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THE CAUSAL RELATIONSHIP BETWEEN INTERNATIONAL INVESTMENT AND EXPORT IN NIGERIA

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JEL F14

Abstract

This paper sought to examine the impact of international finance on business activities in Nigeria using time series data dating from 1981-2014. *Ex post-facto* type of descriptive research design was adopted in carrying out this study and the secondary statistics data sourced from CBN statistical bulletins, National Bureau of Statistics, and NSE Statistical Bulletins were used. Total export was adopted as a proxy for business activities in Nigeria while foreign portfolio investment and foreign direct investments were used as proxy for international finance. The data were analyzed using Ordinary Least Square Method. The estimates indicate that international finance which is proxied by Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) has a negative impact on Nigeria business activities both in the long run and short run. The short run effect of international finance on business activities shows that the ECM parameter represented with ECM (-1) is significant at 10%, with a coefficient of -0.6980. The long run effect of international finance and business activities in Nigeria shows a coefficient of a period lag of total trade (TT) of 0.8613, which implies that a negative relationship exists between a year lag in TT and present total trade. It is recommended that developing countries like Nigeria can increase its business activities by attracting more FDI and FPI inflows and removing the artificial barriers to free flow of FDI and control on exports and imports and also, an open and export-oriented policy can be promoted with lower tariffs and allowing free mobility of capital.

Keywords:

Foreign direct investment, Foreign portfolio investment, Total trade (TT), Exchange rate, International investment.

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Introduction

Availability of finance forms an important factor in promoting business activities across the globe, which in turn contributes to economic development. One of the major difficulties which business owners face is the availability of funds to smoothly operate their business and enhance business performance. As noted by Geiersbach (2010), an increase in the level of domestic and international competitors among companies have forced firms to focus on the international market to identify new business opportunities as well as the prospect of generating funds. This is necessary, as it has become extremely difficult for managers to generate enough capital needed for the smooth operation of the organization within the local market. Hence the need to source for funds internationally, which sometimes come at a cheaper cost. International investment theory highlights the movement of international capital in the framework of international trade. The international investment is embedded within the international trade, which focuses on the transfer of knowledge, technical know-how and technological advancement between two or more countries along the financial capital movement.

As noted by Caves (1996) and UNCTAD (2002), foreign direct investment (FDI) promotes the export of host countries through domestic capital for exports, transfer of technology and new products, enhancing access to new and international market, as well as training and developing the local workforce to enhance their technical and management skills. However, it is noted that FDI could bring about a reduction in domestic savings, inappropriateness in the transfer of technologies within the host country's factor proportion, lay particular emphasis on the domestic market of the host country which will discourage import, limiting the expansion and development of local firms, and the inability to enhance the comparative advantage of the host country by giving particular attention to local labour and raw materials.

It is against this backdrop that this study investigates the impact of international financing on business activities in Nigeria. The organization of this paper includes the introduction, the literature review, followed by the methodology adopted, and the procedure used in testing for the hypotheses. The preceding sections further discuss the report, and the implication of the results.

Literature Review

In the 1960s and 1970s, several economists were of the opinion that involvement in foreign trade and enhancement of export performance might deliver the anticipated drive for economic growth in emerging economies. Previous studies (Bhagwati&

Srinivasan, 1978; Krueger, 1978;Bhagwati, 1978) have proposed export enhancement (outward-looking approach) as a better development approach.

The classical theory of international investment focuses on the level of a country's export and imports in relation to her pattern of doing business with other countries. The theory states that more countries stand to benefit from devoting their resources in the creation of goods and services in areas where they have competitive and economic advantage (Ricardo, 1817; Smith, 1776). Thus, the classical theory examines a case in which a country produces goods and services where it has competitive and economic advantage for both consumption and export, hence it is advisable for countries to import the goods and services where it is economically disadvantaged. Economic advantages and disadvantages could arise from the difference in factor endowment of countries such as: capital, labour technology, etc. Hence, the classical theory argues that the reason for international investment boils down to the differences in factor endowment between countries, which are based on domestic differences and economic advantage. Nevertheless, the classical theory has so far focused on the differences in economic and resources advantage and has not been able to explain the reasons for relative advantage between countries.

The factor proportion theory, on the other hand, focused on the differences in advantage that is shown by different trading countries. The theory stipulated that countries will look at producing and exporting goods and services that they can easily produce in large quantity which they have the production factors to produce, while importing goods and services for which production factors in the country are relatively scarce (Hecksher& Ohlin, 1933). Thus, the theory expanded the economic advantage concept by taking into consideration the endowment and factors of production cost. However, both theories have been criticized for being too old in explaining the modern and more complex international investment pattern, which led to the emergence of new theories to explain the changing commercial realities of international investment (Leontief, 1966).

The product life cycle theory is seen as being useful in explaining the expansion of multinational companies and international investments. The theory was of the opinion that there is a trade cycle as a product is being produced by a parent organization, which then moves to the foreign subsidiary and then anywhere around the world where the cost of the product is at its lowest possible price (Vernon, 1966; Wells, 1968). More so, the theory explains how a product emerges and goes through a life circle in a country. The whole reason for the product life cycle of a product is the technological innovation and market expansion which are very critical in explaining international investment pattern. The theory noted that technology is a key element in

the production of new products, while the market size determines the size and structure of international business, as well as the degree to which it will be developed.

De Mello (1997) studied the factors of FDI and effect of internal FDI on growth in developing countries. The research maintained that the policy system of the host country is a hypothetically vital FDI element. The study additionally maintained that foreign stakeholders are encouraged mainly by international rent seeking under typical profit maximizing expectations. The most significant factor elucidating the movement of FDI into the developing countries in recent years has been the foreign attainment of local firms in the course of privatisation, globalisation of production and improved economic and financial combination.

Dritsaki, et al., (2004) in Greece examined the connection between exports, FDI and GDP from 1960-2002. The study established that there is long run relationship, and an interconnection relationship among the identified variables. Equally, Ahmad, et al. (2004), discovered a unidirectional connection between exports and GDP and from FDI to GDP for Pakistan using yearly data for the period: 1972-2001. Hsiao (2006) inspected the association among FDI, exports, and GDP for eight East and Southeast Asian economies through Granger causality test and panel data analysis for the period of 1986-2004. The researcher's study discovered that FDI effects GDP both directly and indirectly through exports. In addition, it was discovered that there is bidirectional connection between exports and GDP for the group. A comparable study by Yao, (2006) examined the effect of exports and FDI on economic performance, using a huge panel data set covering 28 Chinese provinces over the period 1978-2000. The outcome of the study indicated that both exports and FDI have a strong and positive influence on economic growth.

Yongkul, Won, Frank and Hsiao (2008) studied the causality association among GDP, exports and FDI in first generation Asian industrializing economies (Korea, Taiwan, Singapore) and in second generation industrializing economies (Malaysia, Philippines, Thailand, China) using panel data over the period 1981-2005. The outcome of the study indicated that there are bidirectional causality relations among all the variables for the first generation countries. More so, there is a unidirectional causality relation between exports and GDP for the second-generation countries. Acaravci Ali, Ozturk and Ilhan(2012) explored the causal relationship among economic growth, exports and FDI for ten European countries from 1994-2008. The study discovered that there is connecting relationship among FDI, exports and economic growth in four out of ten countries.

In Turkey, Mehmet (2012) inspected the relationship among FDI, exports, and GDP through co-integration tests for the period of 2000-2010. The result of the study

disclosed that there is a long-term relationship between FDI and export volume, FDI and GDP, and export volume and GDP. Syed (2012) Bangladesh, examined the causal relationship among FDI, trade and economic growth from 1973-2008. The study established that there is long run relationship among the observed variables. Moreover, there is a unidirectional causality relationship between FDI and exports with direction from exports to FDI.

Jayakumar, Kannan and Anbalagan (2014) explored the connection among Foreign Direct Investment (FDI), exports and imports in India. The outcome indicated a statistically significant confirmation of positive relationship among FDI, exports and Imports. The study further recommended that FDI could not be presumed as the only explanatory variable for envisaging disparities in exports. International trade that is measured either by exports or by imports is discovered to be matching to FDI inflows. FDI inflows are perceived to have response effects with exports of the trading partners and of the other trading partners. Comparable connections between FDI inflows and imports by the trading partners and the other trading partners are also revealed.

Abor,Agbloyor and Kuipo (2014) inspected how bank funding affects the export activities of businesses and SMEs access to finance using a probit model. The findings of the study proposed that SME access to bank funds enhances the possibility to export covering the high fixed costs of exporting, international marketing and branding, and meeting the higher superiority criteria necessary for international markets.

Brandi and Schmitz (2015) investigated the influence of trade finance on the trade flows of industrialized, emerging and developing economies for the period 2005-201 engaging a two-stage instrumentation approach. The study discovered a positive significant effect of the accessibility of trade finance on trade activities. It was also revealed that trade openness is an essential factor of import flows and on how trade credit insurance impacts trade flows. Additionally, it was revealed that import flows to non-OECD, lower and middle-income and developing countries are greatly sustained by higher flow of trade credit insurance and that trade finance is mostly essential for sub-Saharan Africa.

Methodology

This paper examines the impact of international finance on business activities in Nigeria using time series data dating from 1981-2014 which was gathered from secondary sources-CBN bulletins, National Bureau of Statistic, and NSE Statistical Bulletins. Total export was adopted as a proxy for business activities in Nigeria while

foreign portfolio investment and foreign direct investments were used as proxy for international finance. The data were analyzed using Ordinary Least Square Method. The model formulated for the study is given by;

(1)TE=f (FDI, FPI, EXR)

The econometric specification for the model is:

(2) $logTT_t = \beta_0 + \beta_1 logTE_{t-1} + \beta_2 logTE_{t-2} + \beta_3 logFPIt_{-1} + \beta_4 logFDI_{t-1} + \beta_5 logEXR_{t-1}$

Where:
TE_t= Total Export at time t
FDI_t= Foreign Direct Investment at time t
FPI_t= Foreign Portfolio Investment at time t
EXR_t= Exchange Rate at time t
U_t = Disturbance Term
B_0 = Intercept
β_1- β_5 = Coefficient of the Independent Variables.

Results

Table 1

Descriptive Statistics

	TT	FPI	FDI	EXR
Mean	7811.900	1655.643	2862.058	82.55147
Median	3078.440	81.72870	736.9986	107.0243
Maximum	26232.53	36851.80	29660.30	169.6800
Minimum	14.90420	-1618.800	22.22920	2.020600
Std. Dev.	9049.086	6743.719	6228.017	63.12323
Skewness	0.904815	4.972982	3.178543	-0.103315
Kurtosis	2.298620	26.47314	13.03235	1.252406
Observations	30	30	30	30

Source: *Authors Compilation (2017).*

The above results revealed that the mean value for all the variables is positive suggesting that the variable have been growing over time. It is evident that the monetary value of total trade is higher that the international sources of financing and that foreign direct investment is more attractive than foreign portfolio investment. This may be attributed to low development of the capital market and uncertainty associated with investment in the capital market. In terms of the volatility of the variables, the value of total trade is more volatile given its standard deviation (2.63)

while FPI and FDI ranked second and third respectively. This can be as a result of the unstable flow of goods, capital flight, and incessant fluctuations in exchange rate and the low level of export of manufactured and agricultural produce.

Unit Root Test

The unit root test was carried out to determine the order of integration of each of the variables and whether the variable contains unit root and hence is non-stationary using the Augmented Dickey Fuller (ADF) Test and Phillip Perron Test. The result is presented in table 2 below.

Table 2

Unit root Test

Variables	ADF		PP		Order
	t-stat	Prob.	t-stat	Prob.	
TT	-0.1484	0.9346	-0.3117	0.9114	I(1)
D(TT)	-3.9983	0.0047*	-4.0801	0.0039*	
FDI	-5.6098	0.0001*	-5.6662	0.0001*	I(0)
FPI	-3.5164	0.0147*	-3.5164	0.0147*	I(0)
EXR	-0.4758	0.8822	-0.4758	0.8822	I(1)
D(EXR)	-5.1205	0.0003*	-5.1202	0.0003*	

Source: *Authors Compilation (2016);*
Note: *significant level:* * 1%. ** 5%; ***10%.

Table 2 above shows that TT and EXR were not stationary at level given their probability value for both the ADF and PP test, however at first difference TT and EXRwere stationary. FDI and FPI were both stationary at level. It therefore means that the variables considered in this study are multileveled integrated and that these variables are integrated of order one and order zero. Thus a long-run linear combination is suspected amongst the variables.

In analysing the effect of international finance and business activities in Nigeria, the study selects the ARDL bound test method of co-integration to investigate the long run relationship in the model. The choice of the ARDL is consistent with the statistical properties that are integrated of order with few that are stationary at level. There are no I(2) series that could make difficult the interpretation of value of the F-statistics developed in Pesaran et al., (2001).

Table 3

Long Run Effect of International Finance and Business Activities in Nigeria

Test Statistics	Value	K	Critical Value Bound 5%	
			10 Bound	II Bound
F-statistics	6.30	3	4.94	5.73

Source: *Author's Computation (2017).*

Table 3 shows the bound test carried out to investigate the long run effect of international finance and business activities in Nigeria. The value of the F-statistic is 6.30 which lies below the lower bound critical value 4.94 at 5% level of significance. This implies that a long run relationship exists between international finance and business activities in Nigeria**.**

Table 4

Long Run Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.819434	0.221204	3.704418	0.0012*
TT(-1)	0.863177	0.169719	5.085912	0.0000*
TT(-2)	-0.052042	0.152218	-0.341894	0.7357
D(FPI(-1))	-0.012109	0.027073	-0.447273	0.6591
D(FDI(-1))	-0.132153	0.035515	-3.721038	0.0012*
EXR(-1)	0.218202	0.102126	2.136593	0.0440**
R-squared	0.989337			
Adjusted R-squared	0.986913			
S.E. of regression	0.214745			
F-statistic	408.2298			
Prob(F-statistic)	0.000000			

Source: *Author's Computation (2017);*
Note: *significant level:* * 1%. ** 5%; ***10%.

Table 4 above shows the long-run effect of international finance and business activities in Nigeria. The coefficient of a period lag of total trade (TT) is 0.8613, which implies that a negative relationship exists between a year lag in TT and present total trade. This suggests that in the long run past total trade has significant effect on the present value of total trade. Meanwhile, the coefficient of a period lag of foreign portfolio investment (FPI) and foreign direct investment (FDI) exert a negative effect on business activities proxied by total trade, implying that in the long run, the volume of foreign portfolio investment and foreign direct investment reduces the volume of business ac-

tivities in Nigeria. On the other hand, exchange rate significantly increases business activities by 21%. The R-Squared of the model is shows that the explanatory variables explain 98% of changes in the business activities proxied by total trade in Nigeria, implying that the variables chosen are strong in explaining the level of business activities in the long run. The F-statistic was also found to be statistically significant at suggesting that in the long run, international finance have effect on business activities in Nigeria.

Table 5

Short Run Effect of International Finance and Business Activities in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.580517	0.296153	1.960197	0.0648***
TT(-1)	1.137601	0.222321	5.116941	0.0001*
TT(-2)	-0.286151	0.194039	-1.474711	0.1567
D(FPI(-1))	-0.029194	0.029575	-0.987118	0.3360
D(FDI(-1))	-0.131600	0.034866	-3.774407	0.0013*
EXR(-1)	0.186054	0.102209	1.820334	0.0845***
ECM(-1)	-0.698028	0.400136	-1.744477	0.0972***

Source: *Author's Computation (2017);*
Note: *significant level:* * 1%. ** 5%; ***10%.

The short run effect of international finance on business activities is given in Table 5 above. The result shows that the ECM parameter represented with ECM (-1) is significant at 10%, with a coefficient of -0.6980, hence, the adjusted parameter is significant and it has the right theoretical sign. This implies that disequilibrium in the long run relationship between FPI, FDI and EXR can be restored within one year. The coefficient of FDI and FPI are negative while only FDI is significant at 5% level of significance. This implies that in the short run foreign portfolio investment and foreign direct investment have an inverse impact on business activities. Conversely, the coefficient a period lag of total trade and exchange rate exerted significant positive effect on business activities in Nigeria. Based on the equilibrium parameter, the result suggests that there is significant short term relationship among the variables studied.

Conclusion and Recommendations

International finance has been viewed as an accelerator of business activities. One of its major potential growth-contributions is to promote host countries' exports and total trade. This study attempts to empirically investigate the issue by using the data obtained from Nigeria. The estimates indicate that international finance which is proxied by FDI and FPI has a negative impact on Nigeria business activities both in the long run and short

run. This suggests that the volume of international financing in Nigeria is not channelled into the manufacturing sector as evident by the result of this study, since it exerted negative effect on total trade. The volume of FPI was also discovered to be reducing suggesting that foreign investors are not attracted or motivated to invest in the capital market. This can also be attributed to the exchange rate fluctuations as investors are mostly interested in obtaining higher returns on their investment and benefiting from the high exchange rate, therefore they move their funds to other countries where the return on investment is certain, hence, reducing funds that can be explored by firms to expand their business. Also, the flow of FDI has been recorded to be more in the oil sector than in other sectors, hence, adversely affecting business activities.

It is recommended that developing countries like Nigeria can increase its business activities by attracting more FDI and FPI inflows and removing the artificial barriers to free flow of FDI and control on exports and imports. Other sectors of the economy should be made attractive to foreign investors, so that they would not invest only in the oil sector, thereby leaving other sectors undeveloped. Also, an open and export-oriented policy can be promoted with lower tariffs and allowing free mobility of capital. Widening of the net of communication facilities is also instrumental in attracting FDI and FPI inflows and exports growth.

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SMOOTHING EARNINGS AND EARNINGS INFORMATIVENESS

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JEL G140

Keywords:

smoothing earnings, informativeness, CKSS approach.

Abstract

The impact of smoothing earnings over earnings informativeness depends on the reasons for practising it on the part of company management. If smoothing earnings is done for opportunistic purposes, it is expected to reduce earnings informativeness. In contrast, if by means of smoothing earnings the management targets the transmission of internal information about future corporate results, it is expected to increase informativeness. By applying the approach of informativeness following the example of Tucker and Zarowin (2006), this survey examines how smoothing earnings influences earnings informativeness across a sample of Bulgarian public companies.

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Introduction

Corporate scandals, such as Enron (Katanov 2002), Ahold (The Economist 2003), Worldcom (Brickey 2003), etc., are the reasons why financial accounting practices and their complications are a hot topic on a global level. Financial information and its interpretation have been gaining special importance, which stands out in light of the global economic crisis that started in 2009. This is connected with the degree to which financial information delivered by financial reporting provides reliable indicators of the financial situation and operations of the business unit and the realization of expected cash flow.

Scientific literature explores two opposite effects stemming from smoothing earnings (Zarowin 2002, Tucker and Zarowin 2006, pp. 251-270). The first one is that executives apply smoothing earnings to disclose their inside information about future corporate earnings (Ronen and Sadan 1981, Chaney and Lewis 1998, 103-135, Tucker and Zarowin 2006, pp. 251-270). Therefore, this effect should lead to more information about future earnings, which in turn are reflected in stock prices. The alternative effect implies that smoothing earnings distorts information and makes stock prices less informative. The presence of less information on future earnings will be reflected by stock prices, hence smoothing earnings will have a negative impact (Tucker and Zarowin 2006, pp. 251-270).

The up-to-date nature of the issue of smoothing earnings, performed by the management of Bulgarian public companies, is to resolve whether there is a positive or negative effect on informativeness as a result of this practice.

The object of this research is the smoothing earnings among Bulgarian public companies. *The subject* of the survey is the informativeness of earnings. This work applies Tucker and Zarowin's (2006) research design to Bulgarian market and verifies whether their conclusions are valid for Bulgaria. Emerging stock markets, one of which is the Bulgarian stock market, are characterized by lower transparency and investor protection due to the more inefficient supervisory institutions, even in the conditions of equal nominal regulations (Naidenova 2016), which leads to poor information environment (Morck et al., 2000, pp. 215-260). The influence of smoothing earnings over income informativeness depends on the information environment of the market. In particular, better information environment makes relevant information more accessible to the average investor. It reduces the cost of acquiring information and facilitates more effective investment decisions. Therefore, for companies located in markets with rich information environment (for example, the US market), investors can use all sources of information to better interpret the managers' motives to smooth their earnings in conveying their inside information about Future earnings (i.e. smoothing earnings improves earnings informativeness). Nevertheless, in a market with low information environment (for example, Bulgaria), where information is incomplete and information uncertainty high, investors are not able to use smoothing earnings to forecast future earnings (i.e., smoothing earnings has no impact on informativeness). Expectations in this survey are consistent with the conclusions of Cheng et al. (2014), which provide evidence of a large pattern of US companies, so that the relationship between smoothing earnings and ERC / FERC depends on the company's level of the information environment. They find that the information environment plays a substantial role in evaluating the quality of financial reporting through ERC and FERC.

For these reasons, the following will be investigated: *Hypothesis: Smoothing earnings decreases informativeness of past and current income about future income.*

The intention of this survey is to establish the result of smoothing earnings on income informativeness under the conditions of Bulgarian stock market.

Defining informativeness

Informativeness refers to the "accuracy of information" in the report, statement, or position. As an illustration, if an investor is looking for a new attractive investment opportunity, they will use several sources of information. The investor can contact brokers, read prospectuses, and also analyze financial statements. In addition, the investor will analyze the company's historical data. Some sources of information will be more valuable than others. This means that one source ensures extraordinary informativeness, compared with others. In addition, statements made by the company's management which are related to the performance of the company, could also provide valuable information for current and future investors. In particular, with regard to this study, informativeness is related to the company's income. Tucker and Zarowin (2006) define earnings informativeness as follows: "The information worth of past and current income when they provide information about future earnings" (Tucker and Zarowin 2006, pp. 251-270).

This definition for earnings informativeness implies that analysts and other consumers of financial statements can derive certain information elements from financial statements that provide information to forecast future earnings. This, of course, is particularly applicable to quarterly reports. Since the reported annual earnings in the company's financial statements are a projection of the four quarters of earnings, therefore reported quarterly earnings may provide data onto the annuals. Thus, the informativeness of earnings can be defined as its ability to forecast future earnings. Based on current annual earnings, analysts and other users of the financial statements can prepare forecasts for future earnings.

There are benefits to company management if users of financial statements are capable of producing satisfactory forecasts for the company's future earnings. This contributes to the recognition of the company by its stakeholders as financially sustainable. One of the benefits for the company from the greater predictability of its results is the lower cost of capital for it, while for management the risk of job loss decreases and there is a growing likelihood of actually getting the agreed bonuses in their compensation plans.

Measuring informativeness

To test the informativeness of earnings the CKSS (abbreviated by Collins, Kothari, Shanken, and Sloan) approach established by Collins et al. (1994) is used. Based on EMH (efficient-markets hypothesis), the CKSS approach examines the quantity of information on future earnings of the company, which is reflected by an alteration in current stock prices. According to EMH, all available information is reflected in stock prices. Therefore, based on stock prices, the CKSS approach considers both public and internal information about the company. The CKSS uses changes in income as independent variables. It is also implicitly assumed that annual earnings follow a random walk. Lundholm and Myers (2002) manage the past, current and future income levels, assuming a more common form of the model on income expectations (Lundholm and Myers 2002, pp. 809-839). To increase the strength of the test, they combine three types of income in the variable Xt_3 and return for three future years Rt_3. The applied regression model of the CKSS approach in the Tucker and Zarowin survey (2006) is defined as follows:

$$R_t = b_0 + b_1 X_{t-1} + b_2 X_t + b_3 Xt_3 + b_4 R_{t3} + \varepsilon \quad (1)$$

Where: R_t = Ex-dividend stock returns for year t.

X_{t-1} = Earnings per share for year t-1.

Xt = Earnings per share for year t.

X_{t3} = Sum of earnings per share for years t+1 to t+3.

R_{t3} = The aggregate stock return for years t+1 to t+3.

Consequently, coefficient b_2 corresponds to the earnings response coefficient (ERC) and coefficient b_3 is the future earnings response coefficient (FERC). All the EPS variables are based on EPS, adapted for stock splits and stock dividends, and according to Christie (1987), deflated by the stock price at the beginning of year t (Christie 1978, pp. 231–258). $Rt3$ is the cumulative stock return in year t+1 to t+3 with annual compounding.[1] The coefficient on past earnings (b1) is anticipated to be negative, the ERC (b2) is anticipated to be positive, the FERC (b3) is anticipated to be positive, and the coefficient on future returns (b4) is anticipated to be negative.

In order to answer the research question, regression is expanded by adding the measure of smoothing earnings IS and its interaction with the independent variables. If a company is recognized as a smoother, the variable for the use of smoothing earnings is 1, and if the company is recognized as a non-smoother, the variable for the use of smoothing earnings is 0. The regression equation (2) expresses the basic empirical model for examining the association between smoothing earnings and income informativeness:

$$R_t = b_o + b_1 X_{t-1} + b_2 X_t + b_3 X_{t3} + b_4 R_{t3} + b_5 IS_t + b_6 IS_t * X_{t-1} + b_7 IS_t * X_t + b_8 IS_t * X_{t3} + b_9 IS_t * R_{t3} + \varepsilon_t \quad (2)$$

The regression equation (2) is calculated by pooled cross-sectional, time-series data. If the magisterial result of smoothing earnings is to transmit information about future earnings, then the coefficient b_8 should be positive.

It is found that using stock price has a benefit over assessing the relationship between current earnings and future earnings. Regardless of the distinctness, the two regression models (2) and (3) are associated. If smoothing earnings enhances earnings' informativeness, then it must enhance the relationship between future earnings and current earnings — i.e. it must strengthen the earnings' steadfastness. To confirm this, we evaluate the relationship between current and future earnings in regression (3)

$$EPS_{t3} = a_0 + a_1 EPS_t + a_2 IS_t + a_3 IS_t * EPS_t + \varepsilon_t \quad (3)$$

Where: EPS_t = Earnings per share for financial year t.
EPS_{t3} = Earnings per share for financial year t+1 to t+3.

Accordingly, variables EPS_t and IS_t are independent variables and EPS_{t3} is dependent variable. If the magisterial result of smoothing earnings is to transmit information about future earnings, then the coefficient on $IS_t * EPS_t$ should be positive. If the counterfeiting effect of smoothing earnings rules, then the earnings would be less informative and hence the coefficient is anticipated to be negative.

To test whether this is appropriate for the selected sample of data, a generalized linear model was applied in SPSS.

Results

This research uses a sample of public companies which belong to the BSE Premium and Standard segments. There are two objective reasons for constructing the sample with the most liquid public companies traded on the Bulgarian stock market. The first is that in agreement with the hypothesis of the political costs of Watts and Zimmerman, high income is a substitute variable for political and public concentration (Watts and Zimmerman 1978, pp. 112-134)[2]. Consequently, the management has an incentive to smooth income and reduce political costs. The second reason stems from the need to analyze the relation between smoothing earnings and stock prices. The sample consists of 66 companies and includes data for the period from 2010 to 2015, in testing the research hypothesis using cross-sectional data.

In this study, companies are segregated to smoother and non-smoother by applying the income volatility approach. It is replicated by the example of Leuz, Nanda and Wysocki (2003), Francis, LaFond, Olsson, and Schipper (2004) and LaFond, Lang and Skaife (2007). The income smoothing variable – IS in the LNW model is measured by calculating the following ratio Std (CFO) / Std (NI) over a 5-year period. CFO is the operating cash flow and NI is net income, and both variables are weighted by TA (total assets at the beginning of the year). The benefit of this measure is that it uses the cash flow of the company to control the increase in volatility due to the nature of the company's business. Therefore, this indicator can be elucidated as the impact of smoothing earnings resulting from the utilization of accruals. Since the measure is strictly positive and highly skewed, a natural logarithm is used in the empirical tests, which significantly decreases the impact of the distortion. Scaling with the variability of the operating cash flow measures the magnitude to which accrual reporting smooths the variability of core business operations. Higher values of the variable IS indicate smoother income.

$$IS = \ln\left(\frac{\sigma(CFO)}{\sigma(Netincome)}\right) \tag{4}$$

The advantage of measuring smoothing earnings in the years immediately before the period used to form the sample of companies is that it eliminates the possibility of synchronizing the obtained results. The similar concern would arise if managers smoothed earnings as a reaction to the stock return. Rather, this measure should be interpreted as the historical earnings observed by market participants just prior to the time of data sampling.

Applying the model to sample data enables companies to rank according to the degree of smoothing earnings. The outcomes are applied in the model of Tucker and Zarowin (2006), which measures the informativeness of smoothing earnings. To calculate *IS,* data for NI, CFO and TA are derived from the company's annual financial statements for the period 2010-2014. The companies in the main sample are sorted according to the *IS* indicator. Those which receive positive values for *IS* are defined as income smoothers. Consequently, from the main sample (66 companies) two subsamples were formed. Companies which are in sub-sample with positive values of the *IS* indicator qualify as Smoothers (42 companies), while those in sub-sample values for *IS* = <0 are defined as Non-Smoothers (24 companies).

In order to check whether smoothing earnings improves the informativeness of earnings, it is important to test the company's income correlation from the selected sample. This implies that this research tests the relationship between EPS_t and

EPS_{t3}. As a consequence, the relationship between the current year earnings and the future year earnings is tested. To test the correlation, the EPS research data from 2011 is applied for EPS_t, and the EPS research data from 2012 to 2014 is applied for EPS_{t3}. The tested bivariate correlation of these two variables in SPSS provided the following empirical research results:

Table 1

Correlation between EPS_t and EPS_{t3}

		EPSt	EPSt3
EPSt	Pearson Correlation	1	,928**
	Sig. (1-tailed)		,000
	N	66	66
EPSt3	Pearson Correlation	,928**	1
	Sig. (1-tailed)	,000	
	N	66	66

**. Correlation is significant at the 0.01 level (1-tailed).
Source: *author's own calculations.*

Table 1 displays the outcomes of Pearson's one-tailed correlation test. A one-tailed test is applied instead of a two-tailed test, because this research expects that the current year earnings are positively correlated with the future year earnings. If this is not the case, a two-tailed test should be applied.

Pearson's correlation coefficient in Table 1 for the variables is 0,928 and the significance value is 0,000 (p = 0,01). Based on this significance value, it is clear that a relation exists between the two variables. There is an intensely high probability (r = 0,928) for the existence of correlation between the two variables in a sample of data for 66 companies. *As a consequence, these empirical results prove that current income is strongly correlated with future income. This suggests that if current income rises, future increases will also be expected.*

To add more explanatory power to the research results, Pearson's correlation coefficient can be squared. According to Fields (2009), R^2, additionally referred to as coefficient of determination, is a method to measure the amount of variability that is applicable for the two variables (Fields 2000). The two variables have a correlation of 0,928. Consequently, the value of R^2 is calculated as (0,928) = 0,861. The 0,861 can be interpreted as 86,1%. Consequently, 86,1% of the variability in EPS_t is in conformity with the variability of EPS_{t3}. The two variables are therefore not only highly correlated, but additionally, a high percentage of variability of the two variables is

shared. Additionally, Fields (2009) states that although measuring the essential importance of an effect is a very powerful method, it cannot be applied to measure the causal relationship between the two variables. This implies that even if 86,1% of the variability in one variable is shared by the other variable, the variability in one variable is not necessarily based on the variability in the other variables. *These research results prove that a relation exists between the current year earnings and the future year earnings. Additionally, the relatively high percentage of variability in the current year earnings is shared by the variability of the future year earnings.*

Next, the CKSS approach is applied by computing the model of equation (1). The CKSS approach examines whether current stock prices contain information about future earnings. *Rt* is the annual stock return for 2011 in regression (1), Rt_3 is the annual stock return for the period 2012-2014, X_{t-1} is EPS for 2010, X_t is EPS for 2011. And Xt_3 is the sum of EPS for the period 2012-2014. The hypothesis of the adequacy of the evaluated regression model is first tested. The estimation of the model in Table 2 shows that $\alpha = 0.05$ is less than α emp. = 0.972. Therefore, the model is not adequate.

Table 2

Verification of the adequacy of the model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,155	4	,039	,128	,972[a]
	Residual	18,478	61	,303		
	Total	18,633	65			

a. Predictors: (Constant), Rt3, Xt1, Xt, Xt3
b. Dependent Variable: Rt
Source: *author's own calculations.*

Table 3 demonstrates that only 9.1% of the variance of the dependent variable is caused by the independent variables.

Table 3

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,091[a]	,008	-,057	,55038

a. Predictors: (Constant), Rt3, Xt1, Xt, Xt3
Source: *author's own calculations.*

Then it is essential to examine the hypothesis for a reliability of the individual regression coefficients. Table 4 shows that, assuming a reference level of significance of $\alpha = 0.05$, all regression coefficients are not statistically significant.

Table 4

Estimates of regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,017	,071		-,241	,810
	Xt1	-,008	,014	-,105	-,600	,551
	Xt	,017	,043	,136	,406	,686
	Xt3	-,002	,015	-,053	-,151	,881
	Rt3	,000	,009	-,009	-,067	,947

a. Dependent Variable: Rt
b. Xt1 is the variable Xt-1 because of the impossibility of entering the original appearance in SPSS.
c. Predictors: (Constant), Rt3, Xt1, Xt, Xt3
Source: *author's own calculations.*

The CKSS approach is also applied in the case of Zarowin (2002), which uses a shorter one-year sampled period (t + 1) for the variables Xt_3 and Rt_3 in the regression equation. According to Zarowin (2002), if there is a correlation between smoothing earnings and stock prices, it is more probable to be discovered in the following year than in the second or third quarter of the reporting period (Zarowin 2002).

Table 5

Verification of the adequacy of the model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,384	4	,096	,321	,863[a]
	Residual	18,249	61	,299		
	Total	18,633	65			

Predictors: (Constant), Rt2012, Xt1, Xt2012, Xt
Dependent Variable: Rt
Source: *author's own calculations.*

Table 6

Estimates of regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,023	,071		-,318	,752
	Xt	,012	,021	,092	,557	,580
	Xt1	-,009	,013	-,113	-,686	,495
	Xt2012	,013	,016	,105	,825	,413
	Rt2012	,068	,212	,041	,320	,750

***Source**: author's own calculations.*

Tables 5 and 6 present the outcomes of the Zarowin (2002) model, with Xt_3 being EPS for 2012, and Rt_3 being the stock return for 2012. The results are identical to those obtained with the CKSS approach, following the example of Tucker and Zarowin (2006). *From the application of the CKSS approach, it is established that for the selected sample of public companies in Bulgaria, current stock prices do not include information on future income. This is confirmed by the statistical insignificance of regression coefficients (ERC) and (FERC).*

Then, having proved that current earnings are positively correlated with the future ones, it is required to examine the impact of income smoothing over income correlation. This is tested through the presented regression model represented by formula (3). The assessment of this model examines whether smoothing earnings increases or decreases the informativeness of current income in regard to future earnings. In the regression models except for the two variables EPS_t and EPS_{t3}, for which the correlation above was calculated, a variable for smoothing earnings is added in order to examine the impact of smoothing earnings over income informativeness. If a company is recognized as a smoother, the variable for the use of income smoothing is 1 and if the company is recognized as a non-smoother the variable for the use of income smoothing is 0. Consequently, the variables EPS_t and EPS_{t3} are entered as scale variables and in SPSS the variable for the use of smoothing earnings IS is entered as a categorical variable in SPSS.

The model presented in equation (3) is a multiple regression model. There, the variable EPS_{t3} is dependent, whereas EPS_t and IS are independent variables. If smoothing earnings improves income informativeness, coefficient a_3 of interaction of factor variables IS_t * *EPS* must be positive. In order to test whether this is appropriate to the basic research sample, the linear model of the formula (3) (Tucker and Zarowin model (2006)) is calculated by SPSS.

Tables 7, 8 and 9 introduce the results of the estimation of the regression model (3) which establishes how smoothing earnings affects informativeness.

The hypothesis of the adequacy of the evaluated regression model is first tested. The null hypothesis and the alternative one are defined. H_0 states that the variance in the dependent variable is not caused by the independent variables or, in other words, the regression model is not adequate. H_1 states that the variance in the dependent variable is caused by the independent variables or, in other words, the regression model is adequate. The significance level $\alpha = 0{,}05$ is assumed. The assumed reference level of significance $\alpha = 0{,}05$ and the calculated level of significance $\alpha_{emp.}$ are compared. While calculating the model in Table 7, it was found that $\alpha = 0{,}05$ is greater than $\alpha_{emp.} = 0{,}000$. Therefore, the alternative hypothesis is assumed, i.e. the model is adequate.

Table 7

Verification of the adequacy of the model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9264,556	3	3088,185	135,533	,000[a]
	Residual	1412,704	62	22,786		
	Total	10677,260	65			

a. Predictors: (Constant), EPSt IS, EPSt, IS
b. Dependent Variable: EPSt3
Source: *author's own calculations.*

Table 8 displays that 93.1% of the variance of the dependent variable is caused by the independent variables.

Table 8

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,931[a]	,868	,861	4,77342

Predictors: (Constant), EPStIS, EPSt, IS
Source: *author's own calculations.*

Next, it is essential to verify the hypothesis of a reliability of individual regression coefficients. Most importantly, the null hypothesis and the alternative one are defined. H_0 states that the evaluated regression coefficients are statistically insignificant. H_1 states that the regression coefficients are statistically significant.

Table 9 reveals that, assuming a reference level of significance of $\alpha = 0.05$ and a calculated level of significance, $\alpha_{emp.} = 0.000$ the coefficient is statistically significant and has a positive value B = 2.909. The calculation of the regression equation (3) confirms the already established relationship between EPS_t and EPS_{t3}, that is, EPS_t has a high predictive value for EPS_{t3}. At the assumed reference level of significance of $\alpha =$ 0,1 and calculated level of significance $\alpha_{emp.} = 0.098$ coefficient of an interaction of factor variable is statistically significant. The negative value of the regression coefficient (B = -1,481) confirms the formulated hypotheses that smoothing earnings decreases informativeness of past and current income about future earnings. It follows that smoothing earnings aggravates the relationship between future and current earnings.

Table 9

Estimates of regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,488	1,009		-,483	,630
	EPSt	2,909	,146	,943	19,860	,000
	IS	,871	1,295	,033	,673	,504
	EPStIS	-1,481	,882	-,082	-1,679	,098

a. Dependent Variable: EPSt3

Source: *author's own calculations.*

By proving that smoothing earnings has an adverse effect on income informativeness, it is also established that the opportunistic motives of managers doing it prevail. Therefore, its primary purpose is to falsify the information conveyed to the company's stakeholders.

Conclusion

The conclusions of calculating of the regression model (3) show that smoothing earnings reduces the informativeness of past and current income concerning future income. It follows that with smoothing earnings, current EPSs are not good predictors for future EPS of the companies. Therefore, income smoothing aggravates the relationship between future and current income, thus rejecting the formulated research hypothesis.

Demonstrating the negative impact of smoothing earnings over income informativeness confirms the evidence of Cahan, Liu and Sun (2008) that in countries with poor investor protection and low transparency (as is Bulgaria), companies' management is expected to smooth earnings in the name of its own interests, while in coun-

tries with strong investor protection regulations, management performs income smoothing in order to signal its insider information about future earnings. From the evidence presented, it follows that income smoothing in Bulgaria is mainly done for opportunistic purposes or the primary motive for its application by the management of the company is the maximization of their own wealth.

Confirming the adverse effect of smoothing earnings upon income informativeness in Bulgaria places the following question on the agenda of the policy makers - is there a need for such a great deal of discretion on the part of company management in the field of accounting, which can provide for them opportunities to apply manipulative accounting practices and thus reduce income informativeness? Obviously, since opportunistic motives for smoothing earnings prevail in Bulgaria, the answer should be negative.

End Notes

[1] Payment of interest, which is simultaneously calculated on both the amount and the interest in previous periods.

[2] The political costs hypothesis is associated with the attention that the company receives from external parties such as environmental groups and competitors. According to this hypothesis, the relatively larger companies are expected to choose accounting standards that reduce the company's revenue, unlike the aspirations of the smaller ones. This hypothesis suggests that the size of the company and the level of income are considered variables that indicate political or public attention. As a result, company managers tend to choose accounting standards that reduce companies' earnings in order to minimize, as much as possible, the attention focusing on them.

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PRECARIOUSNESS AND ARTISTS: THE SPANISH CASE

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JEL E24, J31, J41, Z11

Abstract

Our research focuses on the labour conditions of the artistic sector, based on the surveys the Spanish National Institute of Statistics (INE) publishes on a periodical basis, informing about socio-economic data regarding the type of contracts, economic activity and earned incomes in the general labour market. We analyse the distribution of salaries, the number of working hours and the kind of contracts for the sector of activity of the artists through a series of statistics and use of web microdata forms as defined by the 2014 Wage Structure Poll (EES-14) as a primary unit of analysis. We obtain empirical evidence of an actual precarious artistic life and demonstrate that the values characterising the right to lead a life with dignity are substantially lower in the so-called creative industries than the ones in other professional fields..

Keywords:

precariousness, labour market, artists, Spain.

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Introduction

Notwithstanding the fact that determining the perimeter of cultural activity or establishing professional criteria to "consider the artist" (Benhamou, 2011) is a difficult task, the working conditions of an artist accurately mirror the main features of precarious labour. At the very least, the artist's job seems to be more precarious than that of other professionals (Alper and Wassal, 2006; Girsburg and Throsby, 2006). The empiric evidence endorses this circumstance: the artist as a precarious worker is prone to be self-employed, part-timer, and temporary contracts are more frequent in this field of economic activity than in other occupations (Benhamou, 2000). Besides, the distribution of incomes among artists tends to be highly assymetrical (Thorsby, 2010).

Moreover, in a recent study, Pérez and López-Aparicio (2017) demonstrate that precariousness is a feature characterising the economic life of most Spanish artists. They claim that the income of 50% of more than 1000 Spanish artists surveyed is below the minimum wage. They also affirm that less than 15% can make a living from the earnings they get from their artistic activities, whereas only 3% of the artists see their economic activity a satisfactory one and the only source of income. Regardless of the accuracy and interest of these findings, this socio-economic research based on an anonymous online published poll is not the most reliable source of information to obtain objective results.

Our research focuses on labour conditions based on the surveys the Spanish National Institute of Statistics (INE) publishes on a periodical basis, informing about socio-economic data regarding the type of contracts, the economic activity and the earned income in the general labour market. We aim to get empirical evidence of an actual precarious artistic life, to demonstrate that the values that characterise the right to lead a life with dignity in the so-called creative industries are substantially lower than the ones in other professional areas.

We have structured the present article in three sections: after this short introduction, we are to delve into the concept of labour precariousness and how it applies to the professional activity of artists. In the section that follows, we shall describe the methodology and data employed to carry out our study. Finally, we shall present some basic results and conclusions.

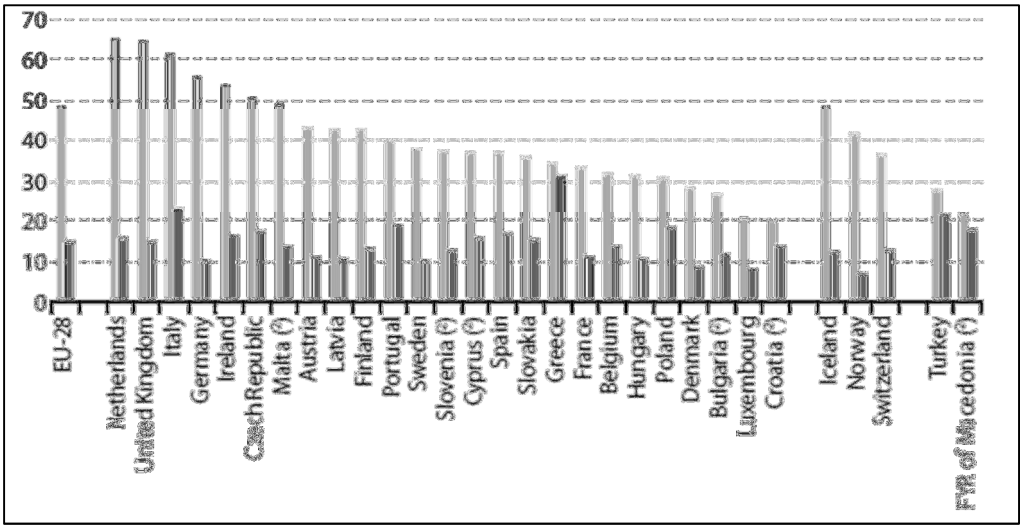
Artists and Precarious Work

Culture Statistics 2016 is the latest report the statistical office of the EU (Eurostat) has published about the cultural activity within the EU. This report can be considered a third edition of the Eurostat publication on culture statistics. Previous editions of the pocketbook *Cultural Statistics* were released in 2007 and 2011. The

current edition has based its results on information that corresponds to the year 2014. It presents a selection of indicators and data on certain cultural topics that include cultural employment. In this regard, the report intends to give an overview of cultural employment by comparing it with the employment rates in the general labour market.

The chapter on cultural employment presents data derived from the EU Labour Force Survey and the methodology used to obtain the statistics followed an algorithm which takes into account the Statistical Classification of Economic Activities (NACE Rev. 2) and the International Standard Classification of Occupations (ISCO-08) classifications. It features a brief section that specifically addresses the particular characteristics of the cultural occupations of writers and artists as a whole (ISCO 264 and 265 classifications). Said section focuses on the the following aspects: self-employment status; working time (full-time versus part-time), multiple job-holding and, for employees, contractual status (permanent versus temporary contracts).

The results of this study are displayed in Figure 1 and Table 1 dispalyed below.



Creative and performing artists, authors, journalists and linguists (ISCO 264 +265)

Total

(1) Data for Estonia, Lithuania and Romania is extremely unreliable and therefore not published.

(2) Lack of reliability of data on cultural occupations (ISCO 264+265).

Source: *Eurostat.*

Fig. 1. Share of self-employed among 'creative and performing artists, authors, journalists and linguists' (ISCO 264-265), compared with total employment, 2014 (1) (%)

Table 1

Employment characteristics of 'creative and performing artists, authors, journalists and linguists' (ISCO 264-265) compared with total employment, 2014 (%)

	Full-time job		Single job holder		Permanent contract (employees)	
	ISCO 264-265[(1)]	Total	ISCO 264-265	Total	ISCO 264-265[(2)]	Total
EU-28	**70**	**80**	**90**	**96**	**76**	**86**
Belgium	74	76	95	96	78	91
Bulgaria	91	97	96	99	93	95
Czech Republic	87	94	95	98	89	90
Denmark	76	75	88	92	84	91
Germany	68	72	90	95	82	87
Estonia	84	90	77	95	97	97
Ireland	67	76	96	98	79	91
Greece	73	91	99	98	78	88
Spain	**80**	**84**	**95**	**98**	**67**	**76**
France	64	81	82	96	56	84
Croatia	80	94	90	98	63	83
Italy	73	82	97	99	82	86
Cyprus	64	86	86	96	78	81
Latvia	76	93	86	95	96	97
Lithuania	87	91	89	94	100	97
Luxembourg	82	81	92	97	94	92
Hungary	85	94	94	98	87	89
Malta	61	83	97	95	92	92
Netherlands	42	50	79	92	74	79
Austria	56	72	88	96	84	91
Poland	75	92	87	94	66	72
Portugal	77	87	89	96	61	79
Romania	88	90	99	98	100	99
Slovenia	83	89	94	96	67	83
Slovakia	94	95	94	99	94	91
Finland	71	85	88	95	80	84
Sweden	69	74	85	91	66	83
United Kingdom	69	73	92	96	88	94
Iceland	78	76	75	90	81	87
Norway	69	73	85	91	90	92

Switzerland	43	62	85	93	86	87
FYR of Macedonia	89	94	97	99	86	85
Turkey	74	88	98	97	88	87

(1) Low reliability for Croatia and Malta.
(2) Low reliability for Croatia, Cyprus and Malta.

Source: *Eurostat.*

Figure 1 shows that nearly half (49%) of all artists and writers in the EU are self-employed. This percentage is much higher than that reported for total employment (15%). The difference between these rates however is not so pronounced in Spain: 37% versus 17%. Besides, as shown in Table 1, 70% of artists and writers said they had a full-time job, which is lower than the corresponding proportion of the total workforce: 80%. 80% versus 84% in Spain. EU-wide, 96% of employed people held one job, whereas the figure for artists and writers was 90%. 98% versus 95% in Spain.

According to this study, time spent at work is an important determinant of the worker's position in the labour market and, in most cases, of his or her financial resources. Full-time employment often comes with benefits that part-timers do not enjoy. Part-time employment may lead workers to consider getting a second job. 'Full-time part-timers' sometimes seek to complement their main part-time job with another part-time occupation, to increase their income. Holding a second job may thus be an indication of (self-perceived) precarious employment.

However, the assumption that precarious labour is a subjective perception finds a rejoinder in the work of Rodgers and Rodgers (1989) or more recently Olsthoorn (2014) who identify some distinctive features of precarious labour:

- insecure employment (e.g. temporal employment);
- low level of protection (e.g. social protection, protection against unemployment or against discrimination);
- insufficient income or economic vulnerability and
- no individual and collective control over work (working conditions, income, working hours).

The above authors arrive at similar conclusions by deploying different methodologies. On the one hand, Rodgers and Rodgers' study has a discursive and multidisciplinary character. They observe that despite the efforts of many occidental countries to regulate the labour market, the debate on precarious labour re-emerges in the late 1960's. In fact, Barattini (2009) states the International Labour Organization (ILO) used this concept for the first time in 1974 to define the instability in the workplace, either by the absence of a contract or by fixed-term contracts. Since then,

there has been an increasing concern about job insecurity, but always as an unwanted or necessary effect of productive restructuring, technological change in the labour process, transformations in the labour market and new forms of work organisation as Aguiar (2008) explains.

On the other hand, Olsthoorn observes that the concept of precarious employment is very ambiguous, lending itself to multiple interpretations that can lead to confusion. He also states that due to the existence of different and imprecise definitions and the use of non-integrated variables and statistical indicators that use different dimensions, labour precariousness is elusive to its quantitative evaluation. Taking Kalleberg's (2009, 2011) empirical studies as a starting point, which he questions and criticises for the reasons explained above, he proposes an improved method for measuring precarious work that is consistent with theoretical discourse and provides valid and reliable results (Idem). To achieve this, in addition to conceptualising precarious employment based on a review of relevant theoretical perspectives, Olsthoorn proposes and integrates two indicators to test several validated hypotheses, using data from the Dutch labour market.

The conceptual framework suggested by Olsthoorn is a useful starting point when trying to conceptualise precarious work as asserted in the study for the European Parliament's Committee on Employment and Social Affairs (EMPL) entitled *Precarious Employment in Europe*: *Patterns, Trends and Policy Strategies* (2016) and Duell study (2004) is a valuable antecedent. The EMPL study describes and analyses the development of precarious work in Europe, focusing on its underlying causes and assessment of policy answers at European and national level. The research carried out in this study is based on existing available data, studies and analyses from various sources, complemented by independent data and expertise and documents from national and international institutions. It specifically addresses the argumentation of certain themes linked to labour precariousness and it provides specific discussions of the issues associated with the risk of precariousness and ground its findings on detailed quantitative and qualitative evidence.

The above study examines works with two analytical axes of employment relations and individual risk of precariousness with a conceptual link to quality of work. The types of employment relationships examined are 'standard' open-ended, full-time contracts, part-time work, self-employment, temporary work (including fixed-term contracts, temporary agency work, seasonal and casual work, posted work and outsourced or subcontracted work), zero hours contracts, internships, and informal or undeclared work. In-work poverty and low pay are among the most important indicators of individual exposure to precariousness. The analysis concludes

that: "(…) all employment relationships are at some risk of precariousness. However, the level of risk varies" (DGIP, 2016: 168).
In the next section of our study we will try to establish to what extent the labour of artists in Spain can be considered precarious or at least, more precarious than other professional activities.

Methodology and data

We obtain the data from the Wage Structure Poll (Encuesta de Estructura Salarial - EES) a statistic operation with standard methodological and content criteria within the EU, firstly implemented in 1995. This poll aims to obtain comparable results about the level, structure and distribution of the salaries in the EU. Therefore, the member states of the EU draw on the same period of reference, scope of coverage, required information, representativity, processing and transmission of results. The EES is a quadrennial research which, besides the individual information about salaries, considers a high number of variables such as sex, occupation, activity and career of the employees, or the size of the enterprises surveyed. These features allow establishing some relationships among the salaries and the variables that contribute to determining their amount such as the level of education of workers, their career, type of contracts or occupations, to name but a few.

Further on, the EES relates the wage tiers with other variables that affect the workers in an establishment or an enterprise: the target market of its production, the existence of collective bargaining agreements and their scope or whether its activity is concerned with a public or private property. The EES not only provides average earning values, but also the distribution of salaries and as a consequence, a measurement of their inequality. We can summarise two fundamental objectives of the EES:

- The knowledge on wage tiers, not only at the average level but also about their distribution.
- The determination of the structure of salaries, regarding both the composition of the conditioning variables and their scope.

We study the latest EES data from the 2014 poll (EES-2014) which the Spanish National Institute of Statistics (INE) published on October 28th, 2016. It incorporates 209.436 employees who provide their services in quotation centres, regardless of their size and registered in the Social Security system during the whole month of October of the reference year. Presidents, members of boards of directors and, in general, all personnel whose remuneration is not mainly in the form of a salary, but as commissions or benefits, are excluded.

Regarding the sectoral coverage, the EES examines the economic activities in the sectors of industry, construction and services. It excludes the agricultural, livestock and fishing activities, domestic staff, extraterritorial organisations and, partially, the Public Administration, Defense and compulsory Social Security.

We use the total yearly wage definition according to EES-14 as the basic unit of analysis. The methodology can be found in the INE EES-14 manual. We analyse the distribution of salaries, the number of working hours and the kind of contracts for the sector of activity of the artists (R0) through a series of statistics. Furthermore, we compare them to the ones of other activities included in the 2009 Spanish National Classification of Economic Activities (CNAE-2009) shown in Table 2, to evaluate the real degree of precariousness present in each of them. Section 'R' includes recreation and entertainment activities alongside artistic activities. It is not currently possible to separate the latter from the former. In any case, we believe that this fact does not distort our analysis, as we also believe that it does not introduce significant biases. If it does, the conclusions we would obtain from our analysis would be even more solid; the artistic activity would be even more precarious.

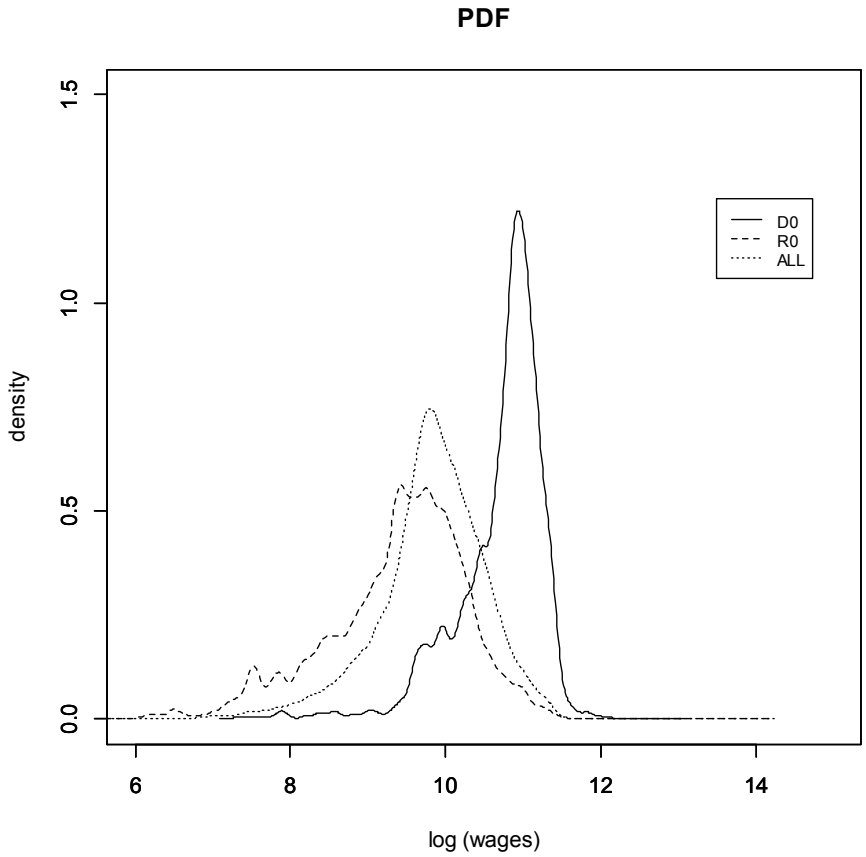
Table 2

2009 Spanish National Classification of Economic Activities (CNAE-2009)

CNAE-2009	BRANCHES OF ACTIVITY	DESCRIPTION
'B0'	'05','06','07','08','09'	Mining and quarrying
'C1'	'10','11','12','13','14','15'	Manufacture of food products, beverages and tobacco products, textiles, apparel, leather and related products
'C2'	'16','17'	Manufacture of cork, wood and paper products (except furniture)
'C3'	'18'	Printing and reproduction
'C4'	'19','20','21','22'	Manufacture of coke, and refined petroleum products, chemicals and chemical products, pharmaceuticals products, rubber and plastics products
'C5'	'23'	Manufacture of non-metallic mineral products
'C6'	'24','25'	Manufacture of basic metals and fabricated metal products, except machinery and equipment
'C7'	'26','27','28'	Manufacture of computer, electronic and optical products, electrical equipment, machinery and equipment n.e.c.
'C8'	'29','30','31','32','33'	Manufacture of transport equipment
'D0'	'35'	Electricity, gas, steam and air-conditioning supply

'E0'	'36','37','38','39'	Water supply, sewerage, waste management and remediation
'F0'	'41','42','43'	Construction
'G1'	'45','46'	Wholesale, repair of motor vehicles and motorcycles
'G2'	'47'	Retail trade, except motor vehicles and motorcycles
'H1'	'49','50','51'	Terrestrial, piping, maritime, air and fluvial transportation. Activities related to transport
'H2'	'52','53'	Storage and activities related to transport. Postal and mail services
'I0'	'55','56'	Accommodation and food service activities
'J0'	'58','59','60','61','62','63'	Telecommunication, IT and other information services
'K0'	'64','65','66'	Financial and insurance activities
'L0'	'68'	Real estate activities
'M0'	'69','70','71','72','73','74','75'	Professional, scientific and technical activities
'N0'	'77','78','79','80','81','82'	Administrative and support service activities
'O0'	'84'	Public administration and defence, compulsory social security
'P0'	'85'	Education
'Q0'	'86','87','88'	Human health services and social work activities
'R0'	**'90','91','92','93'**	**Arts, entertainment and recreation**
'S0'	'94','95','96'	Other services

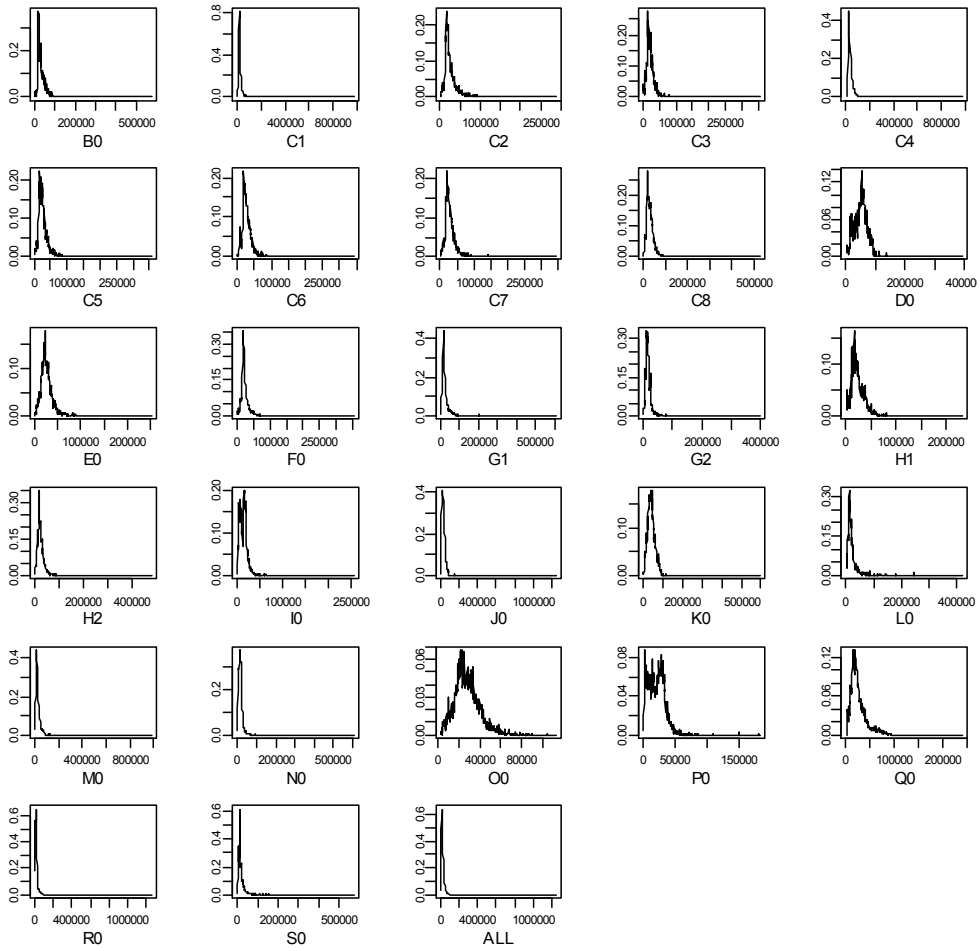
Source: *Own elaboration from data of the CNAE extracted from* http://www.empleo.gob.es/ stadisticas/hue/hue11/ANE/cnae09.htm [Accessed: 12/04/2017].



Reference/Source: *Own elaboration (INE, 2016).*

Fig. 2. Log (Wages) Probability Density Function (for ALL economic activities, R0 and D0)

We use web microdata forms as defined by the EES-14 as a primary unit of analysis. As we can appreciate in the distribution of salaries – presented in logarithmic terms in order to compare them – the salary of artists (R0) presents the highest density for the lowest salaries. Simultaneously, it includes workers who earn the highest salaries. Figure 3 below shows a summary of the statistics calculated. R0 presents the highest variation coefficient, the highest positive asymmetry and kurtosis.



Reference/Source: *Own elaboration (INE, 2016). (x-axis wages (euros), y-axis (pdfs)).*

Fig. 3. Distribution of salaries by economic activity

The statistics we calculate are: 1) average 2) standard deviation 3) coefficient of variation 4) coefficient of skewness 5) coefficient of kurtosis; 6) Gini index 7) distribution by percentiles 8) % full-contract and 9) % open-ended contracts. We intend to obtain empirical evidence to corroborate that the labour of artists in Spain is precarious.

- Wages $= x_i$; Weights $= n_i$
- Total Population (total weights) $= N = \sum_i n_i$
- Average $= \mu = \frac{\sum_i x_i n_i}{N}$

- Standard Deviation $= \sigma = \frac{\sum_i (x_i - \mu)^2 n_i}{N}$

- Coefficient of Variation $= cv = \frac{\sigma}{\mu}$

- Skewness $= \frac{\sum_i \left(\frac{x_i - \mu}{\sigma}\right)^3 n_i}{N}$; a measure of the symmetry of the probability distribution about its average.

- Kurtosis $= \frac{\sum_i \left(\frac{x_i - \mu}{\sigma}\right)^4 n_i}{N}$; a measure of "taledness" of the probability distribution.

- Gini index $= \frac{\sum_i \sum_j |x_i - x_j| n_i n_j}{2N^2 \mu}$;

-. Lorenz curve (Figure 4) plots the proportion of the wages of the workers (y-axis) that is cumulatively earned by the bottom x% of the workers (workers are sorted from the one who has the lowest wage to the one who has the highest one).

Gini index: it is a measure of statistical dispersion intended to represent inequality of the distribution of a variable (wages in our case). A value of 0 represents total inequality and a value of 1 total equality. It stands for two times the area between the Lorenz curve and the line of total equality (45-degree line).

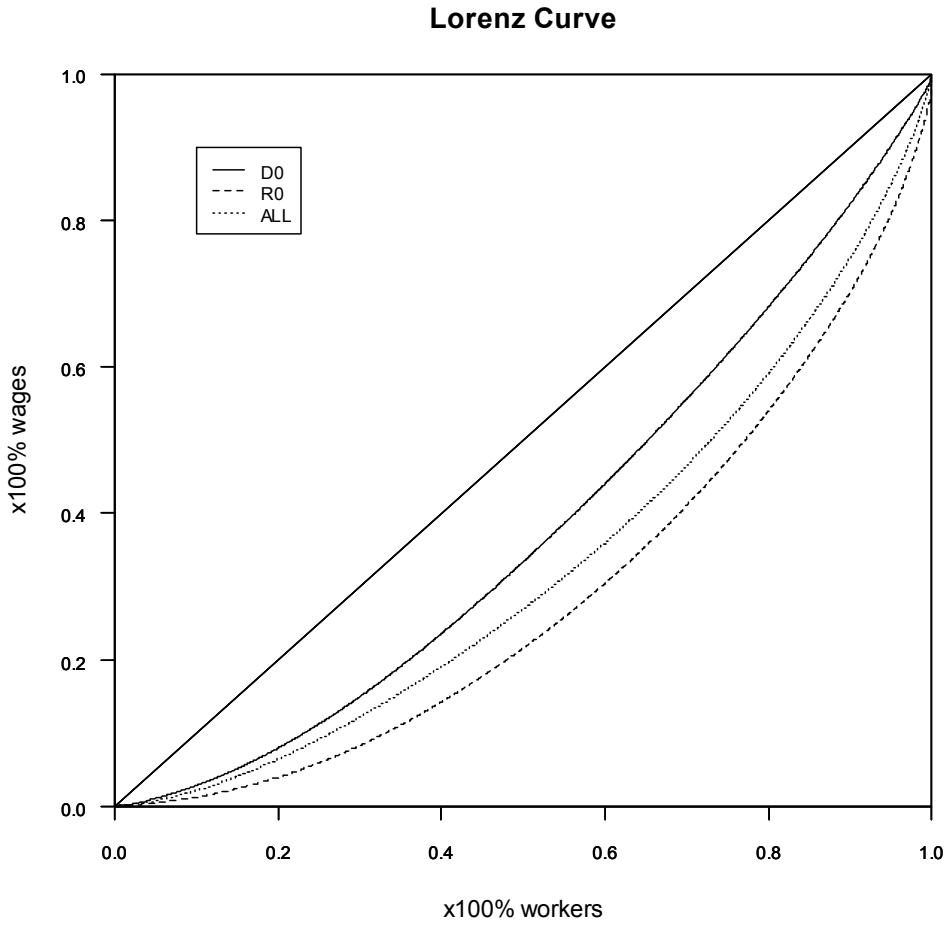
Results and conclusions

Table 3 shows the results. We use a grayscale background to differentiate the progression of precariousness on the statistics; from the highest level of precariousness (dark grey) to the lowest (light grey).

As we can appreciate in Table 3, the artistic sector shows a higher variation coefficient and more asymmetrical distribution, a higher and unbalanced kurtosis and Gini index that evidence the idea of an unequal distribution of the salaries, in particular on the lowest sections. The median shows the wages of the 50% of the workers. The average salary is among the lowest five of all of them and presents the second lowest median. Moreover, the presence of full-time contracts is the second lower rate and indefinite contracts the fifth lower rate among all the activities considered.

These data reveal that the distribution of wages in the Spanish artistic sector is the more extreme and asymmetrical of the activities considered in this study. It presents the highest concentration and shows how the majority of the workers in this sector receive the lowest salaries. Besides, it includes a small group with the highest salaries. Somehow, these results confirm one of the issues linked to precariousness Alper and Wassal (2006: 858) consider: "(…) the existence of unusual earnings patterns in the artistic labour market, such as greater earnings uncertainty and variability, relative to other occupations".

The empirical evidence found in our work support the consideration of the artistic activities as precarious. The data from the 2014 INE's wage distribution survey by economic activity leaves no room for doubt. We do get empirical evidence of an actual precarious artistic life in Spain and open the way to demonstrate that the values characterising the right to lead a life with dignity in the so-called creative industries are substantially lower than the ones in other professional fields.



Reference/Source: *Own elaboration (INE, 2016).*

Fig. 4. Lorenz Curve (ALL economic activities, R0 and D0)

Table 3

Wages and contracts distribution in Spain

	avg.	st. dev.	cv	skew.	kurt.	gini	quartiles					% full-contract	% open-ended contract
							0%	25%	50%	75%	100%		
B0	32,905.60	20,302.74	0.62	5.82	100.09	0.29	327.39	20,101.05	27,789.03	40,846.65	574,130.91	96.73%	83.91%
C1	21,538.88	15,353.65	0.71	7.78	183.60	0.30	327.39	14,003.85	17,947.16	25,311.76	978,372.30	82.62%	85.59%
C2	24,710.10	14,551.61	0.59	2.58	15.62	0.29	916.46	15,879.86	20,304.46	29,361.23	289,778.34	91.11%	88.03%
C3	22,082.08	11,792.76	0.53	2.59	26.54	0.27	1,122.32	14,725.93	19,929.40	27,233.36	354,904.84	85.06%	90.88%
C4	32,035.96	19,705.40	0.62	4.80	78.39	0.29	461.35	19,377.77	27,605.51	40,065.85	978,372.30	93.65%	89.85%
C5	26,506.21	13,528.09	0.51	2.61	27.76	0.26	1,885.85	17,865.58	23,930.70	31,668.92	354,904.84	92.01%	87.06%
C6	26,655.44	12,823.03	0.48	1.65	8.64	0.25	343.24	18,339.83	24,294.60	33,022.55	342,322.83	91.31%	81.70%
C7	29,049.85	14,678.48	0.51	2.37	14.33	0.25	1,121.64	20,067.30	25,915.00	34,861.40	346,567.68	93.47%	86.71%
C8	29,305.84	15,372.78	0.52	2.43	31.26	0.27	384.88	18,786.27	26,641.09	36,953.34	525,442.37	90.81%	83.71%
D0	51,034.62	22,263.14	0.44	0.93	9.01	0.24	1,470.73	35,614.80	52,438.85	64,185.81	395,439.16	97.13%	95.22%
E0	25,959.29	12,462.37	0.48	1.55	6.68	0.25	532.29	18,141.73	23,934.42	31,448.67	250,273.56	88.80%	82.83%
F0	22,608.06	12,619.56	0.56	3.05	20.38	0.26	333.92	16,327.86	19,597.00	25,625.13	354,904.84	89.47%	64.40%
G1	24,482.48	18,363.39	0.75	4.12	34.67	0.33	323.81	14,825.13	19,234.88	28,216.92	610,329.00	85.10%	88.97%
G2	16,264.78	9,462.45	0.58	2.67	15.87	0.28	179.15	10,874.85	14,809.84	19,253.84	397,749.16	65.05%	85.79%
H1	22,942.75	13,234.43	0.58	1.51	6.42	0.31	118.19	14,327.45	20,462.28	29,833.45	234,420.26	85.11%	80.35%
H2	24,822.53	14,261.58	0.57	3.57	44.71	0.28	409.20	16,490.72	21,750.58	30,333.96	478,645.63	86.89%	86.76%
I0	13,636.05	8,442.03	0.62	1.81	9.41	0.32	277.05	7,254.47	13,722.87	17,976.00	256,419.90	47.71%	74.52%
J0	32,755.83	20,052.93	0.61	4.19	85.23	0.30	118.19	19,460.04	28,996.36	42,022.05	1,252,723.92	91.89%	86.41%
K0	40,697.64	19,823.78	0.49	2.36	32.72	0.26	118.19	27,599.12	38,749.83	51,284.19	594,602.45	93.18%	96.40%
L0	20,619.76	21,117.26	1.02	6.07	64.24	0.39	601.59	11,038.94	15,376.32	22,930.78	420,000.00	75.05%	86.40%
M0	26,265.16	21,689.44	0.83	7.68	153.12	0.36	179.15	14,390.82	21,580.46	32,498.64	978,372.31	81.54%	83.08%
N0	15,766.08	14,159.71	0.90	13.53	375.27	0.35	118.19	8,740.92	14,093.51	19,607.00	607,400.03	56.65%	68.80%
O0	27,568.54	11,904.19	0.43	0.82	1.63	0.24	1,835.10	19,627.08	26,160.93	34,201.31	114,339.84	90.64%	77.57%
P0	20,925.84	12,847.61	0.61	1.35	9.85	0.33	342.12	10,513.20	20,944.57	29,388.94	182,592.36	59.29%	67.16%
Q0	24,826.40	15,870.44	0.64	1.53	3.23	0.33	179.15	14,325.55	20,741.00	31,166.64	241,548.67	78.25%	73.00%
R0	**16,957.35**	**22,211.25**	**1.31**	**28.56**	**1369.46**	**0.42**	**179.15**	**7,373.40**	**13,659.20**	**21,919.85**	**1,252,723.93**	**54.80%**	73.27%
S0	16,214.00	12,987.76	0.80	6.95	180.82	0.36	118.19	9,201.94	12,600.00	20,097.68	574,130.91	65.21%	79.85%
ALL	**22,858.16**	**16,136.92**	**0.71**	**5.23**	**148.20**	**0.34**	**118.19**	**13,217.84**	**19,263.78**	**28,782.70**	**1,252,723.93**	**76.08%**	79.17%

Reference: *Own elaboration form the data obtained at INE [Online] https://goo.gl /HCpRuS [Accessed: 12/04/2017]*

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FACTORING AS A FINANCIAL ALTERNATIVE FOR DEVELOPMENT OF COMPANIES: EVIDENCE FROM BULGARIA

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Abstract

The aim of the article is to investigate the existence of a dependence between the use of factoring by the companies in Bulgaria and their financial condition and development opportunities. The analysis is based on data from an empirical sociological survey among 1000 non-financial enterprises with different main activity and size. The study by the methods χ - square and non-parametric dispersion analysis (Kruskal-Wallis test) shows the existence of consequential relationships between the use of factoring and selected indicators of financial condition and opportunities for enterprise development. Such indicators are: the turnover of firms; the growth of added value; reducing the cost of each production unit; investment and innovation activities of firms. It can be concluded that companies using factoring generally have better financial indicators, they are more innovative and have higher investment activity, which creates better opportunities for their development.

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Introduction

The factoring market has significant development potential in Bulgaria, although the use of factoring is still weak. Its use is related to a number of benefits for the supplier companies, which ultimately affect the financial situation and opportunities for enterprise development. The high inter-company indebtedness in Bulgaria and the difficulties of enterprises to collect their trade receivables within the agreed terms of time strengthen the importance of factoring in the process of trade receivables management. However, the use of factoring companies' services also hides some risks. Such is the risk of losing customers, the risk of deteriorating the image of firms using factoring, the risk that the cost of using factoring will outweigh the benefits of factoring.

All this justifies the need to analyze the effect of the use of factoring in the Bulgarian economic conditions. The aim of the article is to establish whether there is a dependency between the use of factoring by the companies in the country and indicators of their financial condition and development opportunities. Such indicators are: 1) the turnover of the companies; 2) the importance of increasing the value added for company development; 3) the importance of reducing the cost of each unit produced for the company's development; 4) investment activity; 5) innovation activity.

The dependence between the financial condition of the enterprises and their development potential and the use of factoring can be realized in several directions. One of these is the possibility of a faster recovery of the liquid assets involved in trade receivables. There are a number of studies in the literature that demonstrate the importance of shortening the debt collection period and, in general, of the cash conversion cycle to increase corporate profitability (Deloof (2003); Garcia-Teruel and Martinez-Solano (2006); Martinez-Sola, Garcia-Teruel and Martinez-Solano (2014); Lazaridis and Tryfonidis (2006)).

Factoring also contributes to increasing the investment activity of enterprises. Murfin and Njoroge (2012) find that companies are forced to cut their investments in new facilities and equipment when their customers pay more slowly. Although factoring is classified as short-term sources of funds, it has the potential to influence the investment activity of enterprises. Basalaev (2014) points out that even if the company does not find it difficult to attract credit for the investment, it may be difficult to attract funding to raise working capital when the investment is linked to an increase in turnover, as the assessment of creditworthiness is based on the current assets.

For the USA, where banks are willing to fund up to 80% of the receivables, the potential crowd out effect (shifted investment) is 20% (Mian and Smith, 1992; Giannetti, Burkart and Ellingsen, 2007). In Bulgaria, the factoring market is heavily dominated by banking institutions, but factoring remains poorly used.

The transfer of receivables to a factoring company also allows for an increase in the capacity of companies to sell with deferred payment. There is a lot of evidence in the literature about the importance of trade credit for stimulating sales and raise business revenue. It is widely believed that the provision of trade credit to customers leads to an increase in sales proceeds, as this reduces the problems related to the asymmetry of information regarding the quality of the production (Smith, 1987; Long, Malitz and Ravid, 1993; Ng, Smith, and Smith, 1999; Pike, Cheng, Cravens and Lamminmaki, 2005; Van Horen, 2007).

Banerjee, Dasgupta and Kim (2004) argue that the heterogeneity of customers suggests selling at different prices to different customers. Similar to price reductions, trade credit is perceived as a means of increasing sales. The preference for using a trade credit for this purpose is the result of companies seeking in highly competitive markets to implement competitive strategies other than changes in product prices (Soufani, 2002; Bhattacharya, 2008). Furthermore, price discrimination management, through discretionary price reductions, requires a lot of costs and is often the subject of a regulatory ban and market restrictions (Emery, 1987; Banerjee, Dasgupta and Kim, 2004; Bhattacharya, 2008).

Restrictions imposed by legislation and market structures reduce firms' profitability by reducing opportunities for direct price competition. In such an environment, trade credit is a means of hidden price reductions and price discrimination by offering different credit conditions to different customers (Asselbergh, 1999).

The literature also describes an alternative mechanism for price discrimination, which consists in the fact that the terms of the trade credit usually do not change depending on the credit quality of the clients. This allows lower quality borrowers to actually take advantage of an effectively lower price thanks to trade credit (Petersen and Rajan, 1994; Petersen and Rajan, 1997; Meltzer, 1960; Brennan, Maksirnovic and Zechner, 1988; Mian and Smith, 1992).

Like advertising, trade credit is also seen as an instrument to increase sales, through which it is ensured that production is differentiated from the production of competitors (Bhattacharya, 2008; Nadiri, 1969).

Suppliers view trade credit as a means of generating good reputation and investing in customer relationships to secure long-term sales. This role of trade credit is reinforced by the necessary large marketing efforts and higher initial sale costs and costs of attracting new customers, as well as the recklessness of all these costs in case of loss of existing customers (Long, Malitz and Ravid, 1993; Smith, 1987).

Trade credit is a way to overcome changes in demand through changes in credit conditions, respectively by alleviating them in cases of insufficient demand and tightening in excess of demand (Emery, 1984). In an uncertain demand, for sellers it is more profitable to extend the trade credit to financially troubled clients than to maintain expensive stocks of finished products (Bougheas, Mateut and Mizen, 2007). That is why companies faced with variations in demand offer more credit than these finding stability in demand for the goods they offer (Long, Malitz and Ravid, 1993; Bhattacharya, 2008).

A study for Bulgaria shows that in the context of difficulties in the realization of production, the customer lending is related to the increase of the sales revenues and the financial potential of the companies as well as the opportunities for realization of investment projects (Taseva-Petkova (2016)).

There are also claims in the literature that undermine the importance of using factoring to increase the capacity of companies to sell with deferred payment and hence for business development. Emery (1984) argues that the amount invested in receivables is limited by the alignment of marginal revenue from trade credit to marginal costs and that transaction costs for the conversion receivables into cash (factoring costs) have a deterrent effect on trade credit.

Empirical research

The analysis is based on data from an empirical sociological survey among the 1000 non-financial enterprises in the country, selected through a representative sample. The research was conducted by the ESTAT Agency within the framework of a Project "Improving the quality of education and research in the field of business engineering for building a knowledge - based economy (innovation) and finance", with the financial support of the Operational Program "Human Resources Development", (Contract № BG051PO001-3.3.06-0053), realized by the Higher School of Insurance and Finance and partner Economic Research Institute (BAS). The data is processed using the software product SPSS. There are used non-parametric methods of analysis - χ-square and non-parametric dispersion analysis (Kruskal-Wallis test). It is perceived risk level of α - error 0,05. One-dimensional and two-dimensional frequency distributions are presented.

Companies with different main activity are included in the sample. The largest is the share of enterprises in the sector "Trade; Repair of motor vehicles "and the smallest of the enterprises from the sector" Agriculture, forestry, hunting and fisheries".

Table 1

Distribution of companies by their main activity

	Number	Percentage
Agriculture, forestry, hunting and fisheries	46	4,6
Industry	101	10,1
Construction	59	5,9
Trade; Vehicle repair	380	38
Hotels and restaurants	78	7,8
Transport, storage and communications	60	6
Others	276	27,6
Total	1000	100

Source: *Authors' calculations.*

The largest share is the one of micro enterprises (with up to 9 employees), which make up two fifths of respondents (40.5%), and the smallest of large enterprises (250 or more employees), which are one tenth 10.2%) of the companies in the sample.

Table 2

Distribution of companies by number of employees

	Number	Percentage	Cumulative percentage
1 to 9 employees	405	40,5	40,5
10 to 49 employees	222	22,2	62,7
50 to 249 employees	271	27,1	89,8
250 or more employees	102	10,2	100
Total	1000	100	

Source: *Authors' calculations.*

Depending on the size of the turnover, the companies in the sample are distributed in the manner presented in Table 3. The question of the amount of sales revenue is measured on a category scale which allows, to a certain extent, to circumvent the problem of companies' reluctance to disclose accurate information about its financial indicators.

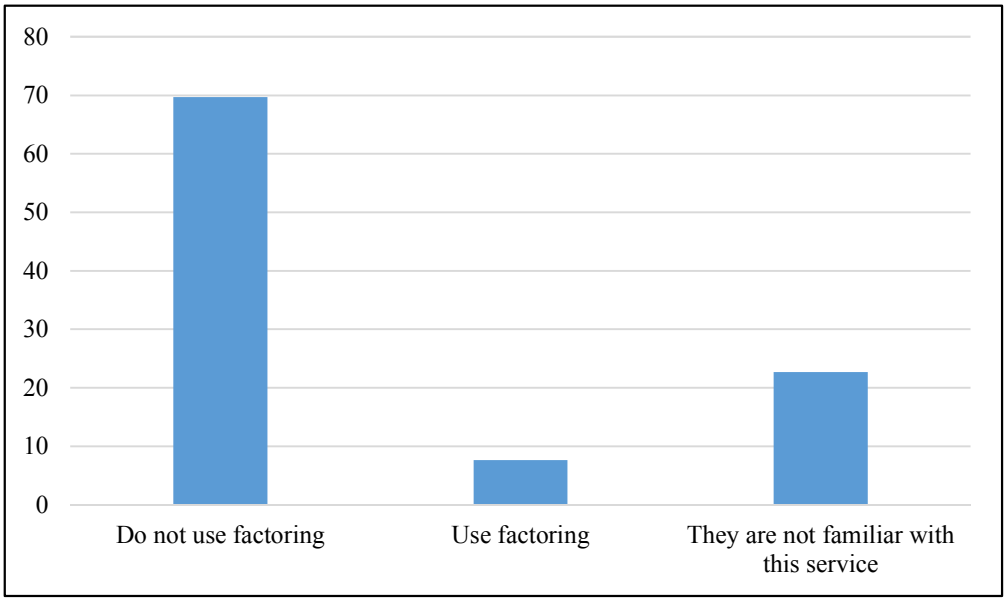
Table 3

Distribution of firms according to turnover

Turnover	Number	Valid percentage	Cumulative percentage
Up to BGN 100 000	297	42,7	42,7
from BGN 100 001 to 500 000	143	20,5	63,2
from BGN 500 001 to 1 000 000	72	10,3	73,6
from BGN 1 000 001 to 5 000 000	92	13,2	86,8
from BGN 5 000 001 to 10 000 000	45	6,5	93,2
from BGN 10 000 001 to 19 500 000	18	2,6	95,8
from BGN 19 500 001 to 50 000 000	9	1,3	97,1
from BGN 50 000 001 to 97 500 000	7	1,0	98,1
Over BGN 97 500 000	13	1,9	100,0

Source: *Authors' calculations.*

The results of the survey show the unpopular spread of factoring among the companies in the country. A significant percentage of them (nearly a quarter) responded that they were not even aware of this service (see Figure 1).



Source: *Authors' calculations.*

Fig. 1. Distribution of firms according to the use of factoring

There is a statistically significant relationship between the use of factoring and the turnover of firms (sig = 0.000, Cramer = 0.180). Table 4 shows the two-dimensional distribution of firms according to the two variables.

Table 4

Two-dimensional distribution of firms according to their turnover and use of factoring

	Use factoring	Do not use factoring
Up to BGN 100 000	2,4%	97,6%
From BGN 100 001 to 500 000	4,2%	95,8%
From BGN 500 001 to BGN 1 000 000	5,6%	94,4%
From BGN 1 000 001 to BGN 5 000 000	13,0%	87,0%
More than BGN 5 000 000	12,0%	88,0%

Source: *Authors' calculations.*

With the increase in the turnover of the companies, the percentage of those who use factoring increases. On the one hand, this reflects the easier access of larger companies to the factoring companies. On the other hand, with the opportunity to extend credit sales, factoring in turn contributes to an increase in the turnover of enterprises. Ceteris Paribus, the higher turnover implies more market power and a larger number of customers, as a result of which firms are not afraid that the sale of their receivables to suppliers of factoring services could lead to a serious loss of market share as a result of deterioration of customer relations.

Using the x-square method, a statistically significant relationship (sig. = 0,000, Cramer = 0,184) was established between the use of factoring and the importance of enhancing added value for company development over the past three years. Table 5 shows the distribution of enterprises according to the both indicators.

Table 5

Distribution of firms according to the importance of increasing the value added for the development of the company and the use of factoring

Importance of increasing the value added for the development of the company	Use factoring
Big importance	42,1%
Some importance	39,5%
Does not matter	1,3%
It does not apply to the company	17,1%

Source: *Authors' calculations.*

There is a significant share of companies (nearly one-third of respondents) who say they have not realized added value over the past three years. The results show that a greater importance of growth of value-added corresponds to a higher percentage of companies using factoring. They are developing better.

Another indicator of the company's financial situation and development potential is the reduction in costs for each unit of production, which, ceteris paribus, means a profit growth. A statistically significant relationship (sig. = 0.005, Cramer coefficient = 0.113) is established between the use of factoring and the importance of reducing the cost of each unit produced for the company's development. The distribution of companies is shown in Table 6.

Table 6

Distribution of companies according to the importance of reducing the cost of each unit produced for the development of the company and the use of factoring

Importance of reducing the cost of each unit produced for the development of the company	Use factoring
Big importance	43,4%
Some importance	32,9%
Does not matter	6,6%
It does not apply to the company	17,1%

Source: *Authors' calculations.*

Transferring receivables to a factoring company makes companies more liquid by allowing them to obtain more quickly the funds invested in trade receivables. This enables them to take advantage of the advance or immediate payment discounts offered by their suppliers, to strengthen their position on the resource market and ultimately to reduce their cost of production. Lower cost of production allows lower prices when demand is priced elastic and if market conditions require it. This gives companies a competitive edge and contributes to their adaptability and financial stability in different economic conditions.

One-way changes in the percentage of companies using factoring and the importance of value-added growth and cost reductions for each unit produced for company development give reason to assume that the use of factoring not only correlates with better financial performance, but is also related to better utilization of the achievements for company development. Probably one of the reasons for this is the higher quality of management of the factoring companies. Perhaps one of the reasons for this is a higher quality of management of enterprises that use factoring services.

The results of the study reveal a statistically significant relationship (sig = 0,000, Cramer coefficient = 0,182) between the use of factoring and the availability of developed innovative products or services in the company. The distribution of companies is shown in Table 7.

Table 7

Distribution of firms according to the availability of developed innovative products or services in the company and the use of factoring

Presence of developed innovative products or services in the company	Use factoring	Do not use factoring
Yes	17,1%	82,9%
No	5,1%	94,9%

Source: *Authors' calculations.*

The percentage of companies that have developed innovative products or services and use factoring is higher than the percentage of companies using factoring but have not developed such products and services. On the one hand, the use of factoring strengthens the financial potential of the companies, thus contributing to their innovation activity. On the other hand, the availability of innovative products or services may mean a need to stimulate sales by providing trade credit to promote these new products and test their qualities by customers. The role of factoring in this case is related to the expansion of credit sales capacity.

In confirmation of the above dependence, there is a statistically significant link between the question of whether firms are using factoring and the question of their assessment of whether the business in the country is interested in investing in scientific research in order to create new products/services for the market. The results of the nonparametric dispersion analysis (Kruskal Wallis test) are presented in Table 8.

Table 8

Dependence between the use of factoring and the assessment of firms whether the business in the country is interested in investing in scientific research in order to create new products/services

	Mean Rank	Sig.
Use factoring	297,97	0,000
Do not use factoring	453,87	

Source: *Authors' calculations.*

The middle ranking analysis shows that companies using factoring are more likely to believe that businesses in the country are interested in investing financial resources in scientific research to create new products/services. The use of factoring

by firms increases their liquidity but, ceteris paribus, makes them financially more stable by reducing the credit risk they are exposed to. This also contributes to increasing the companies' tendency to invest in innovative projects that are usually accompanied by high risk.

The results of the x-square analysis of the dependence between the use of factoring and the indicators of investment activity of the companies over the last three years with a view to developing existing or new products/services are presented in Table 9. The established statistically significant relationship confirms the importance of factoring for the investment activity of the companies in the country.

Table 9

Dependence between the use of factoring and indicators of the investment activity of the firms

	Sig.	Cramer coefficient
Acquisition of modern machinery and equipment	0,000	0,155
Acquisition of computer hardware and software	0,001	0,108

Source: *Authors' calculations.*

Table 10 presents a two-dimensional distribution of firms according to whether they have invested and whether they use factoring. It can be seen that the majority of companies using factoring have made investments.

Table 10

Two-dimensional distribution of firms according to whether they have made investments and whether they use factoring

		Use factoring
Acquisition of modern machinery and equipment	They have invested	73,7%
	Have not invested	26,3%
Acquisition of computer hardware and software	They have invested	64,5%
	Have not invested	35,5%

Source: *Authors' calculations.*

The results of the survey reveal statistically significant dependencies between the use of factoring and the selected indicators of the financial situation and the opportunities for the development of the companies. On the one hand, companies

with better financial status and development opportunities have easier access to the services of factoring companies. At the same time, the use of factoring favors the improvement of the financial situation of the enterprises and the prospects for their development. The channels on which this beneficial influence is realized are several. Among them is the fact that factoring increases the capacity of companies to sell with deferred payment, which stimulates the growth of turnover and internally generates financial resources for companies. Sales growth creates a need to increase production capacity through new investments and stimulate enterprise development. The faster recovery of funds invested in receivables leads to an improvement in the company's liquidity and contributes to a more efficient use of resources.

In addition, improving firms' liquidity by selling receivables to a factoring company increases corporate creditworthiness and access to institutional funding, which facilitates the investment activity of enterprises. As a source of short-term financing, factoring is an appropriate tool to cover the potential increase in the need for operational capital in companies that carry out investment projects. The use of factoring also contributes to improving the effect of the investments made by enabling optimal loading of new production capacities by expanding sales with deferred payment.

Moreover, ceteris paribus, the use of factoring also contributes to reducing the proportion of overdue and uncollectible receivables from customers, which leads to the reduction of company losses and increases their financial capacity. In addition, reducing the share of overdue and irrecoverable trade receivables reduces cash flow uncertainty in companies and facilitates revenue planning, contributing to improving the assessment of the effectiveness of potential investment projects and fostering investment activity of firms. Among the prerequisites for reducing the share of overdue and irrecoverable trade receivables of firms using factoring is the better management of receivables as a result of the various services provided by factoring companies. These include analyzing the solvency of customers, monitoring the regularity of payments and taking timely action against possible delays in payment by debtors. There is also a widespread perception that debtor companies are seeking to be more correct as payers when a creditor is a financial institution.

Only 34 of the companies surveyed indicated that they were using the services of a factoring company as a measure to reduce the risk of arrears of trade receivables. They are less than half of the companies that responded to using factoring. There are several possible explanations of these results from the conducted empirical sociological survey. One of them is that the managers of the majority of companies in the country are not aware of the benefits of using the services of a factoring company to

improve the collection of receivables within the agreed time frame. It is also possible to explain that some of the respondents do not accept the belief that debtors are seeking to be more correct payers when a creditor is a financial institution. Some of the companies perceive as a reason for late payments from customers the objective impossibility for customers to pay in time, regardless of who the creditor is. An explanation of the fact that less than half of firms using factoring indicate it as one of the measures to deal with the risk of delaying the collection of receivables from customers can also be found in the type of factoring used by companies - recourse factoring or non-recourse factoring. Table 11 shows the distribution of the companies surveyed according to the type of factoring they use.

Table 11

Distribution of companies according to the type of factoring they use

	Number	Percentage of companies using factoring	Cumulative percentage
Recourse factoring (the factor does not assume the risk of non-payment by firms' customers)	11	14,5	14,5
Both types	40	52,6	67,1
Non-recourse factoring (the factor assumes the risk of non-payment by firms' customers)	25	32,9	100,0
Total	76	100,0	

Source: *Authors' calculations.*

Data shows that there is the largest share of companies using both types of factoring. They are more than half of the companies that use the services of a factoring company. The share of companies that only use factoring without the right of recourse is followed. The least is the enterprises that use factoring with the right to recourse. In general, the conclusion is that the majority of companies using factoring (67.1%) remain at risk of non-collection of receivables. This is the most likely reason why less than half of firms using factoring indicate factoring among the measures they apply to reduce the risk of receivables overdue. The main motive for these companies to use factoring is the quest to increase liquidity. Chain inter-company indebtedness, the high level of overdue and irrecoverable trade receivables, regulatory shortcomings, generally the high level of risk in the economy, low competition on the factoring market, the high price of factoring without the right to recourse are among

the reasons for the wider spread of factoring without coverage of credit risk in the country.

Conclusion

The study by the methods χ - square and non-parametric dispersion analysis (Kruskal-Wallis test) shows the existence of consequential relationships between the use of factoring and selected indicators of financial condition and opportunities for enterprise development. Such indicators are: the turnover of firms; the increase of the added value; reducing the cost of each production unit; investment and innovation activities of firms. It can be concluded that companies using factoring generally have better financial indicators, they are more innovative and have higher investment activity, which creates better opportunities for their development. Firms using factoring have a competitive advantage, as they have a wider capacity to sell with deferred payments. Factoring provides an opportunity to thoroughly improve the management of trade receivables and working capital through various services offered by factoring companies. In general, the results of the survey provide grounds to assume that the benefits outweigh the risks of using factoring by companies in the country.

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ON THE NEXUS OF EDUCATION AND HEALTH EXPENDITURE – SCHOOL ENROLMENT IN GHANA: VECM APPROACH

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Abstract

The unstable record of school enrolment in Ghana is examined through government expenditure on health and education for the time period 1990 to 2015. Secondary data on health and education expenditure and inflation rate were used in the study. The main objective of the study is to identify how the pattern of government spending on education and health attracts school enrolment in Ghana. Vector Error Correction Model (VECM) was used for estimation purpose. It was observed that government expenditure on education and health significantly contributes to school enrolment in the short-run and long-run.

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Introduction

The economic growth of Ghana had been increasing tremendously among other economies in Africa. Ghana was ranked the most rapid growing economy in the Sub-Saharan economy in 2015. According to African Economic Outlook (2016), economic growth in Ghana had slowed down from 4.0% in 2014 to 3.7% in 2015. This was as a result of the rising fiscal deficit, public debt, and fall in resources price, among others. Taking to the consolidation of macro-economic stability and implementation of policies to tackle the falling power crisis, the discovery of oil in the country and improvement in agriculture, the economy is expected to recover to 5.8% in 2016, and 8.7% in 2017 as forecasted. In September 2016, Ghana nominal GDP was $37.7billion which was ranked 13th position in Africa (Africa Economic Outlook, 2016). It has the highest ranking in HDI with 0.5791 in 2014 which is the 16th and 140th positions in Africa and the World respectively (UNDP, 2014).

Theories have argued that the role of human capital in the growth of an economy cannot be ruled out. For example, the augmented Solow growth theory of Lucas (1988), Romer (1989), Barro (1990), and Mankiw, Romer & Weil (1992) endogenised human capital in the production function, and argued that human capital is constant returns to scale at the firm level and exhibit an increased returns to scale at the economy wide level, because the knowledge acquired by an individual increases productivity of the economy and also the value of the individual through exposure to technological advancement in the production process. Rolleston (2009) submitted that there may be a wide gap in the welfare of those that have access to education and those that do not. Adjaye (2012) in assessing the private returns of education on employment in Ghana argues that primary, secondary, and tertiary education increases the chances of an individual to secure employment in Ghana, but tertiary education has the highest positive probability of being employed. This is because, the level (tertiary) equips the labour more with skills which are not available at the primary and secondary level. Eggoh, Houeninvo & Sossou (2015) pointed that human capital investment in the form of education and health in African countries impacted negatively on economic growth due to inefficiency, corruption, bureaucracy, and underinvestment.

In Ghana, there has been a continuous increase in the percentage of government expenditure on education and health to GDP. Between 1986 and 1999, expenditure on education and education increases from 3.35% to 7.42%, and 5.12% and 5.90% respectively. The percentage of education to GDP falls to 5.76% in 2008, while health still increases till 2011 to 14.05% and falls drastically to 3.92% in 2014. In 2011, education also experiences an increase to 8.14% and falls to 6.16% in 2014 (WDI, 2014). It was observed that the separate regulation of the sectors does not in the same percentage contribute to the GDP. The differences in the contribution of the variables to GDP are the result of individual regulation of the sectors. This study therefore investigates the extent to which expenditure on health and education impacted on school enrolment in Ghana. The health of individuals largely determines how energetic they are to participate in other sectors of the economy. Education increases the knowledge and skills of an individual towards increased productivity of an economy. The need to understand the effect of education and health expenditure pattern on school enrolment in the country is therefore important.

Literature Review

The arguments on the role of human capital in the growth and development of an economy have been argued by Solow (1957) which is the classical and endogenous growth theory of Lucas (1988), Romer (1989), Barro (1990) and Mankiw et al.

(1992). Solow argues that the role of human capital is exogenously determined in the growth of an economy, while the endogenous growth theory endogenises the role of human capital to be germane in the economy. Their arguments have gained support through furthers studies, among them are; Adjaye, (2012) investigated Private Returns on Education in Ghana, estimating the effect of education on employability in Ghana drawing on the latest and most comprehensive survey data in Ghana; Ghana Living Standards Survey (GLSS 5), to assess the effects of education on employability in Ghana. He argued that education had a positive effect on employability in Ghana. Analysis of the GLSS 5 data shows that in the Ghanaian labour market, individuals who have attained basic, secondary and tertiary education have higher probabilities of being employed than those with no education. However, the highest private return on education, in terms of employability is tertiary education. Hence, optimal post primary education investment in Ghana is one with a high possibility for tertiary education.

Onyeagu (2013) studied the impact of FDI on economic growth and the role of human capital in the enhancement of FDI inflow into the country of Ghana using a cointegration and error-correction mechanism. He found that FDI had a positive significant effect in Ghana in the long run and so also does human capital. He recommends that though FDI had a positive significant effect on growth, there is need for government to provide an appropriate policy environment that can enable FDI diversify into other sectors apart from the mining sectors. Also there is need for adequate policy that will improve more on the development of human capital since it has proven to be a source of growth and enhancement of FDI inflow.

Keyeke, Sackey, and Azinim (2013) examined the relationship between public spending and health status in Ghana, using simple but conventional econometric techniques. Under five-mortality rate (per 1000 live births) was used as an indicator of health status. The results revealed that the availability of physicians and health insurance are the most important determinants of health status in Ghana. Their results supported the hypothesis of increasing public investments in health, especially in the area that will attract the training and the supply of more physicians. Their results also showed that the national health insurance policy is a positive determinant of health status and, therefore, much education is needed to enlighten and attract Ghanaians into registering and subscribing to it. Government should also make money available for the purchase of drugs and treatment under the health insurance scheme to ensure its growth and sustenance.

Blunch (2008) studied the multidimensional human capital, wages and endogenous employment status in Ghana, by estimating the joint effects of formal schooling,

literacy and numeracy skills, and adult literacy programmes on employment and wage outcomes. He estimates wage and employment status equations jointly, allowing employment status to be endogenous. He observed that skills appear to be produced mostly from technical and vocational education and training and at higher levels of formal education. Adult literacy participants are less likely to be economically inactive and more likely to be self-employed, hinting at the income-generating activities component of these programmes having indirect effects on wages through its effect on labour market participation, especially for females, individuals with no formal education, and in urban areas.

Schultz (2003) investigated the wage rentals for reproducible human capital in Ghana and Ivory Coast. He considered education, child nutrition, adult health/nutrition, and labour mobility as the critical factors of human capital inputs in achieving sustained growth in factor productivity in Ivory Coast and Ghana. Specification tests to check if the human capital inputs are exogenous and instrumental variable techniques are used to estimate the wage function. He finds out that weight-for-height is endogenous, particularly prone to measurement error, and heterogeneous in their effects on wages. The returns to these four forms of human capital are similar within each country for men and women, but education and migration returns are higher in the more rapidly growing Ivory Coast, and wage effects of child nutrition proxied by height are greater in poorer, more malnourished in Ghana.

Gokcekus, Ntow & Richard (2001) studied Human Capital and Efficiency: The Role of Education and Experience in Micro-Enterprises of Ghana's Wood-Products Industry. They argued that Increasing efficiency and creating new employment via micro-enterprises gives solution to four problems in developing countries - unemployment, migration from rural to urban areas, inefficient use of resources and lack of international trade capabilities. They used 242 micro- enterprises from Ghana's wood-product industry in the analysis. Schooling and on- the-job training explain efficiency dispersions among micro-enterprises. However, they found out that a proper training programme can complement human capital creation by schooling and on-the-job-training to improve efficiency. Such programme can also increase the awareness about international markets to create new employment opportunities.

Yu, Fan and Saurkar (2009) investigated the impact of the composition of government spending on economic growth in developing countries. The neoclassical production function was used as the analytical framework in the study and output was specified as function of labour, gross capital stock, and capital stock of various government expenditures. The authors used the generalised method of moments (GMM), which has capability to control for endogeneity or reverse causality, on disaggregate

public investment data for 44 developing countries over 1980 to 2004. The results showed that in Africa, government spending in human capital promoted economic growth; in Asia, government capital, agriculture, and education expenditures promoted economic growth, while in Latin America; none of the government spending items had significant impact on economic growth. The authors argued that various types of government spending have differential impacts on economic growth, suggesting greater potential to improve efficiency of government spending by reallocation among sectors.

Bose, Haque & Osborn (2003) examined the growth effects of government expenditure. They investigated specifically the effect of sectoral government expenditures on economic growth for a panel of thirty developing countries for the period between 1970 and 1990. They found that the effect of government capital expenditure on gross domestic product was positive and significant. Furthermore at the sectoral level, government investment and total expenditures in education were significantly associated with growth.

Aghion and Saint-Paul (1998) and Blackburn and Galindev, (2003) showed that the correlation between growth and volatility can be negative or positive under both internal learning and external learning. They also made the stronger inference that the sign of the correlation is wholly independent of the mechanism of learning, that is, whether the correlation is positive or negative has no connection with the relative importance of different factors (private and public inputs) in human capital formation. The central idea of their findings is that the relationship between output growth and output variability is generally ambiguous since it is contingent on specific conditions.

Blackburn and Varvarigos (2008) examined the relationship between growth and volatility within a scenario where stochastic fluctuations arise from both preference and technology shocks as well as where accumulation of human capital depends on learning. Specifically, the study examined the postulate that the economic fluctuations in the short run influence economic prospects in the future. A dynamic stochastic general equilibrium model, which assumed endogenous growth through changes in technology and productivity, was developed. The model assumed that permanent effects can arise from temporary shocks through technological progress and productivity improvements. The model also assumed that the average growth rate of output responds to the structural characteristics of fluctuations, such as the persistence, amplitude and frequency. The authors found that the optimal allocation of time to output production and human capital accumulation are both pro-cyclical, contrary to the usual prediction by some authors that time used to learn is counter-cyclical. The foregoing is believed to be due to its opportunity cost effects, which assumed that recessions

are events that make economic agents to devote more time to improving productivity and less time on producing output because of the lower returns to the latter.

Mehmood and Sadiq (2010) investigated the existence of the effect of the long-run and short run between fiscal deficits, outcome of high government expenditure, and poverty level in Romania. Adopting error correction model and cointegration technique to analyse the data from 1976 to 2010, the authors found that there exists both long run and short run relationship between government expenditure and poverty.

Riasat, Muhammad & Zaman (2011) measured the impact of educational expenditures on the economic growth of Pakistan between 1972 and 2010. A model precipitated on the production function framework was developed and estimated through bonds testing approach. The findings showed that education expenditures had a positive and significant impact on economic growth in the long run. Specifically, a percentage increase in education expenditures increased output up to 0.039 per cent in the long run.

Colantonio, Marianacci & Mattoscio (2010) investigated the interactions among education, health and economic development in some Sub-Saharan African countries. Fifteen countries were considered and the countries are Burkina Faso, Cape Verde, Central Africa Republic, Chad, Djibouti, Eritrea, Gambia, Ghana, Guinea, Mali, Niger, Senegal, Sudan and Togo from 2003 to 2007. They used a multidimensional scaling method to define relations between countries in terms of proximity/distance with respect to the considered indicators. The indicators include GDP per capita, GDP growth, life expectancy at birth, health expenditure per capita, and primary completion rate and pupil-teacher ratio in primary schools. They reported a high correlation between the indicators of health, education and economic development.

Sources of Data and Methodology

The data used for this study is secondary in nature and it is sourced from the World Development Indicators (WDI, 2015). The study covers the period of 1990 to 2015. The study adopts econometric techniques such as, descriptive statistics, unit root, Johansen cointegration, and Vector Error Correction Method (VECM) in it analysis to achieve its objective. Firstly, the spread of the distribution and variability of the data were checked using descriptive statistics. As a result of unavailability of valid data and fluctuations in the data available, the data are subjected to unit root test to check for absence or presence of stationarity among the variables employed. Based on the order of integration of the variables, the long-run relationship among the variables is tested using the Johansen cointegration test, and afterwards the vector error correction method (VECM) is used to estimate the parameters.

Model Specification

The model for this study followed the work of Romer (1986; 1990) and Lucas (1988). They modified the Cobb-Douglas production function, called the per capita production function, as specified below:

$$y = Ak \quad (1)$$

'y' is output per capital, A is technical investment, and k is the broad capital. The broad capital comprises of physical capital (k) and human capital (h) specified below as;

$$k = K^{\alpha} H^{1-\alpha} \quad (2)$$

Substituting equation (2) in (1), we have the equation specified below as;

$$y = AK^{\alpha} H^{1-\alpha} \quad (3)$$

Where y is the per capita output, A is the technological advances, K is the physical capital and H is Human capital. $0 < \alpha < 1$, this implies that human capital accumulates without bound and diminishing returns. Where α is the degree of responsiveness of physical capital, and $1- \alpha = \beta$ which is the output elasticity of human capital is $= \alpha$. Therefore $\alpha + \beta = 1$, which implies that the function is linearly homogenous. The equation is then specified below as;

$$y = AK^{\alpha} H^{\beta} \quad (4)$$

Equation (4) is therefore presented in a functional form as;

$$y = f(A, K^{\alpha}, H^{\beta}, Z^{\sigma}) \quad (5)$$

This study therefore modified equation (5) by replacing y with School enrolment (SER), and takes into consideration only human capital (proxy as education and health expenditure), and Inflation rate (INFLR) in the economy of Ghana. The model is specified below as;

$$SER = f(H^{\alpha}, INFLR^{\sigma}) \quad (6)$$

For the purpose of the study, we adapt the model by using the VECM approach as it assumes no apriori expectations of exogeneity of variables required. It allows each variable to explain itself and also explains each other without an infringed theoretical structure on the estimates. The model is therefore presented as;

$X_t = \Gamma_o + \Sigma\Gamma_t\, Y_{t-1} + \Sigma_t$; where $X_t = \begin{pmatrix} SER \\ LEEXP_{t-1} \\ LHEXP_{t-1} \\ INFLR_{t-1} \end{pmatrix}$

X_t is a 4x1 vector matrix of the endogenous variables (SER, EEXP, HEXP, and INFLR). SER represents school enrolment rate, proxy for education enrolment, EEXP and HEXP represents education and health expenditure, while INFLR represents inflation rate. The assumption of this study is that health and education finances are important determinant of education enrolment in the economy of Ghana.

Empirical Analysis

Descriptive Statistics

The table below presents the descriptive statistics of the data. The descriptive statistics is used to measure the spread of the distribution of the data and the data variability. The data showed a wide range difference between maximum and the minimum values. School enrolment rate and inflation rate had a long tail to the right which implies that they are positively skewed, while expenditure on education and health had a long tail to left which implies that they are negatively skewed. This therefore limits the model to be in linear-log form. The kurtosis revealed that school enrolment rate and health expenditure are leptokurtic in nature as they are peaked to normal with values less than 3, while education expenditure and inflation rate are platykurtic in nature as they relatively peaked to normal with values greater than 3. Jarque Bera result revealed that all the variables are normally distributed as they have values greater than 10% except inflation rate which was less than 10%.

Table 1

Descriptive Statistics Result

	SER	LOGEEXP	LOGHEXP	INFLR
Mean	46.89205	3.729624	2.939259	18.88649
Median	41.71478	4.254341	3.518388	11.8975
Maximum	71.62354	5.967235	5.445875	72.8355
Minimum	34.78112	-1.233408	-1.896049	5.382224
Std. Dev.	11.17477	1.876259	2.079844	18.09327
Skewness	0.675646	-0.912599	-0.673061	1.862533
Kurtosis	2.157146	3.217008	2.448013	5.185469

Jarque-Bera	2.747758	3.65998	2.293129	20.20676
Probability	0.253123	0.160415	0.317726	0.000041
Sum	1219.193	96.97023	76.42074	491.0487
Sum Sq. Dev.	3121.888	88.00868	108.1438	8184.164
Observations	26	26	26	26

Source: *Authors (2017).*

Unit Root Test

The study subjected all the variables employed to a unit root test using the Augmented Dickey Fuller (ADF) test in order to avoid a spurious result in the study and also to know if the variables and predictory. The result revealed that all the variables are not stationary at common level, but at first difference, which implies that there is presence of unit root among the variables employed in the study. The Johansen cointegration test is therefore employed to check if a long-run relationship exists among the variables employed in the study. The unit root result is presented below in **Table 2.**

Table 2

Unit Root Result

		At Level		**1st Difference**		**Order Of Integration**
SER		**None**	**Trend & Intercept**	**None**	**Trend & Intercept**	
T-stat		2.110722	-1.653735	-5.168668	-6.61527	
C.V	1%	-2.64712	-4.309824	-2.650145	-4.323979	I(1)
	5%	-1.95291	-3.574244	-1.953381	-3.580623	
	10%	-1.610011	-3.221728	-1.609798	-3.225334	
P.V		0.9898	0.7457	0.0000	0.0000	
LEEXP		**None**	**Trend & Intercept**	**None**	**Trend & Intercept**	
T-stat		3.07331	-2.966467	-3.953992	-5.140655	
C.V	1%	-2.64712	-4.309824	-2.650145	-4.323979	
	5%	-1.95291	-3.574244	-1.953381	-3.580623	I(1)
	10%	-1.610011	-3.221728	-1.609798	-3.225334	
P.V		0.999	0.1582	0.0003	0.0015	

LHEXP		None	Trend & Intercept	None	Trend & Intercept	
T-stat		3.315603	-1.296268	-3.21856	-4.09152	
C.V	1%	-2.64712	-4.309824	-2.650145	-4.323979	
	5%	-1.95291	-3.574244	-1.953381	-3.580623	I(1)
	10%	-1.610011	-3.221728	-1.609798	-3.225334	
P.V		0.9995	0.8688	0.0023	0.0169	
INFLR		**None**	**Trend & Intercept**	**None**	**Trend & Intercept**	
T-stat		-1.391853	-3.816452	-6.448702	-6.238059	
C.V	1%	-2.64712	-4.309824	-2.650145	-4.323979	
	5%	-1.95291	-3.574244	-1.953381	-3.580623	I(1)
	10%	-1.610011	-3.221728	-1.609798	-3.225334	
P.V		0.1489	0.0301	0.0000	0.0001	

Source: Authors 2017.

Johansen Co-integration Test

The Johansen co integration result revealed that there is one co integrating vectors from the Trace test and Max-Eigen test respectively. This implies that the null hypothesis that there exists no long-run co-movement among the variables is rejected and the alternative is accepted that there exists a long-run co-movement among the variables employed in the study. The long-run co-movement test result is presented below in **Table 3**.

Table 3

Co-integration Test Result

No. of CE	Trace Test	P-value	Max-Eigen Test	P-value
None *	50.59	0.027	28.592	0.0371
At most 1	22	0.2984	16.66411	0.1884
At most 2	5.338	0.7719	4.619567	0.7889
At most 3	0.718	0.3967	0.718232	0.3967

* denotes rejection of the hypothesis at 5% significance level. Likelihood ratio test of both Trace and Max-Eigen indicates 1 co-integrating equation(s)

Source: *Authors (2017).*

VECM Estimates

Long-run Estimate

The result revealed that in the long-run, approximately 52% of divergence of school enrolment is corrected by education expenditure. Health expenditure correct about 31.5% of deviation in school enrolment from equilibrium in the long-run, while inflation rate accounts for 1.05% of corrections of the deviation in school enrolment from equilibrium in the long-run. The result is presented below in **table 4.**

Table 4

VECM Long-run Coefficient Result

SER	LEEXP	LHEXP	INFLR
1.0000	-51.82711	31.513	-1.051356
S.E	-7.19327	-6.21358	-0.11211
T.Stat	[-7.20495]	[5.07163]	[-9.37777]

Source: Authors (2017.)

Table 5

VECM Short-run Coefficient Result

	SER	LEEXP	LHEXP	INFLR
CointEq1	-0.01865	0.029309	0.026793	0.535198
S.E	-0.09346	-0.0079	-0.0079	-0.16099
T.stat	[-0.19951]	[3.71031]	[3.38955]	[3.32431]

Source: Authors (2017).

Table 5 above presents short-run result. From the result, 2% of disequilibrium is corrected annually by changes in school enrolment itself. Changes in health and education enrolment correct approximately 3% of disequilibrium in school enrolment annually, while changes in inflation rate correct approximately 54% of disequilibrium in school enrolment annually, all in the short-run.

The implication of the results are that government planned expenditure on education and health are important determinant of school enrolment in both the short-run and the long-run, and finances in this sector are like incentives to the people living in the country as it encourages them in enrolling in school to increase their productive capacity through the knowledge they acquire in the training process. The results are in conformity with the work of Adjaye (2012), Keyeke et al. (2013), Blunch (2008), Schultz

(2003), Gockekus et al. (2001), and Yu, Fan and Saurkar (2009), that expenditure on education and health in the form of human capital investment encourages school enrolment and increases the performance of an economy, especially in Ghana.

Conclusion and Recommendation

The study investigates the nexus between education expenditure, health expenditure and school enrolment in Ghana using the Vector Error Correction Method (VECM). From the findings it was revealed that education and health expenditure had a significant impact on school enrolment in the country (Ghana) both in the long-run and short-run. Albeit education and health expenditure had a positive impact on school enrolment in the short-run, in the long-run education expenditure impacted negatively, while health expenditure positively impacted on school enrolment in the long-run. The results propel a conclusion that, in the short-run, government expenditure on education and health captures efficiency in school enrolment in Ghana, in the long-run, government commitment to education finances retards school enrolment and health expenditure still promote school enrolment. It is therefore recommended based on the findings that to increase the ratio of school enrolment in Ghana, adequate attention must be given to investment in education, health and the general price level in the economy to encourage the population on school enrolment to improve their productivity.

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INTERRELATIONSHIP BETWEEN PUBLIC INVESTMENTS AND ECONOMIC DEVELOPEMENT IN THE EU COUNTIES

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public investments, economic development, public infrastructure, Gross capital formation in the General Government Sector, Gross domestic product per capita.

Abstract

Public investments are an essential precondition for ensuring the appropriate structural environment in which the economy of a region works. Public investments are made in order to address horizontal issues in the areas of education, training, healthcare, infrastructure and in other areas. The main purpose of this report is to find the link between public investments and economic development in the EU countries. We use the indicator "Gross capital formation in the General Government Sector" in order to measure the level of public investments. Investments made at the local level, at the central level, by the state, and by the social security funds, are within the scope of the indicator. By establishing distinct cluster groups, a cluster analysis is made as a basis for tracking the relationship between share of public investments in the GDP and in the GDP/per capita. Summarizing the results of conducted analyses we reach the conclusion that countries of Central and Eastern Europe stand out with a higher share of public investments in the GDP compared to the other EU countries. We observe higher value of GDP per capita and lower value of public investments as a share of the GDP in the countries of Western Europe.

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Introduction

Public investments are capital expenditures for implementation of public projects like roads, educational infrastructure, construction of public buildings and public facilities. Public investments also include capital expenditures linked to the so called "soft infrastructure"- human capital development, innovation, and research and development. Usually, these capital expenditures are being made also beyond the end of the fiscal year (Hulbert, Vammalle, 2014, p. 5).

In recent years, public investment has declined as a share of the Gross Domestic Product (GDP). The indicator for share of public investments in the GDP for countries in the European Union is equal to around 3.4% for 2008 and to around 2.9% for 2015. There is a decline in public investments in countries such as Italy, Austria, Portugal, the Netherlands, France, Spain and others.

Public investments can act as a catalyst for the economic growth. However, the economic and social impact of investment depends on their effectiveness (IMF, 2015). Effectiveness of public investments is determined on the basis of the interrelationship between value of public capital invested in public infrastructure, physical volume of the newly built infrastructure and its quality.

Many researchers and experts investigate the interrelationship between economic growth and investments. Some of them are Agenor, Bloch, Fournier, Cullison, Mourougane, Johanson, experts from OECD, IMF, etc.

According to a report of the IMF (Making public investment more efficient, 2015) the economic return on investments for efficient public investors is double the economic return on investment for the least efficient investors.

According to the IMF` experts the contribution of public investment to growth can be significant, but not if the investment process is ineffective. The increase of public investment is being considered as a catalyst for growth by the OECD experts, but on a long term basis. According to their research, GDP may increase, but only if public investment is done in a qualitative way (Mourougane et al., 2016).

Agenor (2010) states in his article that exactly the public investment can become a driver of growth. However, in order to achieve growth, a sufficient level of cost effectiveness of public investment should be ensured through adequate management of the investment process. According to the author, the lack of infrastructure is becoming a key obstacle to growth and development in many developing countries.

According to Fournier and Johanson (2016), growth benefits of public investment can be bigger in countries with an initially low stock of public capital, as the needs for public investment are greater. By contrast, in countries with a high public capital stock, there may be no low-hanging fruits: the risk to invest in cost-inefficient projects is higher. Furthermore, if some public investment projects are complementary to business investment, these complementary projects may become scarce when the public capital stock is high. Investment in tangible capital is a crucial driver of long-run GDP per capita and income convergence. For example, public investment in infrastructure may add productive capacity to the economy and help speed up GDP per capita convergence (IMF, 2015).

In another study, Fournier (The Positive Effect of Public Investment on Potential Growth, 2016) states that the growth gains from increasing public investment may

decline at a high level of the public capital stock due to decreasing returns. For instance, investment in infrastructure and education can raise the human and physical capital stock and, in turn, long-run growth or the GDP level. The author concludes that the effect of public investment depends on circumstances, like a project size, efficiency, project management, etc.

William Cullison (1993) investigates the correlation between public investment and growth. The results of his the study, imply that government spending on education and labor training (and perhaps also civilian safety) have statistically significant, and numerically significant, effects on future economic growth.

It is commonly accepted in the economic literature that government expenditure may have an impact on economic activity in the short run and growth in the longer run, though there is no precise relationship between the former and the latter because it depends on a large number of factors. There is an overall consensus, however, that efficient regulation, an effective and a well-functioning public administration, and well-targeted and tailored public expenditure all are essential to the smooth functioning of modern economies by providing essential infrastructure and public services, ensuring the rule of law and enforcing property rights. (2014 European Commission).

The main purpose of the present article is to investigate the link between public investments and economic growth in the EU countries. We use cluster analysis in order to constitute groups of countries according to the level of economic growth (measured by the indicator GDP per capita) and public investments (represented as a share of GDP) of the EU states.

Methodology and data

The data used for the purposes of research is GDP per capita and public investments represented as a share of GDP for the year 2015. We use GDP per capita as the main indicator for measuring economic development in different countries.

The indicator ”Gross capital formation in the General Government Sector” is used to measure public investments. The total amount of assets acquired for use in the production of other goods and services over a period of more than one year is included in the state gross capital formation according to the definition given by EUROSTAT (National Accounts Methodology). Acquisitions include asset purchases (new or second-hand) and asset-building by producers for their personal use. Only those assets generated as a result of a production process are included in the meaning of the term “assets produced”.

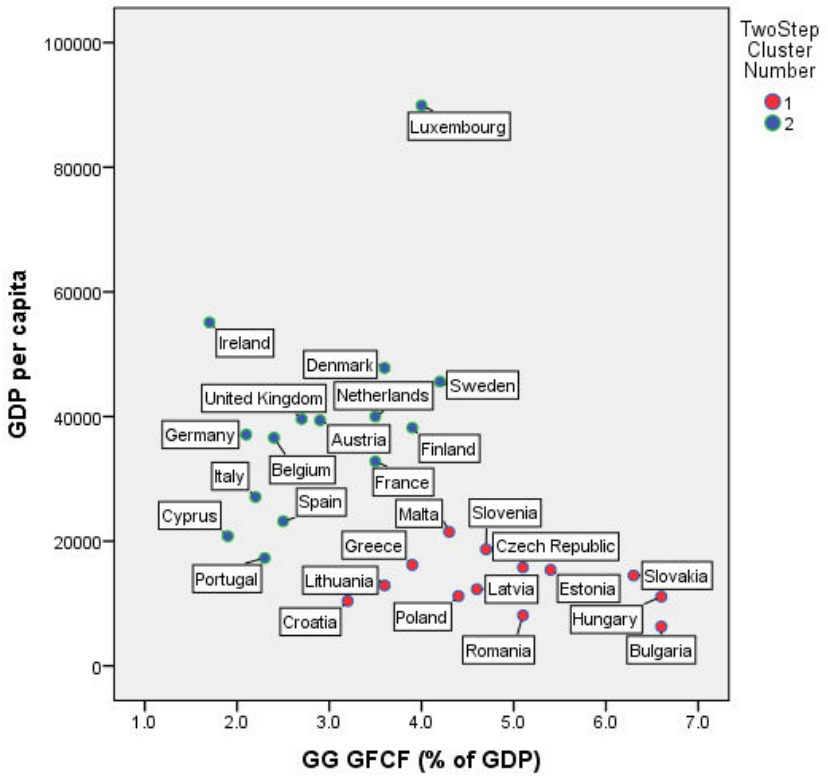
Capital expenditure at local, central and state levels and at social security funds` level is included in the scope of this indicator. Main source of information is the offi-

cial EUROSTAT website. The methodology used for establishing the interrelationship between government investments and the economic development of countries is a two-step cluster analysis processed on the basis of statistical software SPSS.

The analysis is based on a two-step clustering procedure, which relies on a hierarchical method in order to determine the number of clusters automatically. Hierarchical clustering method refers to a process in which the data and the clusters are repeatedly merged, until a single cluster pools all available data. Using the Schwartz Bayesian Criterion, the data is allocated to pre-formed clusters or forms a new cluster (given that the data is continuous, the Euclidean distance is used to determine the location and distance of the data).

Discussion of the results

As a result of the cluster analysis, two groups are presented in Figure 1.



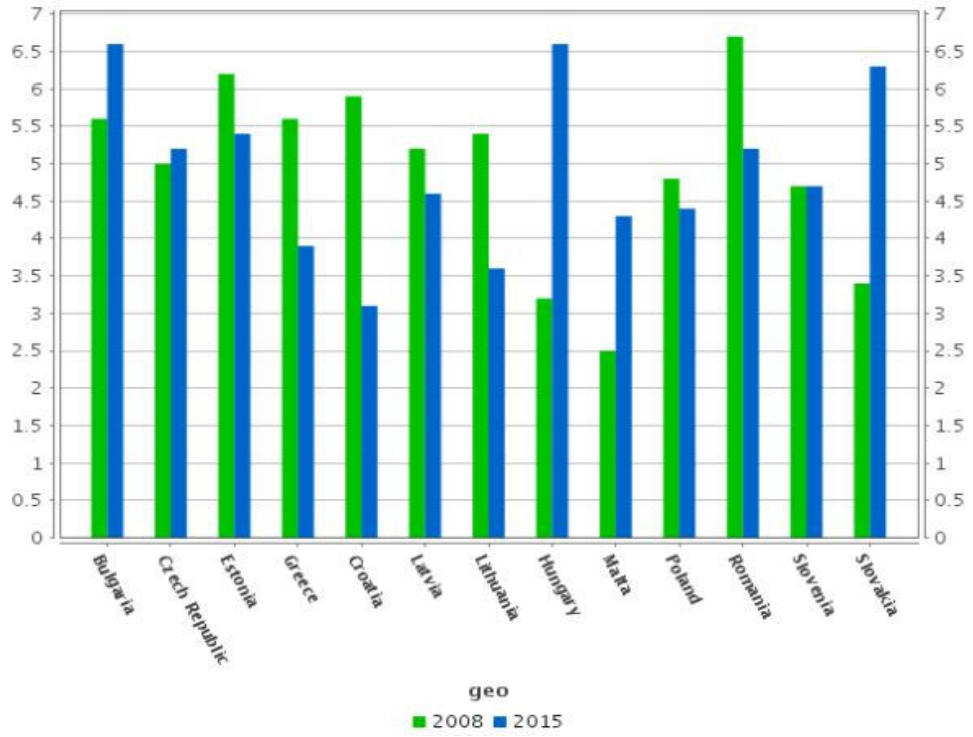
Source: *EUROSTAT, author`s calculations based on SPSS.*

Fig. 1. Results of the cluster analysis

The significance check of factors shows that both economic development and public investment are statistically significant in cluster formation, with public investment being the more important of the two.

Of the 28 countries, subject of analysis, 13 countries (Bulgaria, Slovakia, Hungry, Estonia, Romania, Latvia, the Czech Republic, Slovenia, Poland, Croatia, Lithuania, Greece, Malta) are in the first cluster accounting for 46.4% of the countries. 15 countries (Ireland, Denmark, Sweden, Netherlands, United Kingdom, Finland, France, Spain, Portugal, Cyprus, Italy, Germany, Austria, Luxembourg and Belgium) are in the second cluster accounting for 53.6% of the countries.

The first group includes countries with low GDP per capita and a high percentage of public investment as a share of the GDP. This group includes Central and Eastern European Countries (CEECs) such as Bulgaria, Romania, Lithuania, Latvia, Estonia.



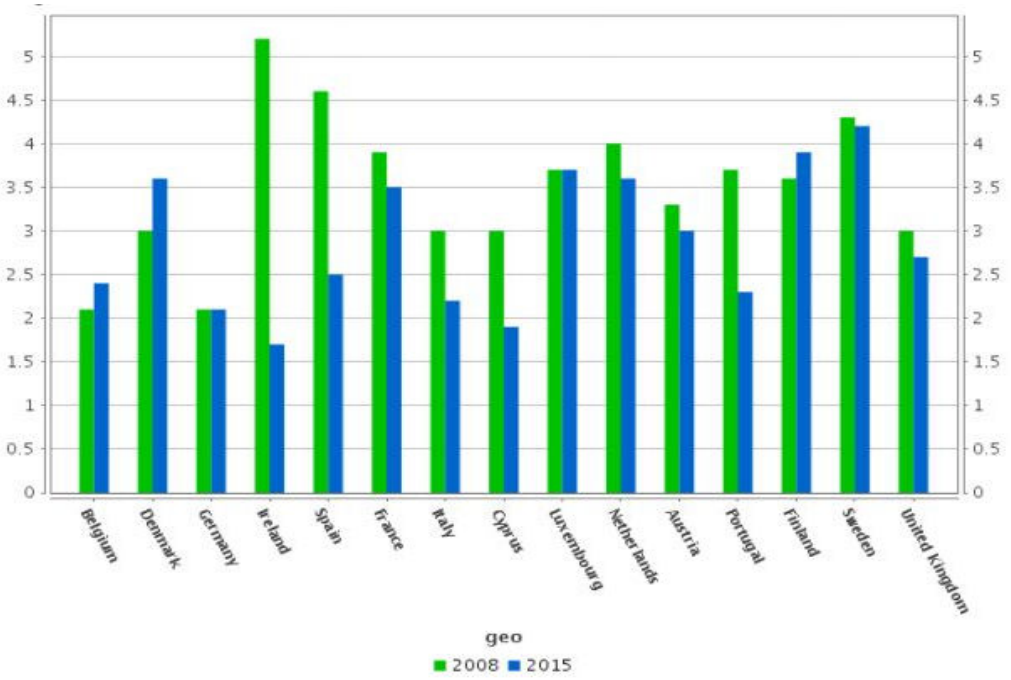
Source of Data: *Eurostat. Last update: 28.06.2017.*

Chart 1. Public investment as a share of GDP in 2008 and in 2015 for countries in the first cluster group

The countries, which report increase of public investment are Bulgaria, Hungary, Slovakia. Part of the rise in capital spending can be attributed to the European projects being implemented by these countries. We have to note that the European projects financed through grants do not generate revenue as a rule. These projects are part of the basic infrastructure and they are an initial prerequisite for economic activity and development.

The average value of the indicator „Public investment per capita" for countries included in the first cluster for 2015 is around EUR 647. The lowest value of this indicator in Croatia is around EUR 320. The highest value of this indicator is in Malta – around EUR 927. We have to note that Malta is the most sparsely populated country in the first cluster group.

The second cluster includes countries with high GDP per capita and a lower percentage of public investment as a share of the GDP. It is striking that mainly economically developed countries such as Switzerland, Luxembourg, Germany, Spain, Germany and France are included.



Source of Data: Eurostat. Last update: 28.06.2017

Chart 2. Public investment as a share of GDP in 2008 and in 2015 for countries in the second cluster group

The impression is that in most countries there is a significant decline in public investment. A number of countries have cut their public investment share in GDP by more than 10% over the same period. The collapse in public investment has been particularly acute in Ireland, Spain, Portugal, Cyprus, Italy (European Commission, 2014).

Statistical reference shows that countries in the second cluster have made public investments of greater substance in the period before 2008. In 2015, the share of public investment in the GDP is lower than in 2008. For example, in 2008 the share of public investment in Spain was 4.6% and in 2015 it is 2.5%. The share of public investment in the GDP of Italy in 2008 is 3%, and in 2015 it is 2.2% (EUROSTAT).

The average value of the indicator „Public investment per capita" for countries included in the second cluster for 2015 is around EUR 1200. The lowest value of this indicator in Portugal is around EUR 390. The highest value of this indicator is in Luxembourg – around EUR 3475. We have to note that Luxembourg is the most sparsely populated country in the first cluster group.

Despite the substantial share of public investment in the GDP of the CEE countries (first cluster), there is no significant increase in the indicator GDP per capita. Hungary, Bulgaria and Slovakia report the highest values of the indicator share of public investment in the GDP.

Theoretical and empirical research shows a positive interrelationship between economic development and increased public investments. However, efficiency of public investments is the main catalyst of economic development.

An IMF report published in 2015 indicates that there is a significant level of inefficiency in the volume and quality of the infrastructure, estimated at about 30%, when comparing the volume of public resources invested in public infrastructure. We can conclude that increased public investments in countries of the first cluster do not lead to increased GDP per capita. We have to note that, for example, in 2015 some of the public investments made in Bulgaria and Romania relate to the implementation of European projects. Many of these projects were prepared for the construction of stadiums, landfills, treatment plants, etc. Whether these investments increase the efficiency remains an open issue.

Conclusions

Summarizing the results of conducted analyses we come to the conclusion that countries of Central and Eastern Europe stand out with a higher share of public investments in the GDP compared to the other EU countries. We observe higher value of GDP per capita and lower value of public investments as a share of the GDP in the countries of Western Europe.

The pre-crisis public investment levels have not been restored by the Western European countries, and the share of public investment in the GDP in 2015 is lower than the reported figures for the year 2008. On the other hand, higher share of public investment in CEECs does not lead to significant GDP growth. This leads to the assumption that a large part of these investments are low-efficiency investments and it is recommended to find a solution for improvement of investment efficiency.

Improvements in public investment management (PIM) could significantly enhance the efficiency of public investment (IMF, 2015)

The activities of planning, allocation of resources and implementation of projects are part of the management of public investment.

IMF`s experts state in their reports that there is a strong positive link between managing public projects, public investment and growth. In order to determine the efficiency of public investment, the link between the capital allocated to public investment, the built infrastructure and the quality of the built infrastructure needs to be examined.

A number of performance indicators and thematic questionnaires are used to calculate efficiency

IMF recommends the use of PIE-X indicator of infrastructure coverage and quality - Public Investment Efficiency Indicator (International Monetary Fund, (2015), Improving Public Investment Efficiency in the G-20).

Quality of planned investments, allocation of resources to priority projects for economic development, investment impact on solid waste and water treatment related issues, integrity guaranteed by the investment, etc., these are some of the investment efficiency indicators.

The level of quality depends on different factors like economic development of the country, structural characteristics of the economy, impact of investments.

To improve efficiency, attention should be paid to the macro-fiscal framework, investment integrity, medium-term budget planning, coordination of state, local and private sector investments. Public investment can be evaluated on the basis of the following indicators:

- Efficiency of public investment – measured by the PIE-X indicator of the infrastructure coverage and quality.
- Volatility of public investment – measured by the standard deviation of GG investment growth.
- Credibility of public investment – measured by the absolute difference between budgeted and actual general government capital expenditure.

- Integrity of public investment – proxied by the International Country Risk Guide (ICRG) Corruption.

Coordination between central and local authorities is important for efficiency. Many public investment projects are implemented by local authorities and good coordination between different levels improve the prioritization, synergy and project` implementation.

A variety of public institutions which carry out project management are being established by in a number of countries. These institutions support and develop project planning at various levels, they are responsible for improving the financing, management and monitoring of project implementation. Countries exercising good management of public investments have stable, reliable and efficient infrastructure projects.

The type of built infrastructure is of major importance for economic growth. For example, in Bulgaria, the growth in public investment at the end of 2015 is due to the implementation of European projects. Majority of these projects are related to the construction of sewage treatment plants, water supply and sewerage networks, landfill sites. These projects represent basic infrastructure.

Historically, the CEE countries are lagging behind the Western European countries in development (Price Waterhouse Coopers, 2015). The basic infrastructure that has been built with European resources in recent years in CEE countries, has long been built in Western European countries. We can assume that high investment costs in CEE do not bring about immediate GDP growth and project efficiency is uncertain, but they are a basic and indispensable precondition for long-term economic growth and activity.

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RECEIVABLES INVESTMENT TRUSTS AS AN ALTERNATIVE FOR THE PARTICIPATION OF INSTITUTIONAL INVESTORS IN INFRASTRUCTURE PROJECTS

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institutional investors, investment trusts, securitization of receivables, financial instruments, infrastructure investments.

Abstract

The Bulgarian economy requires priority and scale infrastructure investment under conditions of limited state funds. Institutional investors manage significant resources that can be included in the financing of infrastructure projects, but respect the strict restrictions governing their activities. The infrastructure projects risks are serious and their assessment is more precise after the design phases and the initial construction stages.

The aim of the survey is to draw on the existing legal framework opportunities for involving institutional investors in the process of financing infrastructure projects. Receivables investment trusts offer such alternatives for institutional investors to refinance the companies building the projects while providing investors with professional valuation of claims under performance contracts, interest and principal, institutional management of risks and cash flows.

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Introduction

The rapid development of the catching-up Bulgarian economy requires priority and scale investment in infrastructure, and Bulgaria's membership in the European Union requires the maintenance of a modern image through the use of green technologies. The state budget funds are limited, while institutional investors manage a significant resource. Because of the European and national financial regulation, huge funds can not be directly targeted at the infrastructure investments, including green projects.

The issue is relevant for two reasons - the need for large infrastructure investments to provide for fast economic growth and the availability of huge funds to institutional investors. Due to the financial regulations in Bulgaria and the specifics of the national capital market, their funds can not directly finance infrastructure projects. The securitization and financial engineering facilities through the receivables investment trusts enable the above-mentioned topical issues to be addressed.

The object of the material is the investment in infrastructure by Bulgarian institutional investors. The subject of the study is the inclusion in the process of the receivables investment trusts. The aim is to provide a mechanism by which institutional investors get access to the process of financing infrastructure projects. The study attempts to solve the following tasks: to identify the reasons that require additional financial instruments to ensure the involvement of institutional investors, to emphasize the role of receivables investment trusts and to provide a mechanism for the securitization of receivables, claims on bond issues, bank loans, and contracts for the construction and operation, which are initial financial instruments.

The research builds on the existing regulatory framework and points out possibilities that already exist in Bulgarian legislation.

Insufficient infrastructure and "dormant" cash funds to institutional investors

Ensuring access to adequate infrastructure is a basic requirement for rapid economic growth. The investment and pace of development of the regions around Plovdiv, Sofia and Burgas on the one hand and Varna on the other hand is an up-to-date example. In addition, modern social and political requirements for increasing green projects pose new challenges for the authorities - it is no longer just necessary to provide infrastructure, it must also meet the requirements of not polluting the environment and creating conditions for the restoration of natural resources.

The problem is compounded by the increasing needs of modern infrastructure, the very product of new technologies or a mediating unit for their use. In this sense, infrastructure is expected to continue to play a key role in economic and social development in the future, as the importance of the network economy is growing and society is becoming increasingly dependent on the wide range of infrastructure services (Beneva, 2017).

Governments have serious problems in financing infrastructure projects due to budget deficits, national debt growth as a percentage of GDP and often due to the public sector's inability to ensure effective investment. These reasons lead to a relative decrease in state resources directed to infrastructure (OECD, 2015).

According to a McKinsey study (2012), funding for infrastructure projects requires extra private investment due to growing needs. The report points out that the need to introduce new facilities is growing faster than the country's gross domestic product and tax revenue. The group expects investment to grow from the current 3.8% in developed countries to 5.6% of GDP by 2020. In addition, according to a G20 report (G20, (2013)), developing countries will have to invest an additional trillion dollars annually.

In the context of restrictive government budgets and the existence of important sectors that do not receive sufficient funding, the inclusion of private capital in infrastructure investment has long been on the agenda.

Table 1 presents some of the most important infrastructure facilities that the Bulgarian government has implemented or plans to implement in recent years. In addition, the regions have their priority projects, such as for Varna this is the second bridge over the Varna Lake and the Varna-Constanta highway as part of Constanta-Istanbul corridor. The data in the table is from the websites of National Company "Strategic Infrastructure Projects", Wikipedia and the financial press through Dnevnik and Profit.

Table 1

Important infrastructure sites in Bulgaria

Type	object	value in million BGN
railway infrastructue	Sofia-Vidin	5
	Svilengrad	80
	Sofia-Plovdiv	2 015
	Plovdiv-Burgas	325
	Sofia-Dragoman	220
Highways	Trakya	1 250
	Struma	3 300
	Hemus	1 560
	Black Sea	550
	Maritsa	500
	Lyulin	383
Facilities	Danube Bridge	510
	Total in million BGN	**10 698**

According to a recent World Bank report, overall, private investment has improved infrastructure performance in emerging economies. Although experiences varied from country to country, private sector participation efforts have improved the levels of investment and thus service expansion, operating efficiency, and distributional equity, i.e., distribution of benefits across all income classes (Kessides, 2004). On the other hand, institutional investors looking for adequate profitability with measurable risk, inflation protection and a long-term investment horizon appreciate infrastructure projects as appropriate.

Private investment in infrastructure is possible through several mechanisms: public-private partnerships that are contractual agreements allowing the private sector to provide public goods against compensation for participation; the instruments of privatization - complete or partial, to offer the private sector some participation in at least one of the phases - design, construction, maintenance or operation.

The current public sector budget in Bulgaria is insufficient, but the financial institutions manage serious capital funds. Table 2 presents the funds available to Bulgarian institutional investors over the last 10 years. The data are systematized on the basis of information provided by the Bulgarian National Bank and the Financial Supervision Commission. According to the information provided, the funds available for investment at the end of 2016 are close to 90 billion BGN.

Institutional investors also have another serious reason to look for different assets to target funds. This is unprecedented, according to Bean, Broda, Ito, and Kroszner ((2015), by Beneva (2017)), a current configuration of low real interest rates and low inflation over such a long time span. From two-digit values in the late 1970s and early 1980s, now the return on long-term government securities is below 2%. Extremely low levels of long-term, risk-free interest rates in developed economies are unusual. Similar is the situation in emerging economies, although the downward trend has stalled for the time around the financial crisis.

The attraction of private capital to infrastructure projects has another important objective in Bulgarian society. Historically, our economy is characterized by the compensating presence of the state, leading to a "transfer economy", in which capital is not allocated to the market-related allotment efficiency (Avramov, 2007). The attraction of the Bulgarian investors in the process of financing and exploitation of the important infrastructural sites will lead to more "market" in the public relations.

Table 2

Assets managed by the Bulgarian institutional investors

year	investment funds	pension funds	banks	total for
	assets in million BGN	assets in million BGN	deposits in million BGN	the year
2007	911	2 317	39 005	**42 233**
2008	326	2 299	41 942	**44 567**
2009	383	3 156	43 436	**46 975**
2010	479	3 987	47 128	**51 595**
2011	786	4 598	53 046	**58 430**
2012	816	5 709	57 639	**64 164**
2013	981	6 821	62 571	**70 373**
2014	1 147	8 165	63 825	**73 137**
2015	1 143	9 338	74 373	**84 854**
2016	1 484	8 999	78 585	**89 068**

An additional effect of attracting institutional investors stems from the relationship "growth - quality of functions delivered by the financial system" established by Levine (1996). As part of the financial system, institutional investors and the capital market will offer new sources of a national product if they are involved as participants in the process

Conventional options for infrastructure investments of institutional investors

Private funding of infrastructure projects involves both bank lending and bond or share issues. Infrastructure funds are also used. They combine public and private capital. If the companies involved in the projects are listed, the issues are traded on a regulated capital market. Then institutional investors and other market participants have standard access to the financial instruments proposed by the issuers. In cases where infrastructure companies are not listed or financed through bank loans, the ability of market participants (especially supervised entities) to buy shares or bonds is severely limited.

Bulgarian institutional investors are subject to all European regulations and restrictions on the financial instruments they can hold in their portfolios. In addition to the requirement that the instruments be publicly traded, there are thresholds for the concentration of capital in one company. Another problem is the ban on investing in receivables as well as the direct or indirect lending of activities.

Restrictions on investment by the most resourceful and long-term investors - pension funds - are all the more serious. Their participation in the conventional schemes is virtually impossible because of the requirements to invest only in listed stock, in mortgage bonds issued under the Mortgage Bonds Act and admitted to trading on a regulated securities market, corporate bonds admitted to trading on a Bulgarian regulated market and in corporate bonds issued or guaranteed by banks with more than 50% state participation in order to finance long-term and medium-term infrastructure and investment projects that will be listed.

Several additional standard opportunities for institutional investors to participate in financing infrastructure projects are:

- Companies set up to invest in fixed income securities (YieldCo) - they invest in the bond issues of the companies building the infrastructure sites; the problems arising from investing in such companies are linked to the huge capital requirement, management difficulties (there are no specific requirements for management as for listed investment trusts), taxation, the lack of a distribution of profits and the possible treatment of the company as unregulated investor on own account by profession - under the laws on financial conglomerates and collective investment schemes;
- Multiple listed companies for individual projects that issue publicly traded bonds - problems arise because of the low probability that they are listed, as well as the possibility to finance through bank loans.

Serious infrastructure investment problems stem from the genesis of financing these projects. The risks associated with such long-term investments are related to the ex-ante assessments of market demand and supply, operational problems, environmental risks, maintenance of infrastructure, unforeseen circumstances (force majeure), problems related to the construction of large sites, the problems stemming from project participants (one of them is the state represented by political power, often municipalities are also a factor, and public opinion is particularly important), financial risks associated with the interest rate on loans, exchange rates and syndicates financing, legal and regulatory risk, political risk (Tinsley, 2000).

Political risk is particularly important as government or municipal decisions can lead to suspension of projects before they are completed, termination of operation, change in pricing conditions, delays in expropriation of private property, changes in the regulatory environment, changes in tax laws. In the case of incompetent judicial systems and inefficient institutions, these risks may be at the root of the failure of companies building or operating the infrastructure. Part of the political risk is also the public mistrust of a situation where important infrastructure sites are in private hands (Kim, Little). An additional problem is the institutional capacity required to ensure

the procedures for the preparation of the sites, their completion and operation, as well as to position the private companies in the field of public goods in a way that does not contradict public opinion.

Developed economies with liquid capital markets available solve problems by creating new segments of infrastructure assets. In contrast, emerging markets are too small and illiquid to develop markets for infrastructure assets and products of any substantial size. This prevents them from developing such specific investment instruments and these instruments are not liquid and not attractive to the investment audience (Inderst, Stewart (2014)).

Alternative opportunity for institutional investors to participate in infrastructure projects

Regulations on institutional investors' portfolios are a limiting factor, despite the critical need for increased investment in infrastructure. In addition, the different risk categories, in particular political, institutional and legal, lead to high levels of uncertainty, especially in the long design and construction phase.

According to Inderst and Stewart (2014), the key to the successful involvement of institutional investors in infrastructure projects in emergent markets is isolating and packaging risks so that the players which can best take them on are able to. Well-designed infrastructure financing vehicles can help achieve this goal while creating a predictable environment. This environment makes it possible for investments that require long-term liquidity, yield, protection against inflation and acceptable risk.

The involvement of the private sector in the construction and operation of large infrastructure projects requires the mobilization of significant capital. The sources of this capital are own funds, bank loans (including syndicates - due to the large amount of investments) and issues of shares and bonds. While “going public” procedures are justified if the infrastructure companies are large and involved, the inclusion of multiple participants means that they will remain non-public and will not benefit from the regulated market. The very possibility of financing by credits also excludes the capital market as a source of funds for the objects. The third source of capital - the financing with own funds - also excludes the need for external funds.

Bonds’ issues (private or public) enable multiple market participants to be involved in raising capital and implementing the securitization toolkit. Financing of individual partnerships to build infrastructure can thus be done through long-term debt, postponed coupon payments (to enable the entity to start generating revenue), and consols. An important advantage of these debt instruments is their consideration as a set of cash receivables - for the principal of the debt and the due interest on the debt.

Financing of individual partnerships with bank loans may also be an opportunity to apply financial engineering methods, with outstanding payments on loans being considered as receivables, respectively on the principal and on interest payable.

Coupons strippings from the principal due to debt is not a novelty for the capital market. The processes represent a kind of pooling and the result is the creation of several new securities each providing income to its holder consisting of a certain percentage of principal payments, interest, or a combination of both. The financial theory divides these flows into two types: interest only where a given class of investors only receives cash flows from the interest paid on the pool loans; principal only - a given class of investors receives only cash flows from the principal paid out of the pool loans. While the separation of the two bond payments is subject to financial innovation and engineering, the separation of receivables from the principal of the bank loan and the interest on it is possible through cessions to specify the holder of each of the receivables.

Self-financing is also an option for infrastructure companies. In these cases, they have the option of refinancing their investments by selling their claims under the construction or exploitation contracts. The fact that a partner to these contracts is state and municipal bodies significantly increases the credibility of the assets subject to securitization.

In the initial stage of financing and building of infrastructure sites, risks of all categories are highest and their assessment is hampered by the lack of reliable information, including on future public attitudes and policy decisions. Calculating the market value of such a debt at such a point in time will lead to extremely low stock levels and will sharply reduce their supply to institutional investors.

In this sense, it is important to provide the possibility for financing and refinancing in two stages. In the first stage, the infrastructure companies will launch capital through a method chosen by them - bank loan or issue of shares or bonds, including private ones, they also can invest their own funds. In the second stage, refinancing (closer to exploitation when uncertainty is significantly lower), the risks could be objectively evaluated and the cost of the debt will be closer to its fair market value.

Refinancing of investments in the second phase can be done through trusts for securitization of receivables (receivables investment trusts[1]). It is they who can offer the financial instruments to fulfill the two main objectives - capital for infrastructure companies and the opportunity to involve institutional investors. Additionally, these companies also provide the opportunity for professional risk assessment as well as the separation of different receivables according to the specificity of the individual classes of uncertainty.

The aforementioned options for separating the receivables of infrastructure companies and of their investors and creditors are fundamental to the option to include receivables investment trusts (special purpose vehicles for securitization of receivables). These companies operate under a special arrangement, are supervised entities (act under the Security Exchange Commission regulations) and offer a number of benefits from which institutional investors could benefit. Firstly, they are public, their shares are traded on a regulated market. Their investments in receivables are necessarily preceded by a valuation of assets at market prices, which takes into account all the risks of the projects of the various companies whose interest and principal liabilities and contractual claims are the subject of the investment. Companies do not owe a tax on profits and have a legal obligation to distribute 90% of the profit, which provides liquidity to their shareholders through the annual dividends. Last but not least, these companies are professional investors and have the toolbox to increase their capital if additional securitization funds are needed.

Including receivables investment trusts in infrastructure investments of institutional investors

The proposed mechanism does not require companies building infrastructure facilities to be public or to issue debt or equity on a regulated market. They are funded in a way they choose, including through their own funds, private bond issues or bank loans. At an appropriate time after the infrastructure project's prospects are subject to objective assessment, the investors and creditors of the builders choose an investment firm to restructure their receivables. The restructuring of the obligations on bank loans and bond issues will divide their payments into two different receivables - interest and principal.

Receivables investment trusts invest in interest and principal claims both on the banks that fund the sites and the bondholders, including in non-public issues. These investments can not be carried out directly because the receivables investment trusts have the option of buying only receivables, not financial instruments such as bonds. This requires the bonds to be divided into two different receivables - the principal and the interest payments, as well as the splitting of the receivables on the bank loans also in two - again on the principal and on the interest payments.

The above described process of dividing interest and principal claims is complex and requires an initiative from creditors of infrastructure companies. A shorter path is also possible, namely direct refinancing of project contractors. This is achievable by selling the receivables of infrastructure companies under the construction contracts or the operation of the sites. These contracts are concluded by a state or municipal body

and the claims on them are accepted by investors as low-risk. This allows companies to not use debt and manage their capital structure more efficiently.

Market participants (mostly institutional investors) buy shares of publicly traded receivables investment trusts, thus fulfilling the main regulatory requirements for them - investments in listed companies. The interest in such investments will lead to an increase in the demand for such securities. Through the capital increase procedures of the receivables investment trusts, they will attract additional resources that will once again be included in the refinancing process for infrastructure companies.

The underlying financial instruments are operating or construction contracts, loans and non-public bond issues. Interest receivable, principal receivables and claims under construction or exploitation contracts will be formed on them. These underlying instruments have important advantages, especially in comparison to standard stocks and bonds traded on a regulated market. First, investments in unlisted instruments provide low correlations with other asset classes (Inderst and Stewart, 2014), which significantly reduces overall portfolio risk. Also important are the premiums due to the illiquidity of securities, which are especially characteristic of non-publicly traded instruments, which increases the return on portfolios (Amihud, Hameed, Kang, Zhang, 2015).

Conclusion

The need for priority and scale investment in infrastructure, including green, is objective for Bulgaria. At the same time, modern restrictions binding on institutional investors do not allow their direct engagement with long-term investment projects in the real, including public sector. The opportunities provided by receivables investment trusts extend the alternatives to institutional investors while adding new prospects for financing and improving the infrastructure environment.

The material identifies a mechanism for restructuring and securitization of receivables, with underlying assets being construction and operation contracts, bank loans and bond issues. The mechanism does not require a change in existing regulatory documents or the creation of new ones. This approach generates a number of positive effects for both creditors and infrastructure companies as well as for all market participants.The main ones are:

- Refinancing creditors of infrastructure companies;
- Refinancing the infrastructure companies themselves, whether or not they use external financing;
- Debt restructuring of these companies, including a change in maturity and payment structure;

- Investment opportunities for all investors, especially for institutional investors;
- Increase demand and supply of financial instruments issued to finance infrastructure;
- Increasing opportunities for issuers and investors, increasing interest in the capital market and increasing liquidity.

Investments in infrastructure provide new opportunities for institutional investors. Besides being long-term, they also add social responsibility to their profile. If investments are in green infrastructure, the added benefit of many of them is a modern image that attracts new customers.

Part of the institutional investors' interest in infrastructure investment is also due to the weak performance of stock and bond markets over the past ten years, and this is also the case for emerging markets. Institutional investors have a lot of expectations, and among them the adequate profitability is important. While high returns are a standard target for capital management companies, it is even more important for pension funds because of their liability.

End Notes

[1] Such kind of a trust can be founded in Bulgaria. According to the Special Purpose Investment Companies Act such company shall be a listed, joint-stock company which, under the conditions and by the order of the Act, invests the funds raised by issuance of securities in real estates or receivables (securitization of real estates and receivables). Receivables investment trust is the author's preffered term because of the association with real estate investment trusts, and the huge differences between special purpose vehicles and trusts.

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METHODOLOGICAL FRAMEWORK FOR ANALYSIS AND EVALUATION OF SECURITY THREATS WITHIN INDUSTRIAL ENTERPRISES

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JEL F52, L65

Abstract

The following article provides an adapted approach for analysis and evaluation of threats from the internal and external environment of industrial enterprises in the Republic of Bulgaria. A significant part of similar previous scientific studies and practically applicable tools have been analyzed in the paper. The author seeks answers to a great variety of questions and issues such as current global and regional threats, the rise of new types of aggressive competitive moves, the constantly changing regulatory framework, including the EU regulations as well as the inherited economic local issues. The developed methodological approach has been used by the author for empirical research on enterprises operating in section S 20 "Manufacturing of Chemical Products" in accordance with the Bulgarian Classifier of Economic Activities, the results of which provide a working methodological basis for the development of integrated active corporate security system.

Keywords:

threats, chemical industry, corporate security.

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Introduction

Today's difficult political and economic situation generates new types of challenges for the business world. As a democratic country driven by its market economy, Bulgaria cannot remain isolated from the extremely entangled geostrategic, political, macroeconomic and social relations and processes presenting diverse threats. Industrial enterprises, especially the ones operating in the chemical sector, are largely influenced by these factors, due to the specifics of their manufacturing processes, the hazardous materials at the input and output of production, the nature of their intellectual property and so on. Issues related to the active corporate security system together with elements that must neutralize internal and external threats are complicated and ge-

nerate difficulties for the system's administration. The concept requires from professionals operating in the business security sector to build two security levels – 1) proactive information gathering for risk management capabilities and 2) integrated corporate security system development (Petrov, 2007, pp. 10-17).

The author's main goal is to develop a methodological framework for analysis and evaluation of internal and external threats for industrial enterprises on the basis of previously completed similar scientific studies and practically applicable solutions.

Scientific studies and practically applicable tools in the area of corporate security

The author aims to cover as much recent studies in the area of corporate security as possible to be able to define more accurately a methodological framework for analysis and evaluation of security system's threats for the Bulgarian industrial enterprises. In addition, the listed studies provide a broad basis for exploration of different indicators within the process. Even though there are plenty of studies related to improving competitiveness, the relation between business excellence and active corporate security has yet been insufficiently studied. The analyzed studies and methodologies are sorted chronologically in Table 1, starting with the most recent ones. The herein examined key indicators and measures present the most significant part of the extensive studies conducted thereof and that is the reason why they bear such a great emphasis.

Table 1

Strengths and Weaknesses of Similar Studies

Research/Methodology Author(s)	Strengths	Weaknesses
Security Research Initiative (Gill & Randall, 2014) *Aspiring to Excellence: The Case of Security Suppliers and Corporate Security. A SRI Report.*	Despite the large number of studies related to business excellence, the one we have in mind belongs to the few focused entirely on the private security sector. Under close examination have been both security suppliers' and customers' opinions. The research points out a large number of crucial success factors in the field of active corporate security.	Survey conducted via Internet shows that different indicators are significant for the different focus-groups around the world without reporting the economic, political, social, cultural, and ecologic factors.
SIEMENS (2013-2014) (Miller, 2015)	The study was conducted among chief security officers of large	Respondent organizations operate in various sectors: finan-

Corporate Security: Findings from a Global Study.	corporations and public organizations from Europe, USA and Asia. The included indicators focus simultaneously upon current requirements that experts face and future security challenges.	cial institutions, high-tech companies, public organizations, health institutions, trade, chemical, manufacturing enterprises, etc. Corporate security problems logically vary according to the sector involved.
Securitas Security Services (2014) (Walker & Co., 2015) *Top Security Threats and Management Issues Facing Corporate America: 2014 Survey of Fortune 1000 Companies.*	The study was conducted among chief security officers and similar security experts in 248 American companies. A large number of evaluated threats are included. Although the companies operate in different sectors, deficiencies are neutralized by separate studies for each sector.	***
Forrester Research Inc. (2009) (Kark & Dines, 2010) *Security Organization 2.0: Building a Robust Security Organization.*	The study was conducted among 2199 IT directors and other information security officers within small and middle-sized companies in the United States, Canada, Great Britain, France and Germany.	The survey was conducted entirely online for a very short period of time (from August 2009 to September 2009) via one of the biggest social business media.
ASIS (2009) *Compendium of the ASIS Academic/Practitioner Symposium*	The researchers list 18 active corporate security elements.	The research is entirely in the field of science.
The Conference Board (2002-2004) (Cavanagh, 2005) *Corporate Security Measures and Practices*	The studies were conducted among 199 security directors, 80 IT security directors, 52 risk managers and 96 chief executive officers of middle-sized companies. A number of active corporate security elements and threats are grounded by interviewees.	***
University of Genève (2004)	The study successfully embraces information security, its costs and the strategy of the companies. It was conducted among 23 executives from the banking, telecommunication and IT sectors in Switzerland, Great Britain and Germany.	The study is entirely scientific and that is the reason for its timely limits. The data gathered presents the situation within the information security system at a particular moment. It lacks statistical data.
National Association of Industrial Security Companies (2009) *Private Security Activities During the Crisis*	One of the few private security studies conducted in Bulgaria during the financial crisis focused on two respondents: corporate security suppliers and customers.	Not enough analysis and arguments for the chosen indicators. The study focuses on the idea of reactive rather than active corporate security.

The research of Securitas Security Services named *Top Security Threats and Management Issues Facing Corporate America* conducted in 2014 has become an industry standard in the area of US corporate security. Securitas is an international company specializing in corporate security that works with more than 80% of Fortune 1000 companies and it generates an annual profit of over 3 billion dollars. Its survey drew 248 responses from corporate security directors and other executives who have an overall responsibility for their companies' security programs. The rated threats through the years are listed in table 2.

Cyber/Communication Security has topped the list being in the tenth place in 1997. Workplace Violence has held its importance for the respondents being second in 2010/2012 and third in 2014. Business Continuity Planning ranked second in 2014 (remaining third in 2010 and 2012) while Employee Selection/Screening has remained in the fourth place (where it has been since 2008). A new indicator, Privacy Concerns, holds the fifth place position. In addition, Property Crime slipped to sixth place in 2014 from 5th place in 2012 while General Employee Theft went down one position from its sixth place. The outlined trends in the survey represent the evolution of corporate security theories over the recent years.

Another significant factor for the study is the respondent companies' structure. All of them are included in Fortune 1000. Table 3 shows that most of the respondents, 90 companies in 2012 and 65 companies in 2014, represent the industrial sector, as in the following article. Industrial enterprises account for more than 30% of all respondents and that is the reason why top concerns for security directors at Fortune 1000 manufacturing companies are included in table 3 of the article. The top three threats in 2014 remain unchanged compared to 2012, a fact emphasizing their importance once more. In the following three places the trends are similar, verifying what is stated in the article's introduction – physical/reactive countermeasures are becoming less and less preferred compared to the new business security paradigms.

Table 2

Top Security Threats 1997-2014

Security Threats	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2008**	**2010**	**2012**	**2014**
Cyber/Communications Security (e.g. Internet/intranet security)	10	8	7	2	2	4	3	3	1	1	1

Business Continuity Planning	5	7	2	2	5	2	2	2	3	3	2
Workplace Violence	1	2	1	1	1	1	1	1	2	2	3
Employee Selection/Screening	4	4	4	5	3	5	5	4	4	4	4
Environmental/Social: Privacy Concerns	-	-	-	-	-	-	-	-	-	-	5
Property Crime (e.g., external theft, vandalism)	12	10	10	12	10	9	12	5	7	5	6
General Employee Theft	2	1	6	6	6	8	7	5	8	6	7
Crisis Management and Response: Domestic Terrorism	12	15	17	14	16	17	3	4	7	12	8
Identity Theft	-	-	-	-	16	14	10	12	11	10	9
Unethical Business Conduct	3	6	9	7	9	7	8	9	5	8	10
Environmental and Social: Pandemics	18	-	-	-	-	-	-	-	17	18	11
Crisis Management and Response: Political Unrest/Regional Instability/National Disasters	-	-	19	17	20	14	11	10	6	7	12
Litigation: Inadequate Security	13	13	13	13	13	11	18	19	16	9	13
Fraud/White-Collar Crime	7	3	3	4	4	6	6	8	10	12	14
Substance Abuse (drugs/alcohol in the workplace)	9	11	8	9	8	10	9	19	17	13	15

Litigation: Negligent Hiring/Supervision	16	16	15	13	14	18	20	25	23	17	15
Business Espionage/Theft of Trade Secrets	-	9	12	11	12	19	16	15	15	16	17
Environmental/Social: Robberies	-	-	-	-	-	-	-	27	19	14	18
Intellectual Property/Brand Property/Product Counterfeiting	-	-	-	-	-	-	-	21	14	11	19
Global Supply-Chain Security	-	-	17	19	18	22	21	27	22	20	20
Executive Protection (including travel security)	-	-	-	-	-	-	-	22	13	18	21
Insurance/Workers' Compensation Fraud	17	19	16	15	15	17	17	26	25	21	22
Crisis Management and Response: International Terrorism	-	-	-	-	-	-	-	-	-	-	23
Bombing/Bomb Threats	-	-	-	-	-	-	-	14	24	19	24
Labor Unrest	-	-	-	-	-	-	-	29	26	23	25
Crisis Management and Response: Kidnapping/Extortion	-	-	18	18	19	20	19	33	27	24	26

Table 3

Industry Classification

Main/Sub-industry	Respondents 2012	Respondents 2014
Utilities	15	19
Construction	2	3
Wholesale Trade	4	3
Retail Trade	8	8
Healthcare and Social Assistance	23	30
Arts, Entertainment and Recreation	21	6
Finance and Insurance	35	20
Real Estate, Rental and Leasing	23	31
Professional, Scientific and Technical Services	16	10
Educational Services	10	19
Accommodation and Food Services	2	1
Transportation and Warehousing	24	14
Law Enforcement	6	5
Manufacturing:	**90**	**65**
Food Manufacturing	18	11
Wood Product Manufacturing	4	5
Computer and Electronic Product Manufacturing	9	7
Electrical Equipment, Appliance and Component Manufacturing	10	7
Transportation Equipment Manufacturing	15	10
Miscellaneous Manufacturing	34	25
Information:	**14**	**14**
Telecommunications	8	6
Other Information Services	6	8
Other	**4**	**4**
TOTAL	**297**	**248**

Table 4

Top Threats by Industry – Manufacturing

Rank 2014	Security Threats	Rank Within Industry 2014	Rank Within Industry 2012
1	Cyber/Communications Security (e.g. Internet/intranet security)	1	1
3	Workplace Violence	2	2
2	Business Continuity Planning	3	3
4	Employee Selection/Screening	4	6 (tie)
17	Business Espionage/Theft of Trade Secrets	5	6 (tie)
20	Global Supply Chain Security	6	5
19	Intellectual Property/Brand Property/Product Counterfeiting	7	4
5	Environmental/Social: Privacy Concerns	8	-
7	General Employee Theft	9	8
10	Unethical Business Conduct	10	12

A list of 16 security management topics rated by various interviewed experts is also significant for the article's main purpose. The list was presented to security managers with instructions to rate between 5 (most important) and 1 (least important) with regard to their anticipated impact on their company's security program during the following 12 months. The results are shown in table 5 (Walker, 2015, p. 14).

Table 5

Future Impact of Security Management Issues

Rank 2014	Management Issues	Average Importance Score
1	Security Staffing Effectiveness: Training Effectiveness/Methods	3,94
2	Promoting Employee Awareness	3,82
3	Budget/Maximizing Return On Investment	3,78
4	Regulatory/Compliance Issues	3,73
5	Keeping Up With Technological Advances	3,71

6	Threat Assessment	3,69
7	Strategic Planning	3,67
8	Implementing Best Practices/Standard/Key Performance Indicators	3,63
9	Security Staffing Effectiveness: Adequate Staffing Levels	3,60
10	Security Staffing Effectiveness: Selection and Hiring Methods	3,57
11	Security Staffing Effectiveness: Security Officer Turnover	3,37
12	Managing Remote Security Operations	3,25
13	Additional Security Responsibilities	3,16
14	Career Development	3,13
15	Security Staffing Effectiveness: Absenteeism	2,98
16	Global Supply-Chain Decisions	2,57

To sum up, specialized studies in the field of active corporate security prove to be limited even from a global perspective. Despite that fact, analyzed data show that corporate security services consumption has grown due to the recognized need of today companies to run successful operations which as a whole largely depends on the prevention of corporate security threats. If managers decide to deal intuitively with security issues at hand, in case such arise, they will have to face even graver concerns. However, the analyzed studies in the article include a large number of threats, risks, critical and emergency situations, etc. as well as methods and tools for their proactive neutralization. As a result, the cited studies represent a significant basis for developing a new methodological framework on the one hand, and future similar research, on the other. Each of them, with its particular strengths, weaknesses and limitations provides a large number of indicators that can be used for evaluation of current issues in the area of active corporate security.

Based on these assumptions, the indicators used in the studies of Securitas and The Conference Board seem appropriate for the next stages of the current research. They have been evaluated by a total of 675 corporate security executives to start with, and they submit enough indicators for analysis and evaluation of threats (including such faced by industrial enterprises) to consider.

Summarized results from discussions with business representatives and security experts

The author has arranged a number of meetings, discussions and interviews with managers operating in the chosen industry sector and security professionals, searching answers about the problem areas they have experienced. Herein below are the summarized main points of view from the discussions held:

I. Managers and other representatives from the chemical industry:

1) Changes in the general/operating/internal environment of the companies in recent years and their impact on economic performance.

2) A discussion focusing on different threats for the chemical industry:

- neutralizing/deteriorating of existing threats; emerging of new threats from both the external and internal environment of the enterprises;
- impact of direct and indirect threats; which ones bring more dangers.

3) Problems for domestic businesses:

- corruption, lack of anticorruption laws, bureaucracy, access to external financing, etc.;
- monopoly/unfair competition;
- lack of qualified human capital;
- high levels of crime;
- decreasing material resources and outdated technology.

II. Security professionals:

4) Changes in the security environment during the transition of Bulgarian economy and their effect on the industries, particularly the chemical industry as part of the country's critical infrastructure.

5) A discussion about economic security threats' nature:

- macro threats, especially political instability in Bulgaria between 2012 and 2017;
- financial sector crashes;
- hybrid threats linked to the changing geopolitical and regional positions; the scale of their impact upon national security;

6) Problems for domestic business:

- delayed reforms in both judicial and macroeconomic systems;
- *hidden economy* – gray, black and informal economy;
- higher levels of terror danger, especially for the critical infrastructure, respectfully – the chemical industry;
- undeveloped infrastructure.

Having summarized the available information from theory, research and discussions in the area of active corporate security, the main aspects of the new methodological framework's concept to be outlined are as follows:

- Analysis of the genesis of threats and their subsequent impact on the chemical industry;

- In-depth analysis of potential channels of newly emerging threats in order to identify more effective tools for their proactive neutralization;
- Evaluating the effect from implementing an active corporate security model against potential and current threats.

Methodological framework for analysis and evaluation of potential and current threats for industrial enterprises' security systems

Scientific studies in the area of security and defense in Bulgaria are not institutionalized as a separate research area. Therefore, according to Pavlov (2009), such studies are often interdisciplinary and involve a variety of scientific directions which is very challenging for knowledge management within that specific science area. Radev (2006) adds that a scientist's mission is to predict the development and impact of future events and processes by analysis of information and other specific data processing tools. According to the same author, special attention must be drawn to security studies in the context of security environment transformation. To a large extent, those assumptions are legit in business and economy, as well, having in mind the close relation between security and economic prosperity (Walt, 1991, p. 227).

A suitable algorithm for security threats evaluation is developed by Hristov (2007), according to whom it includes:

1) Compiling a list of key security threats, focusing on their relativity;
2) Choosing a proper number scale for quantitative measurement of each threat's impact;
3) Composing of evaluation card for needed data collection;
4) Conducting a survey with a group of qualified respondents;
5) Processing of data gathered from the survey;
6) Defining the seriousness of each threat;
7) Calculation of level of consensus regarding the importance of evaluated threats;
8) Generalization of the results from the conducted empirical research.

From the author's point of view, with the required changes, those steps represent a solid basis for developing a new approach for analysis and evaluation of corporate security threats for industrial enterprises. In any case, the process of developing a methodological framework starts with determining the type and functions of the organization as different enterprises face different threats due to their various activities. The term *threat* refers to any kind of danger for the corporate security system which could disrupt business organizations' interests and strategies. The term is widely used, it intensifies society's sensitivity and it lays the foundations of a great number of pol-

icies directly or indirectly related to security (Yontchev, 2014, p. 41). The above concept draws the attention of the Copenhagen School of security studies – a group of researchers in the area of security with post-Cold war perception who have affirmed the term *securisation* in response to the arising hybrid threats despite the object of attack (Waever, 1998). In practice, there are a number of issues related to threat evaluation. That is the reason why Buzan (1998) introduces two approaches – objective (for clear and present dangers) and subjective (for potential threats). Despite the critics, Buzan proves the link between each threat and different factors' impact and draws the attention to the possibility a threat to be proactively assumed even when its impact is not visible.

In response to the large number of threats, Pudin (2007) proposes the following function:

$$S = f(A, P, T/R).\ Si$$

in which:

A – protected assets;

P – forces, measures, defense factors and organizational facilities;

T/R – threats and risks faced by the organization;

Si – different circumstances related to enterprise's security.

The article focuses on current and potential threats. However, at a later stage, by using expert assessments, the suitable forces, measures, etc. for assets protection could be developed.

According to Radulov (2013), threat analysis means asking the correct question in the correct order. Following the same logic, a suitable methodological framework is developed in the following article. Industrial enterprises (especially the ones operating in the chemical sector) face virtually every possible internal (violence, labor unrest, etc.) and external (theft, vandalism, natural disasters, etc.) threats (Reid, 2005, p. 5). After reviewing a large number of threats found in the cited recent studies, the author assumes the classification of Securitas (table 2) as a reliable source of indicators which represent potential and present business threats for the Bulgarian chemical industry. Nowadays, security challenges are numerous, complicated, interrelated and hard to predict: possible regional crisis that can easily bring violence; new technologies bringing unknown threats and vulnerabilities; political and military conflicts fused by environment changes and lack of natural resources (Dimov, 2014, p. 32).

At the same time, a number of threats and risks could easily blur the line between internal and external security. The big number of threats is divided into two groups – internal and external. This makes the empirical research easier because the

indicators' ranking by respondents clarifies whether the threat originates from the internal or external environment of the enterprises. In addition, such groupings grant a solid basis for developing an active corporate security model which consists of units for neutralization of both internal and external business threats. Figure 1 illustrates these classifications:

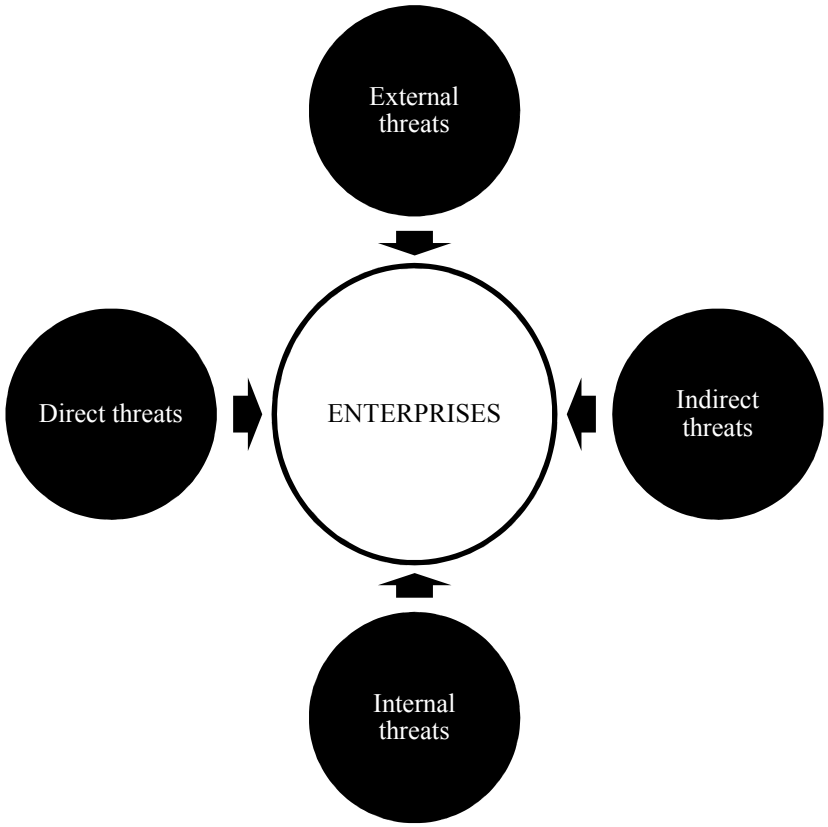

Fig. 1. Types of Threats for Industrial Enterprises

Further classification of threats as direct and indirect is possible after the survey data is collected. In response to insecurity's source, it is possible to distinguish between aspects of internal and external security but such a distinction is very formal as external threats often provoke internal insecurity and vice versa (Ivanov, 2006, p. 11). Despite those limitations, internal threats can be related to:

- **Staff** – during recruitment, selection, training, motivation, managing, control, etc.;
- **Organizational Structure** – inappropriate management styles, lack of corporate culture, etc.;
- **Finances** – potential internal financial crimes perpetuated by employees or managers;
- **Technology** – cyber/communication attacks, privacy concerns, leaks of personal data or intellectual property, etc.

As stated earlier, a particular external action, whether intentional or not, as well as unmanageable situations (environment events) can also cause damage to the organizational activities, mission and assets (human, financial, technological, and intellectual). Those factors should not be excluded and underestimated in security studies such as the following article. The large variety of external sources of threats can be grouped as follows:

- **Political Threats** – unstable political governance (lack of parliamentary majority, lots of resignations, etc.) and law enforcement issues (criticism by the European Commission, bureaucracy and corruption); arising threat of terror, extremism, radicalism, racial, ethnic or religious hatred, etc.;
- **Economic Threats** – delayed economic reforms, monopoly, unfair competition, hidden economy, poverty, unemployment, etc.
- **Social Threats** – demographic crisis (low birth rate, high death rate, lots of economic migrants – mainly young and educated people); high crime rates including organized crime (theft of physical and intellectual property);
- **Technological Threats** – degree of technological development including the competitors'; business espionage; technological disasters, etc.);
- **Ecological Threats** – natural calamities and catastrophes, breakdowns and contaminations, pandemics; food, water and resource shortages, etc.

As discussed earlier in the cited studies with all the indicators, evaluation of security threats (in general) and within a particular sector of industry is a very complicated issue which cannot be addressed generally. Researchers and professionals express different opinion on the issue mainly because the lack of working unified methodology for accurate business threats evaluation. The main difficulties, according to the author, are related to:

- **Enhanced information security and 'no sharing' policy in today's business world** – an issue that can be traced to international relations due to the policy of 'no sharing' of intelligence even between state members of partner intergovernmental

military alliances which has led to some of the most serious terrorist attacks in the XXI century. Restricted access to actual and relevant data related to the problem statements by today's companies (for keeping their competitive advantages) makes it harder for researchers to develop reliable methodology.

- **A large number of specific 'industry related' cuurent threats and various channels for potential ones** – distinguishing 'universal' threats is extremely difficult. Each sector/business/enterprise faces various issues.
- **Time lapse in threats' impact** – overall impact of some threats on a particular object (especially the indirect ones) can cover large intervals of time.

Table 6

Indicators for Analysis and Evaluation of External and Internal Security Threats

EXTERNAL ENVIRONMENT	*IMPACT*				
1.1. POLITICAL/LEGAL INDICATORS:					
1.1.1. Political Instability	*1*	*2*	*3*	*4*	*5*
1.1.2. High Levels of Corruption	*1*	*2*	*3*	*4*	*5*
1.1.3. Tough Bureaucracy	*1*	*2*	*3*	*4*	*5*
1.1.4. Lack of State and Local Financing	*1*	*2*	*3*	*4*	*5*
1.2. ECONOMIC INDICATORS:					
1.2.1. Delayed Economic Reforming	*1*	*2*	*3*	*4*	*5*
1.2.2. Monopoly	*1*	*2*	*3*	*4*	*5*
1.2.3. Unfair Competition	*1*	*2*	*3*	*4*	*5*
1.2.4. Hidden Economy	*1*	*2*	*3*	*4*	*5*
1.3. SOCIAL/CULTURAL INDICATORS:					
1.3.1. Worsening Demographic Situation	*1*	*2*	*3*	*4*	*5*
1.3.2. Lack of Qualified Manpower	*1*	*2*	*3*	*4*	*5*
1.3.3. High Levels of Crime	*1*	*2*	*3*	*4*	*5*
1.3.4. Terrorism, Extremism, Radicalism, etc.	*1*	*2*	*3*	*4*	*5*
1.4. TECHNOLOGICAL INDICATORS:					
1.4.1. Degree of Technology Development in the Sector	*1*	*2*	*3*	*4*	*5*
1.4.2. Decreasing Material Resources	*1*	*2*	*3*	*4*	*5*
1.4.3. Undeveloped Infrastructure	*1*	*2*	*3*	*4*	*5*
1.4.4. Technological Catastrophes	*1*	*2*	*3*	*4*	*5*
1.5. ECOLOGICAL INDICATORS:					
1.5.1. Environmental Disasters and Catastrophes	*1*	*2*	*3*	*4*	*5*
1.5.2. Breakdown and Pollutions	*1*	*2*	*3*	*4*	*5*
1.5.3. Pandemics	*1*	*2*	*3*	*4*	*5*
1.5.4. Decreasing Natural Resources	*1*	*2*	*3*	*4*	*5*

INTERNAL ENVIRONMENT	***IMPACT***				
2.1. STAFF RELATED INDICATORS:					
2.1.1. Workplace Violence	*1*	*2*	*3*	*4*	*5*
2.1.2. Negligent Hiring	*1*	*2*	*3*	*4*	*5*
2.1.3. Negligent Supervision	*1*	*2*	*3*	*4*	*5*
2.1.4. Substance Abuse (Drugs/Alcohol)	*1*	*2*	*3*	*4*	*5*
2.1.5. Strikes	*1*	*2*	*3*	*4*	*5*
2.1.6. Theft by Employees	*1*	*2*	*3*	*4*	*5*
2.2. ORGANIZATIONAL INDICATORS:					
2.2.1. Fraud by Managers	*1*	*2*	*3*	*4*	*5*
2.2.2. Unethical Business Conduct	*1*	*2*	*3*	*4*	*5*
2.2.3. Risks for Higher Management	*1*	*2*	*3*	*4*	*5*
2.2.4. Kidnapping and Extortions	*1*	*2*	*3*	*4*	*5*
2.3. FINANCIAL INDICATORS:					
2.3.1. Business Espionage	*1*	*2*	*3*	*4*	*5*
2.3.2. Robberies	*1*	*2*	*3*	*4*	*5*
2.3.3. Intellectual Property Theft	*1*	*2*	*3*	*4*	*5*
2.3.4. Insurance/Workers' Compensations Fraud	*1*	*2*	*3*	*4*	*5*
2.4. IT INDICATORS:					
2.4.1. Cyber/Communications Threats	*1*	*2*	*3*	*4*	*5*
2.4.2. Privacy Concerns	*1*	*2*	*3*	*4*	*5*
2.4.3. Identity Theft	*1*	*2*	*3*	*4*	*5*
2.4.4.Software Threats for Supply-Chain Security	*1*	*2*	*3*	*4*	*5*

The above difficulties need to be taken into consideration during the structuring of the study. The author believes that one of the most important steps towards neutralizing the described difficulties and many other is the correct and grounded selection of indicators for threat analysis and evaluation.

The initial classification is based on the logically summarized sources of threats for today business enterprises. The first group includes threats originating from the external macro environment which is divided into five subgroups: 1) political/legal threats; 2) economic threats; 3) social/cultural threats; 4) technological threats; 5) ecological threats. The second group summarizes internal threats for the industrial enterprises. A major part of the featured indicators are adopted by Securitas classification (table 2) and they can be broken down into four groups: 1) staff related threats; 2) organizational threats; 3) financial threats; 4) IT threats. The two groups form a total of 38 indicators which are included in a survey. The results from it must show which groups and subgroups have greater impact on researched enterprises' operations (5 – very serious impact; 1 – very low impact).

Conclusion

To sum up, the developed methodological framework fully or partly neutralizes some of the analyzed studies' weaknesses in table 1 as follows:

- it is designed only for industrial enterprises, operating in the chemical sector;
- it considers the specific regional and state political, economic, social, cultural, technological and ecological factors;
- the framework could be used not only by scientists, but also by managers from the chemical industry and by corporate security professionals;
- it summarizes the strengths found in corporate security and threat evaluation theory, researched industry features, conducted studies and security professionals point of view;
- by evaluating the featured indicators, the author searches for grounded assumptions related to active corporate security value and possible applications of researched theory into the Bulgarian industrial enterprises' operations.

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