accounts, results a difference, called VAT GAP.

Starting from the final consumption, which generates the VAT part that becomes income to the state budget through the trading to the final consumer who does not have a right to deduct VAT (the final consumers being identified as buyers without a deduction right, as well as natural persons, public institutions, economic entities that carry out VAT exempt activities- banks/ educational establishments/ hospitals) VAT which should be found in the accounting budgets paid by the taxpayers is determined.

From the data provided by NAFA it results that for the year 2019, VAT payable (awaited to be collected) is in amount of 82,5 billion lei, this being expected to be collected from the following categories: households, public institutions, other entities.

At the level of 2019, the state collected 65.4 billion lei VAT, the resulting difference represents GAP VAT, amounts that evaporated to a great extent in the underground economy and across the tax avoiding chains.

Having in view that the obligation to manage, determine, declare, and pay VAT to the state budget is that of the natural/legal persons registered for VAT purposes, the control bodies should direct their verifications towards these institutions that collect VAT from the final consumers presented above and who no longer transfer these to the state budget.

Thus, the retail companies can artificially diminish the VAT

owed by way of two methods:

- non-taxation of the income/partial taxation, the activity which is generally specific to the small traders.
- registration of certain purchase invoices with an artificial VAT deduction, realized through acquisitions that are not destined for economic activities that generate taxable income and/or fictitious purchases.

Having in view the weight of the sales generated by the small traders in the last years in comparison with the great trading chains it results that the activity to combat VAT tax evasion should be directed mainly to the companies that diminish their VAT on the trading chains, having in view the above-mentioned reasoning.

Whereas the endeavours performed by the tax authorities were focused on combating evasion by non-taxation of all of the income (cash register with an electronic journal / many verifications in a significant number of taxpayers), while the real-time verification (at the time when the economic operations are produced) of certain trading chains would probably involve a lower consumption of resources with concrete results in the diminishing of the uncollected VAT.

5. Legislative gaps favouring the tax evasion and optimization

The fiscal optimization or, as it is called in the specialized doctrine, the legal tax evasion, is the result of certain legal processes that offer the taxpayer the occasion to circumvent the payment of fiscal obligations “decently” and cleverly towards the state, without contravening the legal provisions. Even if any type of tax evasion implies a disregard of the law, the reduction of the taxable base can be regarded as an exercise of a right by the taxpayers who, in agreement with the law, many times, pay lower taxes, diminishing the taxable base in compliance with the limits of the law, this procedure being considered by some authors a legal tax evasion. Thus, the legal tax evasion represents that evasion by which the payer of taxes and duties manages to avoid the payment of the fiscal obligations (in full or in part) by the goodwill of the law, benefiting from certain legislative “loopholes”, a fact that leads to the diminishing of the withdrawals by the state. A legal fiscal evasion means fiscal evasion realized by complying with it, not by breaching it, by exercising a right by the taxpayer and not by violating an obligation by it.

Neculai Cârlescu defines fiscal optimization as being "the possibility offered by the law maker to pay lower taxes and duties" (Cârlescu 2015) thus, due to such a favourable conjuncture, to a combination of the taxpayer's abilities with the inabilities of the law maker to predict the modus operandi of the taxpayer, it is created a framework that is favourable for the optimization, to open the "loophole" to optimization.

According to Dinga (2008), in such situations, the good faith of the lawmaker must be weighted as well, since there are situations in which it could be proven that the law maker has willingly left those loopholes within the context of the law. This behaviour could be generated, most likely, by the pressures exerted by certain economic interest groups (lobby. Although these actions have effects against the best interest of the state, optimization does not automatically pass into the category of the illegal tax evasion, since the taxpayer interpreted and used it without violating any legal text. However, the question whether it is about incompetence or interest arises, whether the action of the lawmaker can or cannot be qualified as an act of corruption, leaving a clear path for circumventing the payment of the budgetary obligations.

In theory, three types of fiscal optimizations are distinguished:

1. The fiscal optimization through inaction is manifested by the taxpayer's abstain to conclude or to realize a judicial document that would give rise to a fiscal obligation. The purpose of optimization through inaction results from the analysis made by Stéphane Detraz - "the one that is interested shall abstain from performing an activity that generates tax, with the purpose of not exceeding one or two thresholds of taxation, beyond which tax shall be owed or it will have an increased level" (Detraz, 2004, p. 6). In many situations the taxpayer chooses or not to carry out an activity if it is susceptible to be subjected to taxation, a modality removed from the sphere of optimization and considered inly an instrument to situate the payer beyond the norms of the fiscal law.

2. The fiscal optimization through manipulation is the form of fiscal optimization chosen by the taxpayer through which it ignores certain legal provisions form the fiscal system or chooses to take into consideration only certain provisions of taxation, without corroborating them with other legal provisions. It is not by chance that in the French literature, this form of optimization is called „la véritable évasion fiscale" (Costea, 2017)

Fiscal optimization through manipulation is the procedure by which the entities, be they natural or legal persons capitalize upon, for their own benefit, the lacks, and the gaps of the fiscal system. As a result of applying this technique, the taxpayer shall find himself when it eliminates taxation in full or, most likely, the taxation will be less onerous. The basic characteristic of this type of optimization is that the taxpayer uses the norms in force by exploiting exactly what the law maker did not foresee.

According to Ungureanu et al. (2017), in this situation, the following hypotheses can occur:

- ✓ The exploitation of the inadvertences of the fiscal system,
- ✓ The interpretation of the fiscal system,
- ✓ The exploitation of the legislative imperfections,
- ✓ The interpretation of the fiscal law,
- ✓ The abuse of rights,
- ✓ The abnormal act of management.

The fiscal optimization through option is, in fact, a fiscal ability through which the taxpayer chooses to adopt which is the most favourable fiscal solution proposed by the law. In manifesting his options, the taxpayer can choose either specific national procedures, or specific community or international procedures.

In choosing the form of organization, the taxpayers consider mainly the costs for constitution and the level of the taxes and duties according to the category of taxpayer. However, the manner of administration, in the case of the self-employed person being characterized by simplicity, is not to be neglected either. The Self-employed form of organization comes with the advantage of the single-entry accounting, be it that the chosen taxation system is that according to the real income or the standard income, the bookkeeping does not involve professionals from the field of economy, as in the case of a limited liability company.

In what regards choosing the way the tax is paid by a self-employed person, here, too, there is room for optimization, the persons who pay tax according to the income standards having a greater advantage than those who pay tax according to the real income. More precisely, the persons who pay taxes according to the income standards pay flat-rate amounts established locally, regardless of the amounts they submit for taxation purposes until reaching the plateau of 100.000 euros, which determines their switching to the actual

income system as of the year following the one in which the plateau was exceeded. At the same time, in the case of the persons who pay tax according to the income standards, the amounts they owe to the state budget are decreased or increased percentage-wise, depending on certain criteria, of which: whether they have employees or whether the holders have the capacity of employee within another company, depending on the age, period of inactivity etc.

The difference between the forms of organization has effects including in the commercial relations with the partners.

The taxpayer opts for certain fiscal solutions in compliance with the regulations of the fiscal legislation at different levels, having in view different criteria, such as the field of activity in which it operates, the entity's form of organization, the volume of business and the duration of the activity. Thus, taking into consideration the above factors, a taxpayer can choose his favourable fiscal regime as a form of fiscal optimization, respectively he decides whether he will carry out an activity as a natural person being a person who pays tax according to the income or he chooses to carry out the activity as a legal person, following that he becomes a payer of profit tax or income tax for micro-enterprises, according to the norms in force, respectively according to Law 227/2015 rep. concerning the Tax Code.

According to the same legal regulations in the matter of taxation, respectively the Law no. 227/2015, on indirect taxation, a taxpayer may opt to register as a VAT payer- according to article 310, paragraph (3) from the law 227/2015 concerning the Fiscal Code or it can benefit from applying the special regimen of exemption, in the conditions in which, if when his economic activity begins, he estimates and declares that he will obtain an annual turnover under the provided exemption plateau, the one below 88.500 euros and he/she does not opt for applying the normal taxation regime, according to article 310, paragraph (4).

At the same time, the taxpayer has at his disposal, according to the fiscal legislation, the possibility of opting for a specific fiscal regime, a specific accounting regime, also opting in what regards the fiscal registration or the declarative regime, i.e. the monthly or quarterly declaration of the contributions for the salaries or the monthly or quarterly declaration of the value-added tax.

Analysing the opportunities offered by the fiscal regime to the taxpayers, several factors can be distinguished that influence the typology of optimization chosen by them. Thus, a first factor is the legal

form of the taxpayer, his field of activity and his sphere of taxation, the activity's mobility degree and of the capital thereof (optimization on a national or international level). (Costea, 2019)

Within the fiscal regime, a taxpayer opts in what concerns different solutions concerning the accounting regime. A taxpayer has a right to opt even within the fiscal procedure, be it on the matter of the voluntary execution of the fiscal receivables, or on the matter of the forced execution.

The following forms of fiscal optimization are known in practice:

- ✓ The establishment of offshore or onshore companies with a favourable fiscal climate, through the means of which real operations are carried out

In what regards the types of taxpayers that choose to carry out their activity through the means of tax heavens, it is very clear that, mainly, the international companies prefer operation through the means of an off-shore branch (the tax savings realized is much higher for them and the cost of using a tax heaven has a much lower weight than for other companies with a reduced turnover), but even those companies that carry out intense research and development activities, especially high-tech companies (Ghinea, 2013). The companies should pay their taxes in the country in which the profits are generated. Combating tax evasion and avoiding fiscal obligation is essential for the European Commission.

- ✓ The legal production of goods and the provision of services, using operational structures that allow the application of certain diminished taxes and duties;
- ✓ The payment of reduced fiscal obligations by using the "legislative loopholes".

6. The necessity of the existence of a sanctioning and control framework both for natural, as well as for legal persons

The multitude of the legislative changes and the ambiguity of certain normative documents were and still represent a factor that favours the development of the evasion phenomenon. The commercial exchanges have diversified in the past years, becoming more and more complex under the conditions of a legislative instability, so that the tax evasion and optimization grew at the level of both the legal persons, and the natural persons, manifesting its negative effects upon the national economy and, implicitly, upon each of us.

The literature considers that the notion of control has powerful effects due to the powerful connotations referring to constraint. The entities subjected to the control are not rigid systems that respond strictly to some commands, they are not mechanisms, they are based on the individual, so that the control systems, by their purpose, tend to constraint the behaviour of the people. Even so, controlling human behaviour is extremely difficult and it can be sometimes particularly controversial through the characteristics given by the specificity of the field in which they act. The control activity must respond to the rigors imposed by the decisional factors, having in view the tasks and the purposes pursued by the institution or the organization that adopts a certain form of control (Hoanță 1997).

Thus, we conclude that the control institutions cannot control the individual actions, they only offer a framework governed by rules of work, managed distinctly and, obviously, subjectively, both by the taxpayer, as well as by the state. The rules constrain, but they also allow action in an equal measure. Commons concluded that the institutional rules were inherent and ambiguous, resuming his findings through a famous notion of the four verbs, analysing the individual action through the means of what the individual can, cannot, must and must not do under the influence of the environment in which he activates, under the influence of the collective action. Referring to the way the taxpayers act under the influence of the environment in which they activate, the behavioural economists study the way the legal person that trade interact, thinking that they submit themselves to certain rules that force them to do or not do something, that tell them what they can, what they cannot, what they must and what they must not do. On a different note, even when they comply with the rules, the natural or legal persons, the actors of economy, still have many choices to make (Hoanță, 1997). As a consequence, in order to provide an as coherent, regulated, equitable and unitary as possible framework in what regards the activity in the economic environment, the presence of the control bodies is absolutely necessary, without which any economic operator would act according to its own liking, according to the manner in which it interprets the activity of its business partners, to how it interprets the legislation, to their fiscal morality, depending on the level of awareness and consciousness of its representatives.

The number of control actions and its results, according to the data available at NAFA level, for each year, give us the possibility to measure the magnitude of the phenomenon of evasion.

Table 3

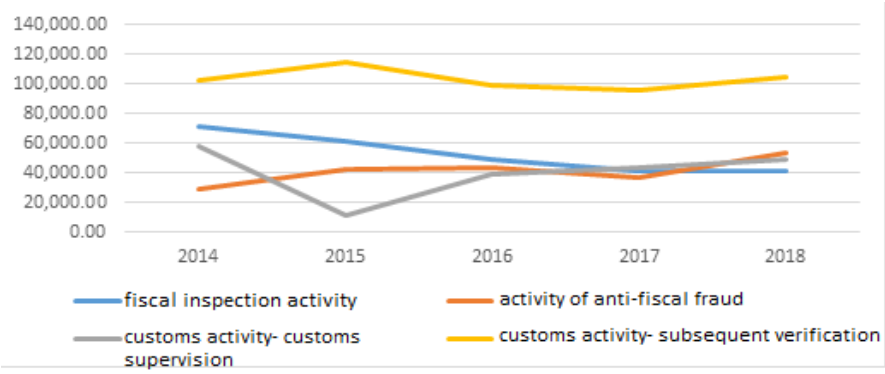
The number of the NAFA control actions in the period 2014-2018

Number of control actions	2014	2015	2016	2017	2018
Fiscal inspection activity	70,912	61,053	48,676	41,396	40,952
The fiscal anti-fraud activity	29,052	42,963	43,665	37,216	53,019
Customs activity - the surveillance at the customs	57,608	11,378	39,469	43,102	49,117
Custom's activity - subsequent control	102,898	114,937	99,262	96,282	105,179

Source: authors' work, based on the NAFA data

Figure 1

The evolution of the number of NAFA control actions in the 2014-2018 period in Romania



Source: authors' work, based on the NAFA data

Analysing the above graph, it is noted that during the first year of activity since its establishment, in 2017, the Fiscal Anti-fraud General Directorate realized the smallest number of verifications. The number of taxpayers verified having an ascending trend in 2018 more than 53000 control actions (Figure 1).

The increase of the number of verifications is based on several factors:

- it was achieved against a backdrop of the institution's development from a professional perspective;
- a better identification of the risk areas;

- the increase in the number of verifications was also due to the change in the institution's decision-makers' vision about the manner in which the taxpayers are selected and verified;
- a large number of controls being requested with minimal objectives, make the institution to be as visible as possible and to influence the voluntary compliance.

It is very important to understand that, regarded from the two perspectives, that of the natural person vs. that of the legal person, the sanctioning systems is distinct, the legal framework provides distinct sanctions for the same offenses, having a very clear example of the Law no. 12/1990 rep. where the limits of the fines are much reduced for the natural persons or the special laws that provide sanctions in addition to the main sanctions and the complementary sanctions (such as the seizing the agricultural products without documents of their origin) for the legal persons and, for the same offense, the natural persons are sanctioned with moderate amounts, the complementary sanctions not being mentioned within the context of the law.

Also, one of the major problems is that those who do not have a form of organization are very difficult to sanction due to the legislative ambiguities in comparison with those who have a legal form of organization and who conduct accounting records, an approach which is at least discouraging for those who have established themselves in one form or another.

7. Conclusions

Synthesizing the matters presented previously, choosing a form or another of organization has strong points and weak points (Table 4).

Table 4

Strong and weak points - legal and natural persons

	Natural persons	Legal persons
Establishment	Taxes lower than 100 lei	Taxes of about 1000 lei
Conditions for carrying out the activity	Imposed and limited by the holder's professional qualification.	Any legal activity provided within the Articles of Association and within the NACE nomenclature
Accounting	Single-entry, it does not require any qualified personnel, therefore it does not involve any costs.	Double-entry- it requires the involvement of the professionals. Accountants. Economists, experts, generating costs

	Natural persons	Legal persons
Registers	There is no obligation to maintain a unique control ledger, cash book, management report, accounting journal. There is the obligation of the register of collections and payments.	All the accounting and fiscal records are mandatory. Holding a unique control ledger for each declared place of business is mandatory.
The rate of taxation	The tax is paid: - according to the flat rate income standard, until the threshold of 100,000 Euros, often having bonuses. - in a real system through - the application of the share of 10% upon the difference between the collections and the payments. - health in a share of 10% (applied upon the basis representing 12 minimum national salaries) and national insurance contributions 25% if the income exceeds 12 minimum national salaries.	Income tax for micro-enterprises 1% or 3% Profit tax 16%
Use of the liquidities available	The difference between the collection and payments is at the disposal of the holder without any limits. It is not necessary to prepare supporting document when the amounts are withdrawn.	As dividend in the limit of the profit, with a cost of 5% representing dividends.
Relation with the baking institutions	The banks are reluctant to grant loans due to the lack of certified financial-accounting data.	Easier due to the certainty given by the annual financial statements.
Liability	With the assets of the holder	With the assets of the company
Sanctions	Lower than in the case of the limited liability company	Higher than those for the natural persons

Source: authors' work.

The taxes must not influence the choices of the investors, the economic agents, respectively the degree of taxation must not unbalance the benefits of the taxpayers. Taxation must also take into account the difference between the legitimate and illegitimate income and aggravating as much as possible the taxation of the income obtained in an illegitimate manner, finding at the same time modalities of relation or even exoneration from taxation for the other category, the one obtaining income through work, as a result of the efficient management of the resources and by assuming certain risks. The

elimination of all the possibilities for the arbitrary interpretation of the legislation is the idea that stands at the basis of the main principle of taxation, the lack of the arbitrary, establishing the taxes clearly and unequivocally.

It is very important that the control bodies to understand the causes of tax evasion phenomenon. In this way they are capable to combat it efficiently. In this study we tried to explain some aspects from the control bodies point of view. Our study is based on practice, and we intended to show relevant aspects from legislation that makes people to choose between different fiscal methods.

In view of the efficient combating of the phenomenon of evasion, the following immediate measures are imposed:

- ✓ Diminishing the underground economy and the black/grey market labour by imposing some limitations in certain fields with a risk of evasion (extending the specific taxation and other sectors of activity which are difficult to quantify, applying the minimum wage according to the branch in several sectors).
- ✓ Diminishing, as much as possible, the differences in taxation depending on the manner of organization, in view of assuring a fair, equitable competitive framework for all the participants in the business environment.
- ✓ Granting economic and fiscal facilities in view of determining the declaration out of one's own initiative of all the activities carried out, so that carrying out an economic activity in the authorized form becomes attractive to the detriment of the underground one.
- ✓ A clear and viable legislative system;
- ✓ An efficient fiscal control, beginning from the monitoring and risk analysis phase, the update of the parameters according to which the companies are analysed;
- ✓ The professional training of the fiscal bodies must represent a priority;
- ✓ An efficient plan for the fiscal education of the citizens.

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