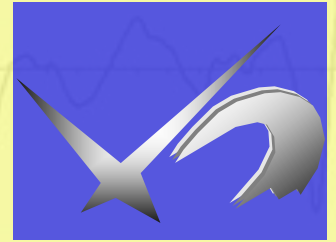
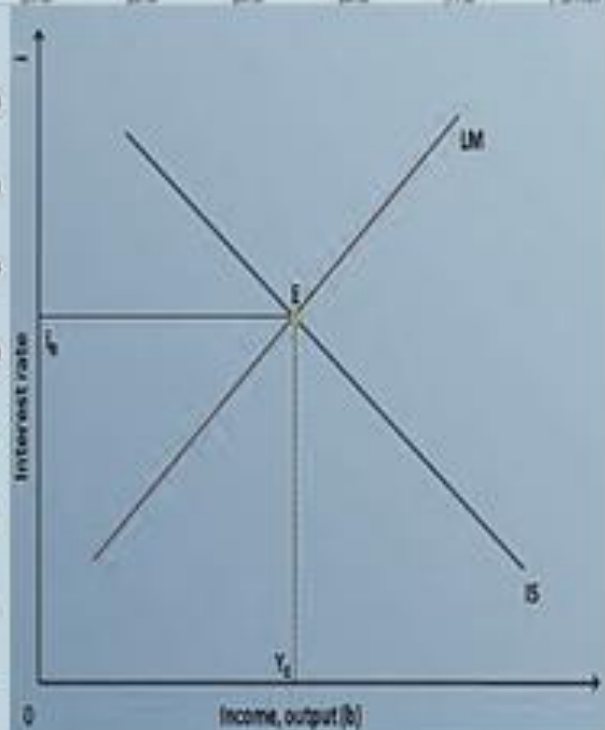


Vol. 2, Issue 2(2), 2014
ISSN 2343-7995 (online)



Hyperion Economic Journal



HYPERION ECONOMIC JOURNAL

**Quarterly journal published by the Faculty of Economic Sciences from the Hyperion University
of Bucharest, Romania**

YEAR II, NO. 2(2), JUNE 2014

ISSN 2343-7995 (online)

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To QE or Not to QE? The Japanese Experience

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Abstract: This paper studies the effect of a series of quantitative easing initiatives belonging to the Bank of Japan on Central and Eastern European sovereign CDSs. Using daily data for the 2005 – 2013 period and considering 23 announcements of QE initiatives we build an econometric event study approach in order to compute and investigate the abnormal returns induced by these announcements. The results indicate a strong effect of the Japanese QE policies on the CEE sovereign Credit Default Swaps.

Keywords: quantitative easing, credit risk, CDS, Bank of Japan

JEL classification G14, F34, E44

1. Introduction

During the economic crises the deficiencies of the financial markets became obvious resulting in a considerable wave of distress and uncertainty that recoiled into the wider economy affecting its dynamics.

In order to counteract this trend and restore a state of economic functionality, the central banks had to step in. In most of the cases, the central banks guide their monetary policy through the manipulation of the short-term nominal interest rates. However, during the global crisis the short rates were nearing the zero lower bound which resulted in the need for new tools of economic stimulation and recovery. The measures put forward are known as quantitative easing and have been deemed as unconventional instruments that aim to absorb shocks and ensure the stability of the financial system

Given the nature of the quantitative easing initiatives and their novelty they became the source of a strong and rapidly developing literature that gravitates around empirical tests of their impact on various areas of the financial systems. The main body of academic work follows the measures issued by four main central banks: The Bank of Japan, the European Central Bank, Federal Reserve or the Bank of England.

The scientific literature considers that quantitative easing originated from the deflationary period which influenced Japan in the 2001-2006 period. These early initiatives are investigated in studies like Bernanke et al (2004), Hosono (2006), Ugai (2007) or Wieland (2009). The latter concludes that these initiatives had an important impact on the market's expectations towards a low interest rate level, though he does not provide a clear effect on bond returns or risk premiums.

Building on the study of Hosono (2006), Bowman et al. (2011) investigate the efficiency of the Bank of Japan's liquidity injections into the interbank market for expanding bank lending. The authors observe a strong and significant effect of the QE policy in stimulating credit expansion.

The initiatives issued by the Federal Reserve have been discussed in an important number of papers, among which we nominate Doh (2010), Gagnon et al. (2011), D'Amico et al (2012), Hancock and Passmore (2011) or Stroebel and Taylor (2012).

Doh (2010) constitutes one of the first attempts to characterize the Federal Reserve's Large Scale Asset Programs. Using a preferred-habitat model, Doh (2010) reports that these programs succeed in decreasing term premiums for long-term bonds. Similar results are obtained by Gagnon et al. (2011) who observe a reduction between 30 and 100 basis points for the ten-year term premium. D'Amico et al. (2012) continue the study of Large Scale Asset Programs and demonstrate their efficiency as a monetary policy. Their results indicate a reduction of 35 basis points on long-term Treasury yields.

Vough (2011) also focuses on the impact of the Federal Reserve QE measures on long-term interest rates and conclude that the effects were significant. Other interesting approaches are found in Krishnamurthy and Vissing-Jorgensen (2011) which observe the "QE1" and "QE2" programs through an event study methodology and in Fratzscher et al. (2012).

Joyce et al. (2010), Breedon et al. (2012) and Kapetanios et al. (2012) analyze the impact brought by the QE policies issued by the Bank of England. Joyce et al. (2010) observe an effect of reduction in guild prices of about 100 while the other studies focus the bond market and on the macroeconomic implications of the first part of the British QE.

Similar investigations have been conducted for the ECB in studies such as Peersman (2011) or Szczerbowicz (2012).

Albu et al (2014a) and (2014b) offer a comparative analysis of the quantitative easing measures issued by the four central banks mentioned above.

In general, the vast majority of empirical studies consider the implications of quantitative easing measures on developed financial markets. However, the financial literature manifests recently an important dose of interest towards the investigation of less popular markets, such those belonging to the CEE countries, relevant results being reported by Harrison et al (2010), Miclaus et al (2008), Lupu and Lupu (2009) and Panait and Lupu (2009).

In this context, the purpose of this paper is to examine the effects induced by a series of quantitative easing measures adopted by the Bank of Japan on the dynamics of nine sovereign CDSs belonging to CEE countries.

The remainder of the paper is organized in the following manner. Section II discusses the data used and the methodology. Section III focuses on the presentation of the results, and section IV concludes.

2. Methodology and data sources

As stated above, the methodology is based on an econometric event study analysis. The modeling context has two input building blocks. The first category of input data consists in daily closing prices that characterize the evolution of nine five-year sovereign credit default swaps. We collected the data from DataStream, considering the (2005-2013) period and focusing on the following countries: Austria, Bulgaria, Germany, Hungary, Poland, Romania, Russia, Turkey and Ukraine. The evolution of the sovereign CDSs closing prices is presented in Figure 1.

The econometric model also uses a table of calendar information that represents the moments in which a BOJ QE initiative was announced.

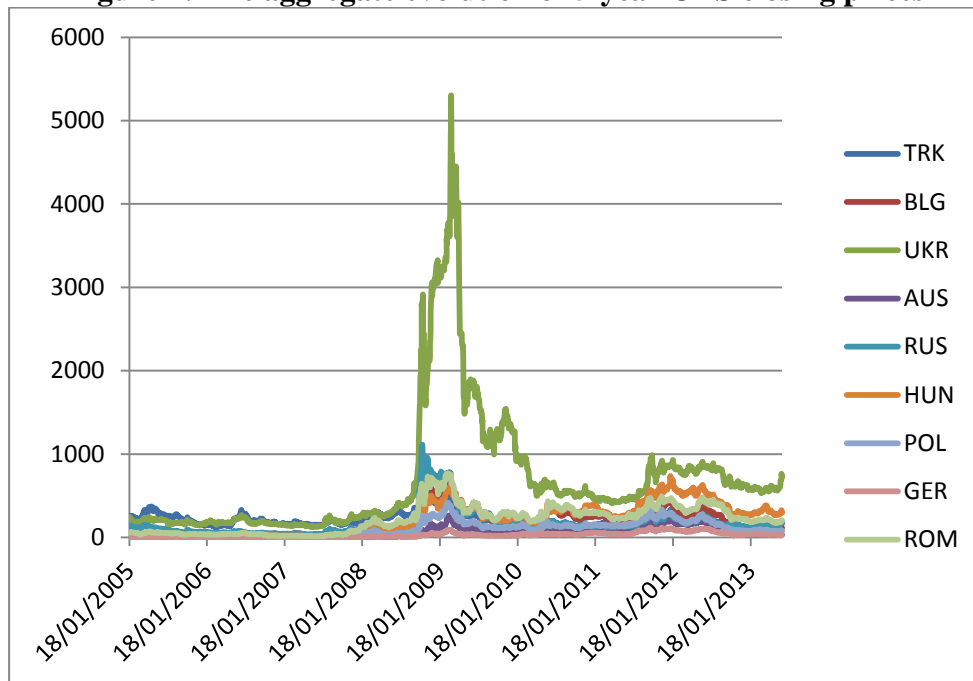
We build on our methodology previously put forward in Albu et al. (2014a) and Albu et al. (2014b) and we calibrate an ARMA (1, 1) – GARCH (1, 1)¹ model for 100 returns that correspond to a window of 100 days.

$$R_{t+1} = lR_t + m\varepsilon_t + \varepsilon_{t+1}, \varepsilon_{t+1} \sim N(0, \sigma_{t+1})$$

$$\sigma_{t+1}^2 = \omega + \sum_{i=1}^p \alpha_i R_{t+1-i}^2 + \sum_{j=1}^q \beta_j \sigma_{t+1-j}^2$$

Where $\alpha + \beta < 1$

Figure 1: The aggregate evolution of 5-year CDS closing prices



Source: Authors' work

From this point we conduct the calculation of the variances with reference to the error terms determined by the computation of the differences to the returns. In other words, for each of the chosen events, we set an event window of 41 days (20 days before the event and 20 after) and then formulate predictions of the variances.

We thus obtain two types of results. Firstly, the model generates the series of abnormal returns which are defined as the differences between the prediction of the ARMA – GARCH model and the actual returns of the event window. Secondly, we compute a set of squared abnormal returns which are given by the differences between the predictions on variance and the squared returns of the event window.

Using the estimated variance we thus calculate the values of the t test for both categories of results. The results for the abnormal returns are summarized in Figure 2.

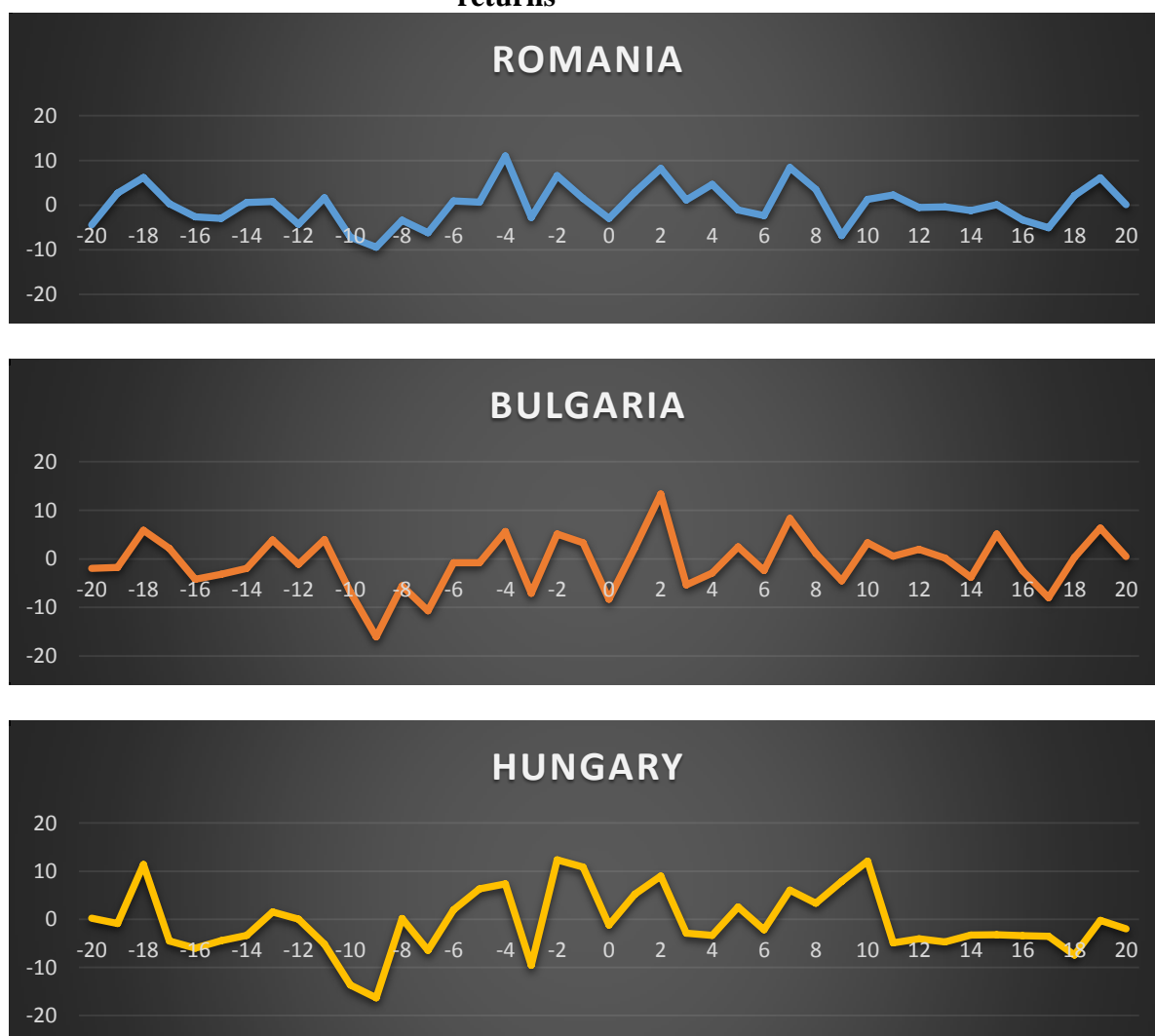
¹ For a more ample discussion on GARCH modeling see for example Călin et al. (2014) or Lupu and Lupu (2007).

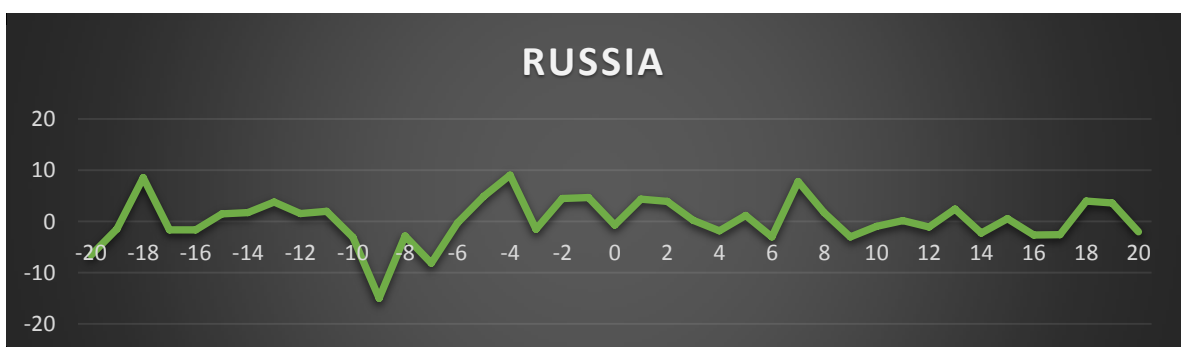
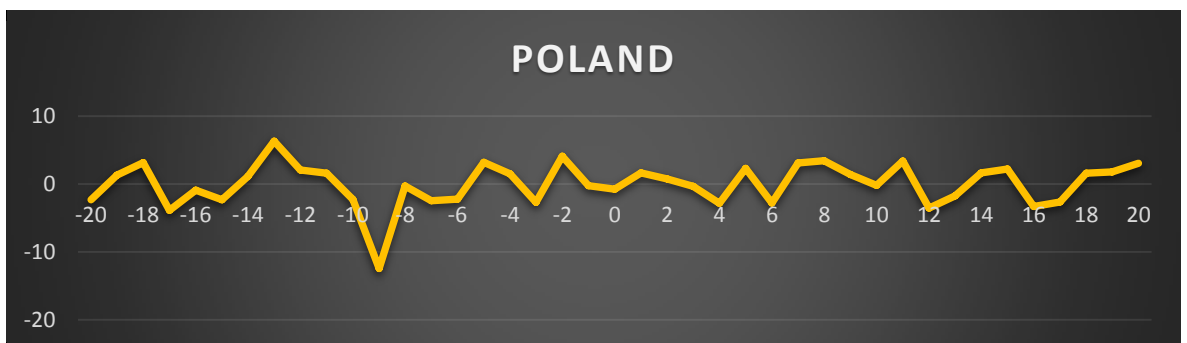
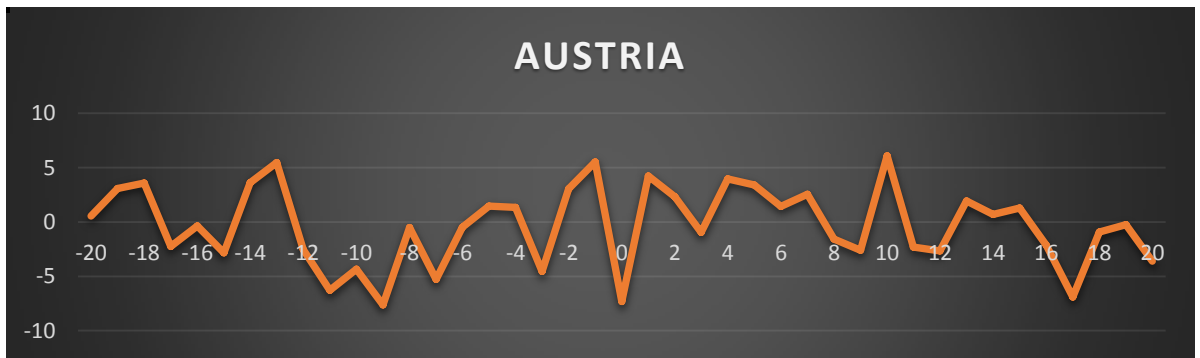
3. Results

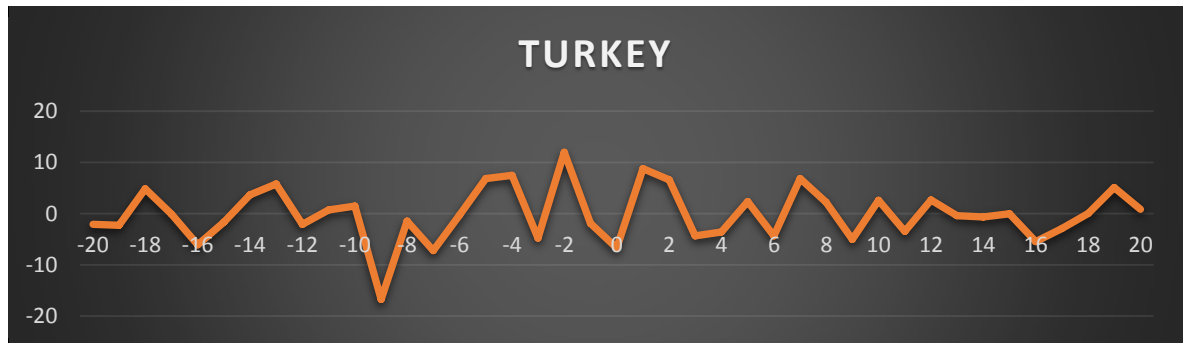
In the case of Romania the values of the t test exhibit significant levels of the abnormal returns in 64% of the days in the event window. The information present on the financial markets determine a decreasing tendency of the credit risk associated to the Romanian CDS in the (-20, -7) interval. On average, the launch of the QE policy by the Bank of Japan triggers a decrease of the abnormal returns on the day of the announcement (day zero). After this moment, the risk level of the financial instrument tends to mildly rise in the first week. After day 8, the results show a fluctuating tendency dominated by an expansionist trend.

The abnormal returns obtained for the Romanian CDS show an influence that is statistically significant in 739 of the total of moments found in the event windows of the 23 QE events. This represents a percent of 78.36%, which places the Romanian CDS on the third place among the studied instruments from the point of view of sensitivity to the Japanese QE measures. We also find 63 cases of influence regarding the squared abnormal returns which we interpret as a growth in the uncertainty about the right valuation of the CDS.

Figure 2: The evolution of the average values of the t test for the abnormal returns







Source: Authors' work

In the case of Bulgaria we find a degree of sensitivity that is superior to the one obtained for Romania. On average, the QE policies of the BOJ have a statistically relevant influence on the abnormal returns in 29 days of the event window.

Similarly to Romania, the results indicate a credit risk contraction in the (-16, -6) interval. In addition to this, in the announcement day of a policy the credit risk signals a reduction. The average reduction value for Bulgaria is the highest found in this study.

After this stage, the evolution of the abnormal returns alternates between periods of risk rise and fall.

The abnormal returns for the Bulgarian sovereign CDS show a greater sensibility to the QE policies compared to the case of Romania, the percent of 78.47% (740 de zile) placing the CDS on the second place among the countries included in the analysis.

Until the launch of a new quantitative easing policy by the BOJ, the Hungarian CDS behaves similarly to the cases of Romania and Bulgaria, the abnormal returns showing a risk reduction in the (-17, -7) interval, but not on the announcement day.

Unlike the first two states, in the case of Hungary we find a relevant tendency of risk reduction after the launch of a policy, the interval with the maxim impact being (11, 18).

The abnormal returns for the Ukrainian CDS follow a different paradigm. The results indicate an initial credit risk fall in the (-11, -3), which is accompanied by the similar effect in the day of the announcement (day zero). Afterwards, the first two weeks are dominated by a surge of the risk component, but this tendency is corrected towards the end of the event window. This evolution is totally symmetric with that found in the case of Austria.

Despite a high degree of sensitivity to the Japanese QE policies, the Polish CDS does not exhibit a statistically significant value on the day of the announcement. Nevertheless, the results indicate a reduction of credit risk in the (-20, -3) interval, followed by a mild increase in the (12, 17) period.

The German CDS instrument reacts strongly but also volatile to the QE announcements. On average, the (-20, -13) interval is marked by a solid increase tendency which is corrected in the twelve days before the announcement. After this moment, the abnormal returns continue to grow. The analysis of the abnormal returns reflects an influence percent of 62.98% which is among the lowest found in this study. With respect to the squared abnormal returns, the results indicate the largest number of days with a significant statistical influence among which more than two thirds suggest the expansion of uncertainty about the correct valuation of the CDS.

In case of Russia, there isn't a statistically significant influence on the day of the announcement and the results highlight the fact that risk is increasing towards the end of the event window.

Unlike Russia, the case of Turkey exhibits a bigger sensitivity to the set of policies that are analyzed in this paper. The abnormal returns are statistically significant in 71% of the

cases. For Turkey, the results show an average decrease of the credit risk on the launch day, followed by 21 days of oscillations.

4. Conclusions

The results of this study show that the launch of the BOJ QE policies influences credit risk in the analyzed countries in a manner that is similar to the results found by Albu et al. (2014a) and Albu et al. (2014b) who investigate the QE policies issued by the ECB, FED and BOE.

The results indicate a risk reduction for all the instruments in the following days: (-9, -7 and 17). Moreover, the majority of the instruments exhibit a reduction of the risk on the entire (-11, 7) interval.

The instruments that are the most sensitive to QE policies belong to Turkey, Bulgaria and Romania and the CDSs with the lowest degree of sensitivity belong to Russia, Germany and Austria.

On average, the QE policies issued by the BOJ trigger oscillating influences between lowering and augmenting credit risk. Except Ukraine, in the cases of the other countries the results show that the number of cases in which these policies reduce credit risk are greater than the number of cases in which they lead to a rise. The biggest credit risk reduction effect found in this study is specific to the Bulgarian sovereign CDS.

5. Acknowledgement

This work was supported by the project “Excellence academic routes in doctoral and postdoctoral research - READ” co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/159/1.5/S/137926.

6. Bibliography

- [1] Albu, L. L., Lupu, R., Calin, A. C., Popovici, O. C. (2014a), “Estimating the Impact of Quantitative Easing on Credit Risk through an ARMA-GARCH Model”, *Romanian Journal of Economic Forecasting*, Issue 3, pp. 39-50
- [2] Albu, L. L., Lupu, R., Calin, A. C., Popovici, O. C. (2014b), “The effect of ECB’s Quantitative Easing on Credit Default Swap Instruments in Central and Eastern Europe”, *Procedia Economics and Finance*, Volume 8, pp. 122–128.
- [3] Barry H., Lupu R., Lupu I. (2010), “Statistical Properties of the CEE Stock Market Dynamics. A Panel Data Analysis.” *The Romanian Economic Journal* 13 (37) pp. 41–54.
- [4] Bernanke, B., Reinhart, V. and Sack, B. (2004,) “Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment” *Brookings Papers on Economic Activity*. Vol. 35. Issue 2. pp. 1-100
- [5] Breedon F., Chadha J. S., Waters A., (2012), “The financial market impact of UK quantitative easing” *Oxford Review of Economic Policy*, Volume 28 Issue 4, pp. 702-728
- [6] Calin A.C., Diaconescu T., Popovici O.C. (2014), *Nonlinear Models for Economic Forecasting Applications: An Evolutionary Discussion*, *Computational Methods in Social Sciences*, Vol II, Issue 1, pp. 42 – 47.
- [7] D’Amico, S., W. B. English, D. Lopez-Salido, and E. Nelson (2012), “The Federal Reserve’s Large-Scale Asset Purchase Programs: Rationale and Effects”, *Working Paper*, Federal Reserve Board, pp. 1-58
- [8] Doh T., (2010) “The efficacy of large-scale asset purchases at the zero lower bound”, *Economic Review*, 2010, issue Q II, pp. 5-34

- [9] Fratzscher M., Lo Duca M., Straub R. (2012), "A Global Monetary Tsunami? On the Spillovers of US Quantitative Easing", Centre for Economic Policy Research Available at <http://www.cepr.org/pubs/new-dps/dplist.asp?dpno=9195.asp>
- [10] Gagnon J., Raskin M., Remache J., Sack B. (2011) "The Financial Market Effects of the Federal Reserve's Large-Scale Asset Purchases". *International Journal of Central Banking*, 7, 3-43.
- [11] Hancock, D., Passmore, W., (2011), Did the Federal Reserve's MBS Purchases Program, Lower Mortgage Rates?, *Journal of Monetary Economics* 58, p. 498-514.
- [12] Hosono K. (2006) The "Transmission Mechanism of Monetary Policy in Japan: Evidence from Banks' Balance Sheets", *Journal of Japanese International Economics* 20, pp. 380-405.
- [13] Joyce M.A.S., Lasasosa A., Stevens I., Tong, M., (2011), "The financial market impact of quantitative easing in the United Kingdom", *International Journal of Central Banking* 7(3), pp. 113-162.
- [14] Kapetanios G., Mumtaz H., Stevens I. Theodoridis K. (2012), "Assessing the Economy-wide Effects of Quantitative Easing", *The Economic Journal*, pp 316-347
- [15] Krishnamurthy A., Vissing-Jorgensen A., (2011), "The effects of quantitative easing on interest rates: channels and implications for policy". *Brookings Papers on Economic Activity* 2, pp. 215-287.
- [16] Lupu R, Lupu I. (2007), „Testing for Heteroskedasticity on the Bucharest Stock Exchange”, *Romanian Economic Journal* 11 (23), pp. 19-28.
- [17] Lupu R., Lupu I. (2009), "Contagion across Central and Eastern European Stock Markets: A Dynamic Conditional Correlation Test." *Economic Computation and Economic Cybernetics Studies and Research* 43 (4): 173–86.
- [18] Miclaus P.G, Bobirca A., Lupu, R., Ungureanu S. (2008), „EXPECTED DEFAULT FREQUENCIES FOR THE COMPANIES LISTED AT THE BUCHAREST STOCK EXCHANGE”, *Annals of the University of Oradea, Economic Science Series*, 17(3).
- [19] Panait I, Lupu I, The behavior of the Bucharest Stock Exchange during the current financial markets crisis and proposed measures for its sustainable development, *Analele Universității Spiru Haret, Seria Economie*, year 9, no. 9, 2009, Bucharest, pg. 61-72, ISSN: 1582-8336
- [20] Peersman, G., (2011), "Macroeconomic Effects of Unconventional Monetary Policy in the Euro Area", *CEPR Discussion Papers* 8348, C.E.P.R. Discussion Papers.
- [21] Stroebel, J.C., Taylor, J.B., (2012), "Estimated impact of the federal reserve's mortgage-backed securities purchase program", *International Journal of Central Banking* 8(2), pp. 1-42.
- [22] Szczerbowicz U., (2012), "The ECB unconventional monetary policies: have they lowered market borrowing costs for banks and governments?" *Document Du Travail, Centre D'Etudes Prospectives et D'informations Internationales*
- [23] Ugai, H. (2007), "Effects of the Quantitative Easing Policy: A Survey of Empirical Analyses", *Monetary and Economic Studies, Institute for Monetary and Economic Studies, Bank of Japan*. Vol.25. Iss.1. pp. 1-48.
- [24] Vought L., (2011), "The Effect of Quantitative Easing on Long-Term Interest Rates" *Senior Honors Theses. Paper* 264
- [25] Wieland W. (2009), "Quantitative Easing: A Rationale and some Evidence from Japan", *NATIONAL BUREAU OF ECONOMIC RESEARCH, Working Paper* 15565

The Effects of Stock Dividend on Stock Return in Tehran Stock Exchange

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Abstract: This study is aimed at identifying the relationship between stock dividend issue and return rate of share of 100 firms from Tehran Stock Exchange during years 2007-2011 tending to issue stock dividend. Pearson correlation test was used to examine the relationship between stock dividend issues and return rate of share and results showed that there is no significant relationship between share return rate and the amount of stock dividend and also between stock dividend issue percentage and return rate of share.

Keywords: Stock Dividend; Return rate of share.

JEL Classification: G120

1. Introduction:

Firms divide the earnings among stockholders through a variety of ways including cash payments, issuing stock dividend and stock right. When firms want to prevent from cash to exit the firm, they move to issue stock dividend. Since every investor aims at maximum return, so examining the relationship between stock dividend issues is of considerable importance as one the ways to distribute earnings among stockholders and return rate of share. Evaluating share return of companies is of the most important issues with which the investors are dealing, hence the study is also aimed at identifying the relationship between stock dividend issue and return rate of share of all Tehran Stock Exchange firms between years 2007-2011 tending to issue stock dividend.

2. Theoretical Principles and Background of the Study:

Share return is among the principle criteria for decision making in stock exchange and on its own has information and dividing earnings is of the main factors affecting the share price and as a consequence stockholders' wealth [2]. In Iran, stockholders prefer stock dividend to cash earnings, however it is likely that major stockholders of some firms deceive minor stockholders or the public by issuing stock dividend and inflating their own share value

and as a result hurt the public trust in market [11]. Some of financial intellects believe that if stock dividend percentage is low, issuing stock dividend will result in shareholders wealth increase, but some believe that since stock dividend leads to expanding the ownership of share and maintaining the cash in company, stock dividend has value and issuing it will lead to stockholders' wealth increase in a way or another [7,9]. A group of researchers consider higher return as the value of stock dividend, yet the other regard that the higher return of such share results from stock dividend's information content and stock dividend is not valuable on its own [10]. A basic record of issuing stock dividend goes back to Elizabeth Era, but share decomposition has become wide spread since early 20th century [12]. Stock dividend is share earnings transferred to stockholders in form of extra common share and instead of cash. Endowing stock dividend is one of the ways to divide share among stockholders [5, 7]. Earnings distribution in form of share does not lead to a change in assets, debts or equity, but to a transfer of an amount of retained earnings to capital account [4]. Like share decomposition stock dividend is also considered as a sign of success and promising future for the company from the view of investors and as a result stockholders are interested in such share [8]. To compensate for lack of cash and or crisis existing in the company, managers move to issue stock dividend while upon the issue and increase of the share number in stockholders' hand they will have a heavy responsibility for next profitability and the stockholders are waiting for higher earnings per share and dividend earnings [3, 5]. Relative lack of knowledge of managers and stockholders regarding the main essence of stock dividend and their next expectations show weak efficiency of the market [13].

Fama et al (1969) demonstrated that return rate of share before and after share decomposition is abnormal and the market will have positive reaction to share issue. Amido (2006) showed that the market does not react positively to news regarding declaration of cash earnings and share decomposition and cash earnings does not increase after declaration of share decomposition. Sinai and Mahmudi (2003) showed that share decomposition and stock dividend lead to severe increase of return till a month before assembly and considerable decrease after. Qaderi (2009) proved that firms endowing stock dividend have higher abnormal return percentage and their return of share is affected by stock dividend distribution.

3. Hypotheses:

Following questions were posed regarding literature review and foreign and domestic studies:

1. Is there any relationship between issuing stock dividend and abnormal return rate of share?
2. Is there any relationship between return rate of share and stock dividend percentage?
3. Is there any relationship between return rate of share and normal return rate of share on the assembly's date?

Statistical community of the study comprised firms listed in Tehran Stock Exchange during 2007-2011. 96 firms under study have been selected based on the following criteria: a) the firm selected is not of financial and investing brokers, b) firms with no cash earnings or stock right at the time of issuing stock dividend and only issued stock dividend. To measure variables, data banks and DVDs provided by Stock Exchange organization were used. For statistical analysis of the data, Excel and SPSS software and for hypothesis testing Pearson correlation coefficient test was used based on accumulative data. In defining variables of the study, stock dividend includes issuing common share via turning and transferring retained earnings into capital and distributing it among stockholders for free [1] and return rate of

share includes return or reward of investing comprising current income and or asset increase indicated in percent.

Total abnormal return of share is calculated from the following equation (1):

$$1) R = \frac{(P - P_0 + D_1 + r_a - r_s)}{P_0}$$

R= Total abnormal return rate of share

P= the first rate of share transaction after holding abnormal general assembly

P₀= the last rate of share transaction after holding abnormal general assembly

D₁= dividend earnings per share

r_s= stock dividend advantages

r_a= increase percent of capital from cash income

Weekly rate of return for weeks around assembly is gained from the following equation (2):

$$2) R = \frac{P - P_0}{P_0}$$

P= price at the end of week

P₀= price at the beginning of the week

Expected price (theoretical price) is gained from equation (3):

$$3) TP = \frac{P\beta}{1 + d}$$

TP= theoretical price

Pβ= the last price before assembly

d= stock dividend percent

To prevent from the common effects of share price on abnormal return rate of share, theoretical price per share is modified by market price index changes from equation (4):

$$4) ATP = TP \frac{I_{na}}{I_{nb}}$$

I_{na}= market index after stock dividend,

I_{nb}= market index before stock dividend

Abnormal return rate of share is gained from equation (5):

$$5) AR = \frac{P_A - ATP}{ATP}$$

ATP= refined theoretical price

P_A= price after assembly

4. Hypotheses Testing and Results:

Testing H₁:

H₀: there is not any relationship between issuing stock dividend and abnormal return rate of share.

H₁: there is a relationship between issuing stock dividend and abnormal return rate of share.

Here, it is presumed that issuing stock dividend with abnormal return rate is around assembly holding date. Descriptive statistics related to share during 2007-2011 are

represented in Table 1 and results from Pearson correlation test between stock dividend and abnormal return rate of share are provided in Table 2.

Table 1: Abnormal Return Rate From 2007 – 2011

abnormal return rate	N	Negative	Positive	Mean	R
2007 – 2011Years	96	-45.85	142.67	6.33	495.53

Table 2: Pearson Correlation Test Results

variables Test	stock dividend	abnormal return rate	
Pearson correlation	1	0.177	stock dividend
Sig	0	0.036	
Pearson correlation	0.177	1	abnormal return rate
Sig	0.036	0	

Results from Pearson correlation test showed that significant level is %36 and correlation between stock dividend and abnormal return rate is very weak. So, H₀; there is not any relationship between issuing stock dividend and abnormal return rate of share is confirmed.

Testing H₂:

H₀: there is not any relationship between return rate of share and stock dividend percentage

H₁: there is a relationship between return rate of share and stock dividend percentage

Descriptive statistics related to share during 2007-2011 are represented in Table 3 and results from Pearson correlation test between return rate of share and stock dividend percentage are provided in Table 4.

Table 3: Stock dividend Percentage From 2007 – 2011

Stock dividend Percentage	N	Negative	Positive	Mean	R
2007 – 2011Years	96	1.46	400.00	67.83	3319.41

Table 4: Pearson Correlation Test Results

Test	stock dividend percentage	return rate for 6 weeks	
Pearson correlation	1	0.108	stock dividend percentage
Sig	0	0.201	
Pearson correlation	0.108	1	return rate for 6 weeks
Sig	0.201	0	

Results from Pearson correlation test in Table 4 showed that significant level is 0.201 and correlation between return rate of share (retained for 6 weeks) and stock dividend percentage is very weak. So, H₀; there is not any relationship between return rate of share (retained for 6 weeks) and stock dividend percentage is confirmed.

Testing H₃:

H₀: there is not any difference between return rate of share and normal return rate of share on the assembly's date.

H₁: there is a difference between return rate of share and normal return rate of share on the assembly's date.

Table 5: Return Rate For 6 Weeks and Abnormal Return Rate

Stock dividend Percentage	N	Negative	Positive	Mean	R
return rate for 6 weeks	142	-0.14	0.26	0.041	0.006
Abnormal Return Rate	142	1.34	100.00	36.16	476.55

Results of Table 5 show that 6-week retained return rate of firms' share are in an average weaker than common return rate of share on assembly's date. So, it can be said that total return received by stockholders for stock dividend on the date of assembly is higher than 6-week retained return of share.

5. Discussion and Conclusion:

H₁ testing showed that there is not a significant relationship between issuing stock dividend and abnormal return rate. Results do not go with findings of Fama, Fischer, Johnson and Rol (1969), Sinai and Mahmudi (2005) and Qaderi (2009), but goes well with findings of Amido (2006). H₂ testing showed that there is not a significant relationship between percentage of issuing stock dividend and return rate (retained for 6 weeks) of share that goes

with Amido's findings. H3 testing showed that return rate retained for 6 weeks is in an average lower than normal return rate of share on the date of assembly. Regarding the subject literature and results of the study, it can be suggested that significant and not selling stock dividend can create abnormal return for stockholders, but they should not hope for better return and benefits only by considering high percent of stock dividend.

6. References:

- 1) Abbasi,E,(2004). "Methods and theories of stock issue and market price". The science and cultural publication.Tehran-Iran,Second edition. p. 292.
- 2) Abbasi E, , and Ebrahimzade,b,. (2009). "Factors affecting the level of investment in listed companies in Tehran Stock Exchange". Quarterly Journal of Economic Modeling,Tehran,vol;3,No.4,pp.49-62.
- 3) Amidu,M and joshua,A,(2006). "Determinants of Dividend Payout Ratios in Ghana", The Journal of Risk Finance, vol.7, pp.136-145.
- 4) Bhattacharyya,N,(2007). "Dividend Policy" , managerial Finance, vol.33,No.1,pp.3-14.
- 5) Douglas,A,(2007). "Managerial Opportunism and Proportional Corporate Payout Policy", managerial Finance, vol.33, No.1, pp.26-42.
- 6) Fama,fisher.jonson and roll,(1969). "The adjustment of stock prices to new formation". Nternational economic review, vol.81, pp.963-982.
- 7) Fuller,k,(2001), "The Impact of Informed Trading on Dividend signaling : A Theoretical and Empirical Examination. Journal of Economics", 15, 95-75.
- 8) Goddard, J., David, G. McMillan, (2006). "Dividend Smoothing vs Dividend signaling: Evidence from UK Firms", managerial Finance, vol.32, pp.493-504.
- 9) Ghaderi,Z,(2010).Effect of bonus shares on stock returns in companies in Tehran Stock Exchange, Review of accounting and auditing, vol.26,pp.35-51.
- 10) Kerl,A and andreas,W,(2005). "Price-Pressure in Financial Experts" ,Recommendations-The German Experience, University of Tuebingen.
- 11) Sinai,H and Mahmoudi,A,(2005). The effect of news on stock returns of stocks and stock bonus earnings management in companies in Tehran Stock Exchange, Review of accounting and auditing, vol.39, pp.77-96.
- 12) Spies,k and fleck, a,(1995). "Underperformance in long-run stock return following seasoned equity offering", journal of financial economics, volume 38 ,issue 3.
- 13) Tse, Chin Bun. (2005), "Use Dividend signal or not: An Examination of the UK Dividend Payout Pat terns" managerial Finance, vol.31,pp.12-33.

Trade, Environment Quality and Income in MENA Region

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Abstract: This paper investigates the causal relationship between environmental quality, GDP and trade for MENA region countries by using panel unit root tests and panel cointegration analysis for the period 1970-2011. The results show a strong causality from GDP and trade to environmental quality in these countries. Yet, Trade and environmental quality does not have any significant effects on GDP in short- and long-run. It means that it is the trade and GDP that drives environmental quality in mentioned countries, not vice versa. So the findings of this paper support the point of view that the cost of higher trade and economic growth is paid in terms of poorer environment.

Keywords: Unit root, Cointegration, Granger Causality, Environmental quality, Trade, Economic Growth

JEL classifications: Q00, F1, F18

1. Introduction

Globalization has multiple implications for environmental sustainability. The interactions are so numerous and Complicated that it would be simplistic to confirm that the two are in conflict. In fact, there are not theoretical reasons or empirical evidence to show that the relationship between globalization and environmental sustainability is unidirectional or unidimensional. It is true that both positive and negative effects on environment have come about because of globalization. According to Bhagwati (2004) globalisation is playing the important role of enhancing economic Welfare by offering new hope to developing countries. Gangopadhyay and Chatterji (2005) saying that globalisation has been characterised as a reduction in trade barriers such as free flow of goods, services and labour from one country to another. Richardson (2000) contends with these views as, the impact of this is increasing the trade which turn into increased income for developing countries and serves as an opportunity to stabilise their economies by taking the advantages of trade. This statement is true and has been proving by (Richardson, 2000) that globalisation has greatly reduced the trade barriers between countries through adjustment of tariffs and import duties. Chan and Scarritt (2001) noted that the large capital inflows were caused by the appreciation of exchange rates and inflationary pressures that effect on the country's current account. Indeed, trade liberalization in improving the countries' economy could actually stop the progress of the economy unless

the host countries' balance of payment focuses on the foreign plant where the export is more than import. The adjustment in trade barriers has led to the progression of specialization to developing countries because they are able to focus on the production of commodities which can be produced at the least cost. Developing countries fully use the advantage of globalisation to enhance their income through trading goods which they can produce most effectively.

The focus of the paper is, therefore, to examine the relationship between Income, environmental quality and trade in MENA region for the period 1970-2011. The direction of causality between these variables is examined by utilizing a cointegration and error correction modeling framework. The paper is organized in four sections. Section 2 reviews the relevant literature. Section 3 discusses the methodology, data and empirical results of the study. Section 4 concludes.

2. Literature Review

Economic theory suggests that the free market may be expected to produce an efficient and welfare-enhancing surface of resource use, production, consumption, and environmental protection if the prices of resources, goods and services capture all of the social expenditures and benefits of their use. When private costs – which are the basis for market decisions – fail to include social expenditures, market failures occur, resulting in allocative inefficiency in the form of suboptimal resource use and air Pollution. Market failures are a mark of the environmental domain. A lot of critical resources such as timber, fish, water, coal, and oil tend to be under-priced. Ecosystem services such as flood prevention, carbon sequestration, water retention, and oxygen provision often go entirely un-priced. Because under-priced and un-priced resources are overexploited, economic actors are often able to ignore part or all of the environmental expenditures they generate. Trade liberalization may magnify the problem of mis-priced resources and the consequent environmental problems. The Initial impressions of a world community provides citizens with a basis for demanding that those with whom they trade meet certain baseline moral standards, including a commitment to environmental stewardship. As economic integration extends and deepens, and information about one's associates becomes more readily available, what national's feel should be encompassed within the set of baseline standards tends to grow. Increased access to information and data on environmental and economic performance allows for faster problem identification, better issue analysis, and quicker trend spotting. It may also aid the identification of leaders and laggards in the international arena relative to various environmental or social criteria and spur competition among nations. Information in and of itself is not, however, necessarily beneficial. Information overload could lead to a cacophony of voices in the policy realm and result in paralysis instead of action. This risks need to be kept in mind as the volume of internationally shared information continues to increase and appropriate devices for examining through and filtering accurate and related information become necessary.

An appearance at data across countries or across time allows some rough generalization as to the usual outcome of these conflicting impacts. For several vital environmental measures, a U-shaped relationship appears: at relatively low levels of income per capita, growth leads to greater environmental injury, until it levels off at an intermediate level of income, after which further growth leads to improvements in the environment. Such empirical relationship is known as the Environmental Kuznets Curve. The label is by analogy with the original Kuznets curve, which was a U-shaped relationship between inequality and average income. The idea behind the Environmental Kuznets curve is that growth is bad for air and water pollution at the initial stages of industrialization, but later on reduces pollution, as countries become rich enough to pay to clean up their environments. The dominant

theoretical explanation is that production technology makes some pollution unavoidable, but that demand for environmental quality increases with income. The standard rationale is thus that, at higher levels of income per capita, growth raises the public's demand for environmental quality, which can translate into environmental regulation. Agras and Chapman (1999) and Suri and Chapman (1998) studied the composition of international trade and detect that manufacturing goods exporting countries tend to have higher energy consumption. They found the poor and rich countries to be net exporters and net importers of pollution-intensive goods, respectively. Thus, the inverted U-shaped EKC curve might partly be the result of changes in international specialization under which poor countries engage in dirty and energy concentrate production while rich countries specialize in clean and service intensive production, without effectively any change in the consumption patterns. On the contrary the PHH, the factor endowment hypothesis (FEH) asserts that in free trade the differences in endowments determine trade between two countries. The FEH suggests that the capital abundant country exports the capital intensive goods that stimulate its production and thereby raising pollution in the capital abundant country. The impacts of trade on the environment depend on the comparative advantages enjoying a country. Under this view capital-abundant countries tend to export capital-intensive goods, regardless of differences in environmental policy (Copeland and Taylor 2004). According to the FEH3 polluting industries will concentrate in affluent countries, which also tend to be capital abundant. This is because polluting industries are typically also capital intensive and thus affluent capital-abundant countries have a comparative advantage in these industries (Copeland and Taylor 2004). In this context, it should be noted that the differences in environmental policy and differences in factor endowments might jointly determine the comparative advantage in trade. It is clear that impacts of trade liberalization on environmental quality depend on, among other factors, jointly by differences in pollution policy and differences in factor endowments, which leads to two competing theories in question. Lucas, et al. (1992), study the toxic intensity implied by the composition of manufacturing output in a sample of 80 countries, and find that a high degree of trade distorting policies increases pollution in rapidly growing countries. Harbaugh et al. (2002) analyzed report in passing a beneficial impact of trade on the environment, after controlling for income. Dean (2002) found a detrimental direct of liberalization for a given level of income, via the terms of trade, though this is outweighed by a beneficial indirect impact via income.

3. Data and empirical results

We apply a three variable model to examine the causal relationship between environment quality, GDP and trade. Environment quality is proxied by CO₂ and SO₂ emissions per capita. We apply the principle component approach to merge the proxies into one measurement (EMI). The data were obtained from world development indicators. Data used in the analysis are panel of annual time series during the period 1970-2011 on the proxy of quality environment, real GDP per capita (GDP) and trade, defined as the ratio of the value of total trade to GDP (T) for MENA region countries. All variables are in terms of logarithm. The choice of the starting period was constrained by the availability of data.

To test the nature of association between the variables while avoiding any spurious correlation, the empirical investigation in this paper follows the three steps: We begin by testing for non-stationarity in the three variables of EMI, GDP and T. Prompted by the existence of unit roots in the time series, we test for long run cointegrating relation between three variables at the second step of estimation using the panel cointegration technique developed by Pedroni (1995, 1999). Granted the long run relationship, we explore the causal link between the variables by testing for granger causality at the final step.

3.1. Panel Unit Roots Results

The panel data technique referred above has appealed to the researchers because of its weak restrictions. It captures country specific effects and allows for heterogeneity in the direction and magnitude of the parameters across the panel. In addition, it provides a great degree of flexibility in model selection. Following the methodology used in earlier works in the literature we test for trend stationarity of the three variables of EMI, GDP and T. With a null of non-stationary, the test is a residual based test that explores the performance of four different statistics. Together, these four statistics reflect a combination of the tests used by Levin-Lin (1993) and Im, Pesaran and Shin (1997). While the first two statistics are non-parametric rho-statistics, the last two are parametric ADF t-statistics. Sets of these four statistics have been reported in Table 1.

The first three rows report the panel unit root statistics for EMI, GDP and T at the levels. As we can see in the table, we cannot reject the unit-root hypothesis when the variables are taken in levels and thus any causal inferences from the three series in levels are invalid. The last three rows report the panel unit root statistics for first differences of EMI, GDP and T. The large negative values for the statistics indicate rejection of the null of non-stationary at 1% level for all variables. It may, therefore be concluded that the three variables of EMI, GDP and T are unit root variables of order one, or, I (1) for short.

Table 1: Test of Unit Roots for EMI, GDP and T

variables	Levin-Lin Rho-stat	Levin-Lin t-Rho-stat	Levin-Lin ADF stat	IPS ADF stat
EMI	0.34	-0.29	-0.81	-1.81
GDP	-1.23	-1.78	-1.51	-0.50
T	-0.41	-0.62	-0.82	-1.91
Δ EMI	-12.41***	-7.90***	-8.81***	-11.61***
Δ GDP	-12.55***	-7.19***	-10.68***	-16.61***
Δ T	-10.60***	-9.51***	-7.91***	-14.56***

***Significant at 1%

3.2. Panel Cointegration Results

At the second step of our estimation, we look for a long run relationship among EMI, GDP and T using the panel cointegration technique developed by Pedroni (1995, 1999). This technique is a significant improvement over conventional cointegration tests applied on a single country series. While pooling data to determine the common long run relationship, it allows the cointegrating vectors to vary across the members of the panel. The cointegration relationship we estimate is specified as follows:

$$EMI_{it} = \alpha_i + \delta_t + \beta_i GDP_{it} + \gamma_i T_{it} + \varepsilon_{it} \quad (1)$$

Where α_i refers to country effects and δ_t refers to trend effects. ε_{it} is the estimated residual indicating deviations from the long run relationship. With a null of no cointegration, the panel cointegration test is essentially a test of unit roots in the estimated residuals of the panel. Pedroni (1999) refers to seven different statistics for this test. Of these seven statistics, the first four are known as panel cointegration statistics; the last three are group mean panel cointegration statistics. In the presence of a cointegrating relation, the residuals are expected to be stationary. These tests reject the null of no cointegration when they have large negative values except for the panel-v test which reject the null of cointegration when it has a large

positive value. All of these seven statistics under different model specifications are reported in Table 2. The statistics for all different model specifications suggest rejection of the null of no cointegration for all tests except the panel and group ρ -tests. However, according to Perdroni (2004), ρ and PP tests tend to under-reject the null in the case of small samples. We, therefore, conclude that the three unit root variables EMI, GDP and T are cointegrated in the long run.

Table 2: Results of Panel Cointegration test

Statistics	
Panel v-stat	7.51 ^{***}
Panel Rho-stat	-2.71
Panel PP-stat	-6.61 ^{***}
Panel ADF-stat	-2.89 ^{**}
Group Rho-stat	-0.61
Group PP-stat	-7.51 ^{***}
Group ADF-stat	-9.55 ^{***}

***Significant at 1%

** Significant at 5%

The estimated long run relationship is of the form:

$$EMI = 2.02GDP + 0.13T$$

t (6.72) (6.63)

The results show a positive long-run relationship between emissions and per capita income, suggesting that environmental quality get worse as the income increases. Also, the findings indicate a positive long-run relationship between emissions and openness, implying that air pollution tends to increase as the trade and exposure to international markets increases

3.3. Panel Causality Results

Cointegration implies that causality exists between the series but it does not indicate the direction of the causal relationship. With an affirmation of a long run relationship among EMI, GDP and T, we test for Granger causality in the long run relationship at the third and final step of estimation. Granger causality itself is a two-step procedure. The first step relates to the estimation of the residual from the long run relationship. Incorporating the residual as a right hand side variable, the short run error correction model is estimated at the second step. Defining the error term from equation (1) to be ECT_{it} , the dynamic error correction model of our interest by focusing on emissions (EMI) and GDP is specified as follows:

$$\Delta GDP_{it} = \alpha_{yi} + \beta_{yi} ECT_{i,t-1} + \gamma_{y1i} \Delta EMI_{i,t-1} + \gamma_{y2i} \Delta EMI_{i,t-2} + \delta_{y1i} \Delta GDP_{i,t-1} + \delta_{y2i} \Delta GDP_{i,t-2} + \lambda_{y1i} \Delta T_{i,t-1} + \lambda_{y2i} \Delta T_{i,t-2} + \varepsilon_{yit} \quad (2)$$

$$\Delta EMI_{it} = \alpha_{ei} + \beta_{ei} ECT_{i,t-1} + \gamma_{e1i} \Delta EMI_{i,t-1} + \gamma_{e2i} \Delta EMI_{i,t-2} + \delta_{e1i} \Delta GDP_{i,t-1} + \delta_{e2i} \Delta GDP_{i,t-2} + \lambda_{e1i} \Delta T_{i,t-1} + \lambda_{e2i} \Delta T_{i,t-2} + \varepsilon_{eit} \quad (3)$$

Where Δ is a difference operator; ECT is the lagged error-correction term derived from

the long-run cointegrating relationship; the β_y and β_e are adjustment coefficients and the ε_{yit} and ε_{hit} are disturbance terms assumed to be uncorrelated with mean zero.

Sources of causation can be identified by testing for significance of the coefficients on the lagged variables in Eqs (2) and (3). First, by testing $H_0 : \gamma_{y1i} = \gamma_{y2i} = 0$ for all i in Eq. (2) or $H_0 : \delta_{e1i} = \delta_{e2i} = 0$ for all i in Eq. (3), we evaluate Granger weak causality. Masih and Masih (1996) and Asafu-Adjaye (2000) interpreted the weak Granger causality as ‘short run’ causality in the sense that the dependent variable responds only to short-term shocks to the stochastic environment.

Another possible source of causation is the ECT in Eqs. (2) and (3). In other words, through the ECT, an error correction model offers an alternative test of causality (or weak exogeneity of the dependent variable). The coefficients on the ECTs represent how fast deviations from the long run equilibrium are eliminated following changes in each variable. If, for example, β_{yi} is zero, then GDP does not respond to a deviation from the long run equilibrium in the previous period. Indeed $\beta_{yi} = 0$ or $\beta_{ei} = 0$ for all i is equivalent to both the Granger non-causality in the long run and the weak exogeneity (Hatanaka, 1996).

It is also desirable to check whether the two sources of causation are jointly significant, in order to test Granger causality. This can be done by testing the joint hypotheses $H_0 : \beta_{yi} = 0$ and $\gamma_{y1i} = \gamma_{y2i} = 0$ for all i in Eq. (2) or $H_0 : \beta_{ei} = 0$ and $\delta_{e1i} = \delta_{e2i} = 0$ for all i in Eq. (3). This is referred to as a strong Granger causality test. The joint test indicates which variable(s) bear the burden of short run adjustment to re-establish long run equilibrium, following a shock to the system (Asafu-Adjaye, 2000).

The results of the F test for both long run and short run causality are reported in Table 3. As is apparent from the Table, the coefficients of the ECT, GDP and T are significant in the EMI equation which indicates that long-run and short-run causality run from GDP and T to environmental quality. So, GDP and trade strongly Granger-causes environmental quality. Trade does Granger cause GDP at short run at 1% level, without any significant effect on output in long run. Weak exogeneity of GDP and trade indicate that this variable does not adjust towards long-run equilibrium.

Moreover, the interaction terms in the EMI equation are significant at 1% level. These results imply that, there is Granger causality running from GDP and trade to environmental quality in the long-run and short run, while environmental quality have a neutral effect on GDP and trade in both the short- and long-run. In other words, GDP and trade are weakly exogenous and whenever a shock occurs in the system, environmental quality would make short-run adjustments to restore long-run equilibrium.

Table 3: Result of Panel causality tests

Dependent Variable	Source of causation(independent variable)						
	Short-run			Long-run	Joint (short-run/long-run)		
	Δ GDP	Δ EMI	Δ T	ECT(-1)	Δ GDP, ECT(-1)	Δ EMI, ECT(-1)	Δ T, ECT(-1)
Δ GDP	-	F=0.87	F=8.98** *	F=0.94	-	F=0.81	F=6.16***
Δ EMI	F=7.29* **	-	F=5.80** *	F=8.61** *	F=8.94***	-	F=9.81***
Δ T	F=1.85	F=0.33	-	F=0.20	F=0.71	F=0.60	-

***Significant at 1%

4. Conclusion

The objective of this study is to examine Granger causality between environmental quality (measured by CO₂ and SO₂ emissions), income and trade for MENA region countries over the period 1970-2011. The panel integration and cointegration techniques are employed to investigate the relationship between the three variables: emissions, GDP, and trade. The empirical results indicate that we cannot find enough evidence against the null hypothesis of unit root. However, for the first difference of the variables, we rejected the null hypothesis of unit root. It means that the variables are I(1). The results show a positive long-run relationship between emissions and per capita income, suggesting that environmental quality deteriorate when income increases. Also, the findings indicate a positive long-run relationship between emissions and trade, implying that air pollution tends to increase as the trade and exposure to international markets increases. Utilizing Granger Causality within the framework of a panel cointegration model, the results suggest that there is strong causality running from GDP and trade to emissions with no feedback effects from emissions to GDP and trade for MENA countries. It means that it is the trade and GDP that drives emissions in mentioned countries, not vice versa. So the findings of this paper support the point of view that it is higher trade and economic growth that leads to higher emissions.

5. References

- [1] Agras, J. and D. Chapman (1999): "A dynamic approach to the Environmental Kuznets Curve hypothesis", *Ecological Economics* 28(2), 267 – 277.
- [2] Asafu-Adjaye, J., (2000), the Relationship between Energy Consumption, Energy Prices and Economic Growth: Time Series Evidence from Asian Developing Countries, *Energy Economics* 22: 615–625.
- [3] Bhagwati, J. (2004) *In Defense of Globalization* (Oxford: Oxford University Press).
- [4] Chan, Steve, and James R. Scarritt. 2001. "Globalization, Regionalization, and Domestic Change: Outside In and Inside Out?" In *Coping with Globalisation*, eds. Steve Chan and James R. Scarritt. London: Frank Cass. (Forthcoming).
- [5] Copeland, B. R., and M. S. Taylor (2004): "Trade, Growth and the Environment", *Journal of Economic Literature* XLII, 7 – 71.
- [6] Dean, Judith. 2002. "Does trade liberalization harm the environment? a new test" *Canadian Journal of Economics*, 35(4): 819-842.
- [7] Gangopadhyay, P. And M. Chatterji (2005) *Economics of Globalisation*, Ashgate Publishing House, Aldershot.
- [8] Granger, C. W. J., 1969. Investigating Causal Relations by Econometric Models and Cross-spectral Methods, *Econometrica* 37 (3): 424-438.
- [9] Granger, C. W. J., 1988. Some Recent Developments in a Concept of Causality, *Journal of Econometrics* 39: 199–211.
- [10] Harbaugh, W.T., A. Levinson and D.M. Wilson, 2002, "Reexamining the Empirical Evidence for an Environmental Kuznets Curve", *The Review of Economics and Statistics*, 84(3), 541-551.
- [11] Hatanaka, M., 1996. *Time-Series-Based Econometrics: Unit Roots and Co-integration*. Oxford University Press, Oxford.
- [12] Im, K. S., Pesaran, M. H., and Shin, Y., 1997. Testing for Unit Roots in Heterogeneous Panels, University of Cambridge, Department of Applied Economics.
- [13] Im, K. S., Pesaran, M. H., and Shin, Y., 2003. Testing for Unit Roots in Heterogeneous Panels, *Journal of Econometrics* 115: 53–74.

- [14] Jose I. dos R. Furtado, Tamara Belt and Ramachandra Jammi (2000), Economic development and environmental sustainability: Policies and principles for a durable equilibrium, World Bank, Published: February 2000, Pages: 130.
- [15] Levin, A., Lin, C.F., 1992. Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties. Department of Economics, University of California at San Diego, Working Paper 92–23.
- [16] Levin, A., Lin, C. F., 1993. Unit Root Test in Panel Data: New Results. Department of Economics, University of California, San Diego, Working paper 93-56.
- [17] Levin, A., Lin, C. F., and Chu, C. S. J. 2002. Unit Root Test in Panel Data: Asymptotic and Finite Sample Properties. *Journal of Econometrics* 108: 1-24.
- [18] Lucas, Robert E.B., David Wheeler, and Hemamala Hettige. 1992. “Economic Development, Environmental Regulation, and the International Migration of Toxic Industrial Pollution: 1960- 1988.” In P. Low (Ed.), *International Trade and the Environment*, World Bank discussion paper no. 159.
- [19] Masih, A.M.M., Masih, R., 1996. Energy consumption, real income and temporal causality: results from a multi-country study based on cointegration and error-correction modeling techniques. *Energy Economics* 18:165–183.
- [20] Pedroni, P., 1995, Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests, with an Application to the PPP Hypothesis. Indiana University, Working Papers in Economics, No. 95-013.
- [21] Pedroni, P., 1997, Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests, with an Application to the PPP Hypothesis: New results, Indiana University, Working Papers in Economics.
- [22] Pedroni, P., 1999, Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin of Economics and Statistics* 61 (4): 5–49.
- [23] Pedroni, P., 2004. Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis: New Results. *Econometric Theory* 20 (3): 597–627.
- [24] Pesaran, M. H., Shin Y., 1997. An Autogressive Distributed Lag Modelling Approach to Cointegration Analysis, Working Paper Trinity College, Cambridge.
- [25] Richardson, J. David. 2000. “The WTO and Market-Supportive Regulation: A Way Forward on New Competition, Technological, and Labor Issues,” *Federal Reserve Bank of St. Louis Review*, 82 (July/August), pp. 115-126.
- [26] Suri, Vivek, and Duane Chapman. 1998. “Energy growth, trade and energy: Implications for the environmental Kuznets curve”. *Ecological Economics*, 25(2): 195-208.

Corporate Governance and Financial Performance of Banks: Evidence from Nigeria

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Abstract: Banks are the backbones of any economy therefore it is of immense importance for economies to possess a healthy and buoyant banking system with effective corporate governance practices. In Nigeria, the Central Bank replaced the past governance codes with the CBN code (2012). Therefore this study examines corporate governance and financial performance in Nigerian banks, using this new code. The main issues in this study are: what is the relationship between board size and financial performance of banks in Nigeria? What is the effect of the proportion of non- executive directors on the financial performance of banks in Nigeria? To what extent is the corporate governance disclosure of banks in Nigeria in compliance to CBN governance code (2012)? Does a relationship actually exist between banks that disclose on corporate governance and their financial performance in Nigeria? These questions were answered by examining the yearly published reports of the listed banks in Nigeria. In examining whether or not there is a relationship between corporate governance and the financial performance of the banks, this research employed the regression analysis method to determine the relationship. However, the variables that was employed for corporate governance are: board size, board composition (the ratio of non-executive directors to total directors), and corporate governance disclosure index. Variables used in this study for examining the financial performance of these banks were the financial accountant measure for performance. These measures are return on equity (ROE) and return on asset (ROA). In examining the level of compliance of the banks in this study to the CBN (2012) governance code, the research employed the content analysis method. Employing the content analysis, a disclosure index was formed and the annual report for each bank was examined using the CBN code of corporate governance (2012) as a guide. The results of the study showed that a positive relationship exists between the corporate governance variables and the performance variables.

Keywords: Corporate governance, Board size, Financial performance

1 Introduction

The idea of corporate governance is mostly common to banks and multinational firms. Corporate governance has been an item of great importance on the policy agenda in most

developed countries for many years now. Further to this, the idea of corporate governance is steadily gaining huge recognition in the African continent.

Several recent activities have led to the increased pursuit in effective corporate governance policies in all nations. The case of having effective governance policies gained universal recognition from a period of absolute ambiguity after series of high profile collapses led to significant interest.

The rise in company failures and increased fraudulent activities in recent time have led to significant pursuit in terms of literature and study of governance principles to determine best codes of practices that will improve company performance and going concern. A significant element in the pursuit of an effective corporate governance system is the responsibility bestowed on the board of directors of the company. The board is in place to supervise and monitor the activities of management and also determine the strategic position of the company. The board appraises and approves management proposals, and they are the first and most significant check for effective governance practices in the firm (Brennan, 2006 and Jonsson, 2005).

The agency theory which has also been employed in this research is widely regarded as the genesis for any argument on matters of corporate governance (Jensen and Meckling, 1976). Various corporate governance structures have been suggested to combat and mitigate against this agency problem that seem to exist between the agent and the owners. The governance structures suggested by the agency theory involve size of the board, composition of the board, CEO pay performance sensitivity, directors' shareholding and shareholder right.

Generally, banks are the backbones of any economy, therefore it is of immense importance for economies to possess a healthy and buoyant banking system with effective corporate governance practices. Poor corporate governance may could have a significant impact on any economy, it can lead to bank failures while on the long run impact on the public's trust on an economy's banking system efficiently manage its assets and liabilities. A bank's assets and liabilities involve its customers' deposits and if these funds are not efficiently managed could lead to a liquidity crisis.

It is constantly debated what the right mix of governance structure (size of the board, composition of the board and directors shareholdings) is. Das and Gosh (2004), argued that how a company performs is dependent on how effective these corporate governance structure is and therefore makes this area one for further research. Although, this area has been highly researched in the developed economies to determine the effect of this governance structures on performance, it has rarely been researched in terms of Africa and Nigerian banks based on past literatures reviewed. As a result of this lapses that occur ignoring the events in the banking industry in Nigeria for past recent years, this study seeks to eliminate the gaps and disconnects that exist in corporate governance literatures. However, the following are the objectives of this paper, to determine if a relationship exists between size of the board and financial performance of banks in Nigeria, to determine if the proportion of non-executive directors has an effect on the financial performance of banks in Nigeria. also to determine the corporate governance disclosure of banks in Nigeria in compliance to CBN governance code (2012), and to appraise if there is a relationship between banks that disclose and comply on corporate governance and their financial performance in Nigeria.

2. Theoretical Framework for Corporate Governance

Rashid (2011) argued that there are various theories that can be used to explain corporate governance conventions and also the issues that arise as a result of these conventions. Various theories have been employed in explaining these governance conventions; these theories include the agency theory, stakeholder theory and stewardship theory. Sanda, Mikaila and Garba (2005) also identified these three theories as the main and

most significant theories of corporate governance and they are explained further respectively below.

2.1. Agency Theory

The agency theory can be tracked way back to Adam Smith (1776) and his explanation of main issues that arises as a result of separation of ownership and control of a business. He was of the opinion that managers of funds cannot be expected to have a very watchful eye like the owners or providers of funds. Also, he opined that oversight and extravagant behavior will always persist in the management of the activities of a firm (Smith, 1776).

Jensen and Meckling (1976) established this relationship as an agreement involving at least two parties. The two parties usually involved are the principal and the agent. The principal usually the provider of the fund employs the agent (usually the managers) to perform and run the company on their behalf. Included in the contractual agreement, the principal will bestow upon the agent decision-making authority.

However, the agency problem arises because managers are after their selfish interests and individuals are generally opportunist. The managers (agent) who are put in control of the affairs of the organization may not always consider the best interest of the owners and firm and may pursue their self-activities to the detriment of the welfare of the principals (Sundaramurthy, 1996).

As a result of these agency problems, the principal might end up incurring costs known as Agency costs. This Agency cost is a value loss to the shareholders and usually involves the cost of monitoring the activities of managers so that goal congruence can be achieved between shareholders and managers. Jensen and Meckling (1976) suggested that agency costs include the cost of monitoring, bonding costs, and residual loss.

The effect of this agency theory is that one can only try to mitigate against this agency problem when the board is composed largely by non-executive directors (independent and dependent) who will be able to control the activities of managers and thereby maximize shareholders' wealth (Rashid, 2011; Kaymark & Bektas, 2008 and Luan & Tang, 2007). The theory also suggests that the role of the chairman and the role of the CEO should not be occupied by the same person as this can limit the monitory role bestowed on the board of directors and can also have a negative impact on the performance of the firm. It was suggested that the reason for limit in the monitory role by the board will be loss of board independence as a result of CEO duality (Elsayed, 2007 and Kang & Zardkoohi, 2005). This theory is based on the belief that there is a basic conflict of interest between the owners and managers of the company (Kiel & Nicholson, 2003).

Stewardship theory is a contrast or a direct opposite to the agency theory and this theory adopts a more idealistic view of humans. This theory is based on a model and believes of the agent not being a self-opportunist but a steward that perceives greater utility in the interest of the principal and the organization as a whole. The theory assumes that a significant correlation exist between the firm's success and the manager's satisfaction. This trade-off is achieved by the steward admitting that working towards achieving company's and collective goals will lead to self-actualization. The theory argues for the post of Chief Executive Officer and Chairman to be held by the same person. Therefore, control lowers the motivation of steward and weakens motivational attitude (Davis et al., 1997).

Stewardship theory poses that stewards are likely to ignore selfish interests in order to pursue the best interest of the firm. Donaldson and Davis (1991) observed that when a steward has been in a company for so long, the steward and the firm becomes one entity. Instead of using the firm for their own selfish interest, the stewards seems to be more in ensuring the continuous existence and long term success of the firm because they now see the firm as an extension of themselves.

2.2. Linkage Between Corporate Governance and Firm Performance

Exceptionally sound corporate governance practice is meant to improve corporate performance by blocking the control of the company by the significant shareholders and encouraging improved decision making in the process. In return to improved governance practices, the value of the firm may react immediately to information showing improved corporate governance practices. It should be noted that material report backing the link or association between the disclosure and compliance to corporate governance and firm performance is scarce (Imam, 2006).

This implies there should be no existence or possibility for managers or significant shareholders to expropriate the resources of the firm. This should in return to better management of resources and improve performance. Also providers of funds will be easily attracted and would also want to invest in companies with good management of resources, good performance with effective governance practices, it might likely lead to a lower costs of capital, which can further improve the performance of the company. Also, good governance practices tend to attract potential stakeholders like employees because they will also want to be linked and work with such companies, as they see such company to be healthy, profitable and has a going concern than firms with no or less governance.

It should also be noted that there are some advantages for the economy as a whole with good governance practices. This will lead to a financial stable and sustainable economy because of necessary actions in place to mitigate against systematic risk. Also, good corporate governance tends to be the starting point for a fair and just society. A company with poor corporate governance tends to be the building blocks for fraudulent activities and in the long run leading to corporate failures. A limit on the exploitation of the less significant shareholders and less fraudulent activities between the large organisations and political power can lead to a suitable condition for these so called little and more equitable income distribution (Iskander and Chamlou, 2000).

According to a research conducted by McKinsey and Company (2002) cited in Adams and Mehran (2003), the study showed that most investors in Malaysia showed the desire to pay more for the shares of a good governance company. The research also showed that the investors were ready to pay a mean premium within the limit of 20% to 25%.

3. Model Specification

This paper made use of the econometric model of Miyajima et al (2003) as employed by Coleman and Nicholas- Biekpe (2006) to determine the relationship between performance and governance practices. The model is therefore stated below as;

$$Y_{it} = \beta_0 + \beta_1 G_{it} + \beta_2 C_{it} + e_t$$

Based on this research, the above model has been adjusted to examine the relationship that exists between performance of banks and corporate governance practices in Nigeria. Two simple models have been developed for performance variables and the corporate governance variables. Below are the models;

Model 1

$$ROE_{it} = \beta_0 + \beta_1 BSZE_t + \beta_2 BCOMP_t + \beta_3 CGDI_t + \beta_4 FSZE_t + \beta_5 DBT_t + e_t$$

.....(1)

Model 2

$$ROA_{it} = \beta_0 + \beta_1 BSZE_t + \beta_2 BCOMP_t + \beta_3 CGDI_t + \beta_4 FSZE_t + \beta_5 DBT_t + e_t$$

.....(1)

Where:

ROE and ROA represents firm performance variables which are: Return on assets and Return on equity for banking firms at time t.

BSZE stands for Size of the Board; Composition of the Board is proxied by BCOMP which is explained as the proportion of non-executive directors to total size of the board, while CGDI represents Corporate Governance Disclosure Index.

FSZE represents firm size and for the purpose of this study, log of assets was used because the values are widely spread; DBT represents gearing (debt). These two variables are the control variables.

e_{it} , the error term which account for other possible factors that could influence ROE_{it} and ROA_{it} that are not captured in the model.

4. Data Analysis and Results

A descriptive analysis was used to give a summary result of the variables. This was followed with a correlation analysis to measure the degree of association between different variables under consideration. Lastly, the regression analysis was used to determine the impact of the corporate governance variables on performance.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	60	-1.1	0.37	0.028	0.224
ROE	60	-2.0	1.6	0.015	0.456
BSZE	60	7.0	20.00	14.53	2.52
BCOMP	60	0.50	0.92	0.615	0.07
CGDI	60	0.72	1.0	0.88	0.078
FSZE	60	8.15	9.43	8.89	0.31
DBT	60	0.00	0.97	0.35	0.21

Source: Authors' Computation, (2013)

From Table 1 it can be seen that the 15 listed banks included in this research generates Return on Equity (ROE) of about 1.5% and there is a standard deviation of 45.6%. This means that the value of the ROE can deviate from mean to both sides by 45.6%. The maximum and minimum values of ROE are 160% and -200% respectively. However, a Return on Asset (ROA) of 2.8% was generated on the average, with a minimum and maximum percentage of -110% and 37% respectively. Also with regards to ROE and ROA, it can be seen that there is a wide deviation between banks.

Also for the banks studied, the average board size is about 15 and a deviation of 2.52 which signifies that banks in Nigeria have a relatively similar board size. The maximum and minimum board sizes are 20 and 7 respectively. In addition, the average proportion of non-executive directors on the board is about 62% with a deviation of 7%.

The average CGDI is 0.88 and this can deviate to both sides by 7.8%. The bank with the highest level of disclosure has 100% and that with the least has 72%.

Also it can be seen that in terms of firm size which is shown by the value of asset base for the banks, they are of relatively similar sizes with a maximum and minimum 9.43 and 8.15 respectively and most of the banks are less dependent on debt in their capital structure with a mean of 0.35.

The correlation analysis measures the degree of association between the governance variables and performance variables i.e. whether or not the governance variables will improve performance. Figure 4.4 and 4.5 presents the correlation results for all the variables reviewed in this study.

Table 2: Correlation Result for Model 1 (ROA)

Covariance Analysis: Ordinary

Date: 09/09/13 Time: 15:51

Sample: 1 60

Included observations: 60

Correlation Probability	ROA	BSZE	BCOMP	CGDI	FSZE	DBT
ROA	1.000000 -----					
BSZE	0.152335 0.2453	1.000000 -----				
BCOMP	0.147201 0.2617	-0.147753 0.2599	1.000000 -----			
CGDI	0.285055 0.0273	0.110295 0.4015	0.232649 0.0736	1.000000 -----		
FSZE	0.170919 0.1916	0.453236 0.0003	-0.307185 0.0170	0.162736 0.2141	1.000000 -----	
DBT	0.147843 0.2596	-0.213096 0.1021	0.319456 0.0128	0.283542 0.0281	-0.203510 0.1189	1.000000 -----

Source: Authors' Computation, (2013)

From the correlation result in table 2 above for ROA, the board size has a positive weak correlation with ROA with a correlation coefficient of 0.15. This means the ROA improves as the board size increases but this increase is not much and it is also not significant with a p-value of 0.24.

Also, the board composition has a weak positive correlation with ROA. Therefore as the proportion of non-executive directors to executive directors increases, ROA improves but this variable is not significant with a p-value of 0.26.

The corporate governance disclosure index is positively correlated at 0.285 and it is also significant at 5%. This might indicate that banks that disclose more governance issues seem to perform better.

The two control variables firm size and gearing also seem to be positively weakly correlated to ROA and these two variables are also not significant at 5%. This can mean the size of a bank measured by its asset base tends to improve performance and gearing also tend to improve performance.

Table 3: Correlation Result for Model 2 (ROE)

Covariance Analysis: Ordinary

Date: 09/09/13 Time: 16:17

Sample: 1 60

Included observations: 60

Correlation

Probability	ROE	BSZE	BCOMP	CGDI	FSZE	DBT
ROE	1.000000 -----					
BSZE	0.187287 0.1519	1.000000 -----				
BCOMP	0.060928 0.6438	-0.147753 0.2599	1.000000 -----			
CGDI	0.114592 0.3833	0.110295 0.4015	0.232649 0.0736	1.000000 -----		
FSZE	0.269285 0.0375	0.453236 0.0003	-0.307185 0.0170	0.162736 0.2141	1.000000 -----	
DBT	-0.111617 0.3959	-0.213096 0.1021	0.319456 0.0128	0.283542 0.0281	-0.203510 0.1189	1.000000 -----

Source: Authors' Computation, (2013)

From the correlation result in table 2 above for ROE, the board size has a positive weak correlation with ROE with a correlation coefficient of 0.187. This means the ROE improves as the board size increases but this increase is not much and it is also not significant with a p-value of 0.15.

Also, the board composition has a very weak positive correlation with ROE. Therefore as the proportion of non-executive directors to executive directors increases, ROE improves with a correlation coefficient of 0.06 but this variable is not significant with a p-value of 0.64.

The corporate governance disclosure index is very weakly positively correlated at 0.11 and it is also not significant at 5% with a p-value of 0.38. This might indicate that banks that disclose more governance issues might just seem to perform a little better than others but this value is not significant. The firm size measured by its asset base seems to be weakly positively correlated to ROE and also significant at 5% with a p-value of 0.03. This might mean the size of bank tends to improve ROE.

The gearing measured by debt to equity is negatively correlated to ROE with a correlation coefficient of -0.11. This means as value of debt to equity increases, it has a negative effect on performance (ROE). This variable is not significant at 5% with a p-value of 0.39.

In this section, the panel data regression analysis is used to investigate the impact of corporate governance on banks' financial performance using return on equity and return on asset. Table 4 and 5 presents the regression results for all the variables reviewed in this study.

Table 4: Regression Result for Model 1 (ROA)

Dependent Variable: ROA

Method: Least Squares

Date: 09/09/13 Time: 15:49

Sample: 1 60

Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	-1.866851	0.985331	-1.894643	0.0635
BSZE	0.009170	0.012828	0.714809	0.4778
BCOMP	0.423273	0.453872	0.932582	0.3552
CGDI	0.534164	0.400604	1.333395	0.1880
FSZE	0.111240	0.108438	1.025843	0.3095
DBT	0.110819	0.148104	0.748251	0.4576
R-squared	0.131027	Mean dependent var	0.028255	
Adjusted R-squared	0.050567	S.D. dependent var	0.224061	
S.E. of regression	0.218322	Akaike info criterion	-0.111049	
Sum squared resid	2.573891	Schwarz criterion	0.098386	
Log likelihood	9.331462	Hannan-Quinn criter.	-0.029127	
F-statistic	1.628469	Durbin-Watson stat	1.497498	
Prob(F-statistic)	0.168199			

Source: Authors' Computation, (2013)

The regression result is shown in table 4. The regression equation employed ROA as its dependent variable and board size, board composition, corporate governance, firm size and debt as independent variables. Firm size and debt are control variables.

The result shows that all these independent variables are not significant in explaining effect on bank's profitability in terms of ROA, even though there is a relationship between the dependent variable and the independent variables; it seems not to be significant because of the p-value which confirms the relationship between the variables could be as a result of random events. The r-squared clarifies this further by indicating that about 13% of the variation in ROA is accounted for by these independent variables.

Board size has a positive effect on bank's profitability, one unit increase in board size will increase the ROA by the coefficient and vice versa, reaffirming the fact that the larger the board size, the better the performance.

Board composition also improve profitability, one unit increase in the ratio of non-executive directors to total directors will increase the ROA by the coefficient. Thereby, increase in the number of non-executive directors sitting on the board, the better the financial performance in terms of ROA.

The corporate governance disclosure index follows the same trend in terms of affecting profitability as board size and board composition. This thereby indicates that a bank that tends to disclose more on governance issues is more likely to perform better than a bank that discloses less.

The firm size and leverage both have a positive relationship with ROA. For the firm size, increase in bank's asset base should lead to improved profitability and this should be the case if the banks make maximum use of its assets. For leverage, increase in debt in its capital structure should lead to improved profitability which could mean banks with more debt tend to perform better.

Table 5: Regression Result for Model 2 (ROE)

Dependent Variable: ROE

Method: Least Squares

Date: 09/09/13 Time: 16:13

Sample: 1 60

Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.421382	2.026675	-2.181594	0.0335
BSZE	0.011488	0.026385	0.435405	0.6650
BCOMP	1.130007	0.933545	1.210447	0.2314
CGDI	0.335306	0.823981	0.406934	0.6857
FSZE	0.378309	0.223040	1.696150	0.0956
DBT	-0.249095	0.304627	-0.817706	0.4171
R-squared	0.112451	Mean dependent var		0.015063
Adjusted R-squared	0.030271	S.D. dependent var		0.456010
S.E. of regression	0.430271	Akaike information criterion		1.331299
Sum squared resid	10.88914	Schwarz criterion		1.540733
Log likelihood	-33.93896	Hannan-Quinn criter.		1.413220
F-statistic	1.368348	Durbin-Watson stat		1.776561
Prob(F-statistic)	0.250714			

Source: Authors' Computation, (2013)

The regression result is shown in table 4. The regression equation employed ROE as its dependent variable and board size, board composition, corporate governance, firm size and debt as independent variables. Firm size and debt are control variables.

The result also shows the same result as that of ROA, that all the independent variables are not significant in affecting bank's profitability in terms of ROE, even though there exist a relationship between the dependent variable and the independent variables, it seems not to be significant because of the p-value which confirms the relationship between the variables could be as a result of random events. The r-squared clarifies this further by indicating that about 11% of the variation in ROE is accounted for by these independent variables.

Board size has a positive effect on bank's profitability; one unit increase in board size will increase the ROE by the coefficient and vice versa. This follows the same pattern as ROA.

Board composition also improve profitability, one unit increase in the ratio of non-executive directors to total directors will increase the ROE by the coefficient. Board composition seems to have the most influence on ROE amongst all the variables. This result is consistent with that observed above in ROA.

The corporate governance disclosure index follows the same trend in terms of affecting profitability (ROE) as that of ROA above. A bank that tends to disclose more on governance issues is more likely to perform better than a bank that discloses less.

The firm size has a positive relationship with ROE. An increase in bank's asset base should lead to improved profitability. This result is consistent in the two models with firm size having a positive relationship on profitability (ROA and ROE).

The Gearing (leverage) has a negative relationship with ROE; increase in debt in a bank's capital structure would lead to reduced profitability which could mean banks with no or less debt tend to perform better in terms of ROE.

5. Conclusions and Recommendations

The first objective of the study was to examine the relationship between board size and financial performance of banks in Nigeria. The study found board size both in terms of ROA and ROE has a positive relationship with the variables. This result tend to be consistent with Coleman and Biekpe (2006), they observed a positive relationship exist between firm performance and board size. This also contradicts Manas and Saravanan (2006), they conducted a research on listed banks in India and discovered that there is no presence of a relationship between the size of the board and the performance of the banks. This could imply that the large board size leads to better decision making as result of the availability of wide range of expertise.

The second objective of the study was to examine the effect of the proportion of non-executive directors (board composition) on the financial performance of banks in Nigeria. The study found board composition in terms ROA and ROE follows the same trend as board size with a positive relationship. This is consistent with Sang-Woo and Lum (2004), reported that there is the existence of a positive relationship between having a significant proportion of non-executive directors on the board and return on investment. This also contradicts Sanda, Mukaila and Garba (2005), examined companies quoted on the Nigerian stock exchange to examine this relationship and came to conclusion that there is no relationship between the variables. This could imply that the non-executive directors perform its advisory and monitoring function, thereby reducing or eliminating the agency conflicts.

The third objective of the study was to determine the corporate governance disclosure of banks in Nigeria in compliance to CBN governance code (2012). The study found a high level of compliance to CBN corporate governance code (2012) by all the banks reviewed over the period and this could be the reason of improved disclosure and transparency in Nigerian banking industry.

The fourth objective of the study was to determine if there is any significant relationship between the level of corporate governance disclosure and the financial performance of banks in Nigeria. The study found that corporate governance disclosure has a positive relationship with the two performance proxies. This implies that a bank that tends to disclose more on governance issues in line with the CBN code (2012) is more likely to perform better than a bank that discloses less.

Other findings from descriptive analysis show that the average board size is about 15 among the listed banks in Nigeria. This is consistent with the suggestions of Coleman and Biekpe (2006) that a board size of 12 to 16 is appropriate. Also, it was noticed that the average proportion of non-executive directors on the board (board composition) among the listed banks in Nigeria is about 62% which is in line with the CBN code (2012) where it was stated that "the number of executive directors shall not exceed 40% of the entire board size". Lastly, although a mean disclosure of 0.88 was achieved in terms of corporate governance disclosure, the banks disclosed fully on items 2-7, 10-12, 14-17, 20, 23, 25, 27 and 31-32 (see appendix 2 for governance code).

Also the regression analysis of the study shows that the independent variables employed only account for about 11-13% of the variations in the dependent variables, therefore more other appropriate variables should be considered for future studies.

Lastly, future studies could examine other sectors since this study covers the banking sector. It would be of great benefits to have a picture of corporate governance roles in other sectors or organisations.

6. References

- [1] Adams, R. and Mehran, H. (2003): Is Corporate Governance Different For Bank Holding Companies? *Federal Reserve Bank of New York, Economic Policy Review* 9, pp. 123-142.
- [2] Brennan, N. (2006). Boards of Directors and Firm Performance: Is there an Expectations Gap? *Corporate Governance: An International Review*, 14(6), 577-593.
- [3] Clarkson, M.B.E, (1995). "A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance", *Academy of Management Journal*, 20/1: 92-118.
- [4] Coleman, A. and Nicholas- Biekpe, N. (2006): Does Board and CEO Matter for Bank Performance? A Comparative Analysis of Banks in Ghana, *Journal of Business Management, University of Stellenbosch Business School (USB), Cape Town, South Africa Vol.13, Pp.46-59.*
- [5] Das, A. and S. Ghosh, (2004, March 20): Corporate Governance in Banking System: An Empirical Investigation. *Economic and Political Weekly*, pp. 1263-1266.
- [6] Davis, J.H., Schoorman, F.D. and Donaldson, L. (1997): Toward a Stewardship Theory of Management. *Academy of Management Review*, Vol.22,20-37.
- [7] Donaldson, L. and Davis, J.H., (1991): Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management*, Vol.16, Pp. 11- 19
- [8] Donaldson, T. and Preston, L.E. (1995): The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications" *Academy of Management Review*, Vol.20, No.1, 65-91.
- [9] Holsti, O. R., (1969): *Content Analysis for Social Sciences and Humanities*, London, Addison Wesley.
- [10] Imam, Mahmood Osman, (2006): Firm Performance and Corporate Governance through Ownership Structure: Evidence from Bangladesh Stock Market. Paper presented in 2006 ICMAB Conference.
- [11] Imam, S. (2000): Corporate social performance reporting in Bangladesh, *Managerial Auditing Journal*, Vol.15, No.3, pp.133-141.
- [12] Iskander, Magdi R., and Chamlou, Nadereh (2000): *Corporate Governance: A Framework for Implementation*. Washington. D.C, The World Bank Group.
- [13] Jensen, M. C. and Meckling, W. H. (1976), "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure," *Journal of Financial Economics*, 3, 305–360.
- [14] Jonsson, F.I (2005). The Role Model of the Board: A Preliminary Study of the Roles of Iceland Board. *Corporate Governance: An International Review*, 13(5), 710-717
- [15] Kang, E. & Zardkoohi, A. (2005). Board Leadership Structure and Firm Performance. *Corporate*
- [16] submitted to the Centre for Strategic Economic Studies, Faculty of Business and Law, Victoria University, Melbourne.
- [17] Kaymark, T. & Bektas, E. (2008). East Meets West? Board Characteristics in an Emerging Market: Evidence from Turkish Banks. *Corporate Governance: An International Review*, 16(6), 550 - 561.

- [18] Kiel, G.C. & Nicholson, G. J. (2003). Board Composition and Corporate Performance: How the Australian Experience informs contrasting Theories of Corporate Governance. *Corporate Governance: An International Review*, 11(3), 189 - 205.
- [19] Krippendorff, K., (1980): *Content Analysis: An Introduction to its Methodology*, London, Sage Publication.
- [20] Mallin, C.A. (2010) *Corporate Governance*. 3rd ed. Oxford: Oxford University Press.
- [21] Manas, M and Saravanan, P (2006): Does the Board Size Really Matter? An Empirical Investigation on the Indian Banking Sector. *Journal of Corporation Law*, Vol 27, Issue 2, pp.231-43.
- [22] Rashid, A. (2011). Board Composition Board Leadership Structure and Firm Performance: Evidence from Bangladesh. A Paper for Inclusion in the Accounting and Finance Association Australia and New Zealand Annual Conference Adelaide, July 5-7th.
- [23] Rusconi G. (2007). Etica, responsabilità sociale d'impresa e coinvolgimento degli stakeholder.
- [24] Sanda, A.U, A.S Mukaila and T. Garba (2005): *Corporate Governance Mechanisms and Firm Financial Performance in Nigeria*, Final Report Presented to the Biannual Research Workshop of the AERC, Nairobi, Kenya, pp 24-29
- [25] Sang-Woo, Nam and Lum . A. (2004): *Relationship Banking and Its Role in Corporate Governance*. ADBI Research Paper, ADB Institute.
- [26] Smith, A., (1776), "Wealth of Nations" (1991 ed.), Amherst, NY: Prometheus Books, 324.
- [27] Sundaramurthy, C. (1996). *Corporate Governance within the Context of Antitakeover Provisions*. *Strategic Management Journal*, Vol.17, No.5, May, pp.377-394. New York: John Wiley & Sons.
- [28] Westham, H (2009) *Corporate Governance in European Banks*. A PhD Thesis submitted to the Department of Financial Economics, Hanken School of Economics, Finland.

CONSIDERATIONS ON THE ROLE OF FINANCIAL MARKETS IN ECONOMIC GROWTH

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Abstract: Generally accepted in economic literature, the financial market has a positive impact on growth in a modern economy. Nevertheless, due to the global crises starting in 2008, a number of authors are questioning today about this assertion. Among them, there are authors which are attributing as initial impulse to the crisis an exaggerated expansion of financial market (and non-covered on the real side of economy). In this study, based on economic literature and empirical evidences, we are presenting few considerations regarding the development of financial market during last decades and its role on economic growth.

Keywords: economic growth, financial market, endogenous growth

JEL Classification: A11; D53; E44; G15.

1. Introduction

In a modern economy, the financial system provides two important functions: the allocation of savings to achieve different investment opportunities and the distribution and allocation of risks between the various operators. In economic literature there is a preponderance of work supporting a positive relationship between financial development and economic growth.

Otherwise, an efficient financial system can play a vital role in the economy, and long-term financial markets contribute to economic growth. Financial markets that works satisfactorily, having appropriate financial intermediaries, can stimulate growth by improving the allocation procedures economies, increasing volume disponibile funds. Financialisation emerging and developing premises can create a process of development, facilitating solid growth.

This study aims at reviewing the main trends of opinion on the financial market relationship - economic growth, emphasizing the important role they play in economic growth. After an overview of the various theories and analysis on the relationship financial markets - growth, some examples of analyzes conducted on countries that allow highlighting the relationship.

Financial services are an important and growing sector in almost all economies, developed and developing. A recent rapid growth is particularly strong in economies about rapid modernization. The financial system is more important than the direct let us believe that it occupies in the economy, the backbone of the modern economy.

2. Ideas in the literature on the relationship of financial markets – growth

In the economic literature there are different opinions regarding the relationship between financial markets and economic growth.

1) The first considers the current financial system impacts positively on growth. First authors who revealed such a relationship was Bagehot (1873), Schumpeter (1911), Gurley et Shaw (1955), but the first that gave to these ideas an empirical basis were Davis (1965), Cameron (1967) and Sylla (1969). Walter Bagehot in 1973 and John Hicks in 1969 support a positive relationship between financial markets and economic growth, citing the crucial role played by capital mobilized financial system during industrialization in England. Joseph Schumpeter (1911) adds another argument, that the fact that banks in their activity periods working properly, fosters technological progress, supporting and encouraging entrepreneurs with high innovative potential. The state should have a role of regulator of bank funds, especially in economies at the early stages of development. The same author adds in 1934 that the services provided by financial intermediaries are essential to cause, facilitate and accompany the technological and economic development. More recently, Miller (1988) argues that the idea that financial markets contribute to economic growth is so obvious it does not even deserve to be discussed.

2) The second current view holds that financial markets are not essential for growth. Authors who are part of this category are opposed to the idea that financial markets have developed an active role in economic growth. The main advocate of this thesis is Joan Robinson, a Marxist economist at the University of Cambridge, colleague and friend of the great John Maynard Keynes. According to Robinson (1952): When industry leads, finance follows, in other words the role of growth lies mainly in industry, finance is a servant rather than a good functionary of it, you can not assign a role. Thus, economic growth is draining the financial system. Economic growth creates demands for particular type responsible financial system developing. Development of financial markets can therefore be interpreted as a result of demand in the manufacturing sector. Thus, causality is reversed growth requires new ways of funding, resulting in the development of financial markets.

3) A third group of economists believes that there is an important relationship between the financial system and economic growth. Nobel laureate Robert Lucas (1988) argues that the role of financial factors in economic growth is exaggerated. Also, Mayer (1988) believes that developed financial markets do not play a major role in financing of firms. In the same vein, Stiglitz (1993) argues that market liquidity has no impact on the behavior of enterprise managers and therefore not exercise some control corporate. Economists development shown generally skeptical about the role of financial system in economic growth.

Financial markets affect saving and investment decisions and have an important role in economic growth, having five main functions: production of information to allocate capital among various investment opportunities; monitoring of investments; diversification and risk management; mobilizing savings and facilitating the exchange of goods and services. Financial intermediaries participating on this market may be represented by: banks, investment funds, insurance companies, organized markets (exchanges), home economics, pension funds, managers etc.. These intermediaries help reduce acquisition costs and information necessary for the evaluation of investment projects, thus improving capital allocation.

For Greenwood and Smith (1997), capital markets reduce the cost of mobilizing savings and thereby may facilitate investment in more efficient technologies more productive. Risk sharing, global capital markets through investment allows expansion higher. This improves the allocation of resources and, consequently, economic growth (Devereux and Smith, 1994).

Levine (1991), Bencivenga, Smith and Sarr (1966) noted the important link that exists between stock market liquidity and growth. A high liquidity of the market facilitates investment in long-term projects with high profitability, stimulating growth. Businesses are

tempted to replace savings as precious metals, land and sustainable consumption goods and cash for financial instruments such as stocks, bonds, investment funds and other securities.

Pagano (1993) and Levine (1997) argue that financial development affect growth by improving productivity and capital efficiency. Saint-Paul (1992) argues that financial intermediation enables technological risk diversification, investment and promoting specialization thus facilitating cereșterii productivity will lead in turn to growth.

3. Approaches based on empirical analyses and endogenous model

A number of empirical papers have attempted to determine a relationship between financial markets and economic growth. The first works that dealt about finance - growth privilege banking sector as the traditional channel of financial intermediation. There were used two indicators of financial development: monetary aggregate M3 to GDP; domestic credit volume granted by savings banks and other financial institutions to GDP.

King and Levine (1993) establish a link between development banking Positive economic growth, their study based on a sample of 24 countries. All these authors conducted a study on a sample of 77 countries between 1960 and 1989, finding that there is a significant relationship between the size of the banking sector and economic growth. Demetriades and Hussein (1997) notes, however, that these results can not be applied to all countries, especially developing ones.

With the development of capital markets, all several authors ask the question of a possible link between financial markets and economic growth. Thus, Levine and Zervos (1996, 1998) study the specific role of financial markets and conclude that there is a positive correlation between the various indicators of financial markets and the development of economic activity.

Deirguç-Kunt and Levine Deirguç (1996) remarked that countries with developed financial markets and banking systems have developed, and vice versa, implying that one can not distinguish between bank-based financial system and one based on the financial markets. Atje and Jovanovic (1993) analyzed a sample of 47 countries in the 1980s and conclude that the index of development of financial markets and positively influences the strong economic growth, much more than the bank development.

Levine (1997) reveals a new element, that the financial markets liquidity boosts economic growth through reducing investment risk. For this, the financial development is a good indicator Prevision growth rates, capital accumulation and technological progress.

Rajan and Zingales (1998) and Würgler (2000) study on the relationship finance - industries, distinguishing industries that are particularly intensive external funding those that are less. They conclude that the sectors consuming external financing develop faster in countries with developed financial systems. McKinnon (1973) and Shaw (1973) support the financial liberalization thesis. According to them, government intervention in the banking discourages saving and investment funds, financial development and thus preventing economic development. Therefore, they propose eliminating all financial restrictions. Financial liberalization is seen as a solution economic development, allowing not only increased interest rates which in turn incites increasing saving among households, and improve resource allocation in the economy, which is favorable to economic growth. In the 80's, many financial liberalization programs implemented in developing countries, inspired by the two authors, lead to the rapid development of their financial systems, especially capital markets.

Until recently, the role of the financial system was not taken into account in economic growth models. Only in the '90s through endogenous growth models, economists are beginning to investigate the direct relationship between financial development and economic

growth. The opinions above do not account for the role of structural change in the financial system on economic growth. Financial innovations have increased capacity to attract savings circulation of capital in the world, to stimulate entrepreneurship, dissemination risk, facilitating the exchange of goods and services and financial contracts.

However there are some negative effects of financial development, effects that have been highlighted by the financial crises over the last decades and their impact on the real economy and thus on economic growth.

The importance of financial factors in economic growth will be considered in the creation of new endogenous growth models which include the financial sector. In these models, the whole financial system (banks, financial intermediaries, equity markets, bonds, derivative products, etc.) allows the collection and use of savings.

The traditional model of economic growth consider a production function depended not only the capital stock. Thereafter, by modifying this function resulted that growth rate depends on the saving rate and the marginal productivity of capital. The assumption of decreasing marginal productivity of capital is central to ensure convergence to a stationary state. The new endogenous growth model considers that it is possible to increase productivity regardless of exogenous growth. Financial development can have a dual effect on growth: first by increasing the efficiency of capital accumulation, and thus increasing its productivity; secondly by increasing the savings rate and hence the rate of investment.

Classical market equilibrium condition requires equality between gross saving and gross investment. This condition introduced in the model and generates the hypothesis that the activity of intermediation costs and that part of the circuit savings intermediated disappears. With financial development, capital markets appear alongside other financial intermediaries, previously regarded as the only component of the financial system. Have taken into account the fact that some of the savings will be used by financial intermediaries to buy financial products and only the other side will be invested.

Differences between the financial systems are not confined to their degree of sophistication. Thus, one of the largest difference between different countries and, in particular, developed countries is determined by the relative importance of markets and financial intermediaries. On one side are countries whose financial system is based on banks (Germany, Japan, France), on the other hand stands countries financial system focused on financial markets (U.S., UK, Canada).

The financial sector has seen a sharp increase. According to Philippon (2007), the financial sector in 1947 represented 2.32% of GDP in the U.S. and 2.76% of the wages. The percentage in 2005 was 7.09% and 7.65%. Also, between 1996 and 2007, the profits of financial companies belonging market index S & P 500 rose significantly from \$ 65 billion to \$ 232 billion, representing an increase from 19.5% to 27% of companies that are part of share this index. In the same period, the total market capitalization of financial firms as part of this index went from 6% to almost 18%.

The financial sector has developed very rapidly in the years after the 1990 till the crisis began in 2007. Several studies indicate that the labor force employed in this sector saw growth of 25% to 50% in many industrialized countries since 1970, representing 3-5% of the total workforce in 1997. Value added in financial services sector is considered as grown in the past 25 years, accounting for between 7-13% of GDP in Hong Kong, Singapore, Switzerland and the United States. World exports of financial services accounted for 200 billion dollars in 2005, an increase of 14% Annual average between 2000 and 2005.

Recent years have been fruitful, with many studies on the relationship between financial markets and economic growth, some of them focusing on the specific case of a single country, others are more general.

Garretsen, Lensink and Sterken (2004) show a positive relationship between economic growth and financial development. Thus, an improvement in economic growth by 1% leads to an increase of 0.4% indicator capitalization / GDP. Another group of economists (Beckaert, Harvey and Lundblad, 2005) follows the impact of financial liberalization on economic growth and concluded that liberalization actions contribute, on average, a 1% increase in the annual rate of growth.

Nieuwerburg, Buelens and Cuyvers (2006) conducted a study on the Belgian economy. They analyzed the long-term relationship between stock market development (measured by market capitalization and number of listed companies) and economic growth (measured as log differences in GDP per capita). Their study explores the role of the market share in the growth of Belgium from 1832 to the present, concluding that influenced the development of the market share growth in this country, the greatest influence was recorded in the period 1873-1935.

The case of Greek economy was studied by Hondroziannis, Lolos and Papapetrou (2005), taking into account the period 1986-1999. Their analysis concludes that there is a bidirectional relationship between economic growth and development of capital markets. Liu and Hsu (2006) focused their analysis on the cases of Taiwan, Korea and Japan, and they reached the conclusion that the development of the market shares (measured by market capitalization as a percentage of GDP and the rate of rotation as a percentage of GDP and dividend yields) of had a positive effect on economic growth in these countries. Also, the case of Egypt, Bolbol, Fatheldin and Omran (2005) showed that the development of capital markets has had a positive effect on factor productivity and growth.

Caporale and Spagnolo (2011) published a study for the three countries of Central and Eastern Europe: Czech Republic, Hungary and Poland. The choice of these countries was related to the fact that they enjoyed the largest market capitalization in the region. According to this study, there is a one-dimensional relationship of the development of capital markets towards growth. This bond becomes stronger after joining the European Union, suggesting that the financial markets of these countries have benefited from the freedom of movement of capital.

Regarding Romania, Obreja Başoveanu, Dragota, Buckle and Semenescu (2008) showed in turn that economy has benefited from the development of financial markets, however, this relationship could not be evidenced only since 2000, the previous situation this year being eloquent.

Capital market from Romania has developed quite slowly, since 1995. Moreover, after 1989, Romania had a few years with negative growth rates. Only since 2000, Romania has benefited from positive growth rates, accompanied by accelerating the development of financial markets. In terms of market capitalization of the Bucharest Stock Exchange recorded values increasing from 2002 to 2007.

Thus, an analysis of causality financial markets - growth in Romania, the studies were conclusive only for the period after 2000. Should not forget the fact that Romania, as well as Western countries with more developed economies suffered in last years of the global financial crisis, growth was also penalized. Financial market could not thus attain a high level of development that could lead to the achievement of its main functions in an economy, the efficient allocation of savings, there is still a major gap between Romania and the Central - Europe.

4. Conclusion

The financial industry is indispensable activity and growth as has been demonstrated by many reputable economists, however, the financial crisis of 2007-2009 highlighted the fact

that it may have at the same time, a negative influence. Disruptions in the financial markets could endanger the real economy and decisively affect growth.

5. Selected bibliography

- [1] Abil L.(1995): *Dicționar bursier*, Editura Economică, București
- [2] Aghion, P., Bacchetta P. and Banerjee, A. (1999): *Capital Markets and the Instability of Open Economies*, in *The Asian Financial Crises: Causes, Contagion and Consequences*, ed.by P.R. Agenor, M.Miller, D.Vines, A.A. Weber (Cambridge, UK: Cambridge University Press), 167-190.
- [3] Aglietta, M.(1991): *Épargne, innovations financières et croissance*, *Revue d'économie financière*, numéro 17, p.3-32.
- [4] Aka B.E. (2005): *Le rôle des marchés de capitaux dans la croissance et le développement économiques*, thèse de doctorat, Université d'Auvergne, teză de doctorat
- [5] Anghelache G. (2000) : *Bursa și piața extrabursieră*, Ed. Economică, București
- [6] Anghelache, G.V. (2004): *Piața de capital. Caracteristici, evoluții, tranzacții*, Ed. Economică
- [7] Arrow, Kenneth J.(1964): *The Role of Securities in the Optimal Allocation of Risk Bearing*, *Review of Economic Studies*, 3(2, April),91-96.
- [8] Atje, R., Jovanovic, B., (1993): *Stock markets and development*, *European Economic Review*, 37,p.632-640.
- [9] Baroga, C., Boboc, St., Popescu V. (2003): *Piața de Capital – Termeni esențiali*, Editura Hrema
- [10] Béchu Th.(2010) : *Economie et marchés financiers – Perspectives 2010-2020*, Groupe Eyrolles, Edition d'Organisation, Paris
- [11] Bencivenga, R. și Smith, B.D. (1991): *Financial intermediation and endogenous growth*, *The Revue of Economic Studies* 58, 195-209.
- [12] Dardac, N. și Basno, C. (1999): *Tranzacții bursiere cu produse derivate și sintetice*. București, Editura Didactică și Pedagogică
- [13] Demirgüç-Kunt, Ash, and Ross Levine (1996): *Stock market development and financial intermediaries : Stylized Facts*, *The World Bank Economic Review* 10 (2), 291-321.
- [14] De Serres, A., Kobayakawa, S., Slok, T., Vartla, L. (2006): *Réglementation des systèmes financiers et croissance économique dans les pays de l'OCDE: une analyse empirique*, *Revue économique de l'OCDE* no 43, 2006/2
- [15] Devereux, M.B., Smith, G.W. (1994): *International Risk sharing and economic growth*, *International Economic Review* 35
- [16] Fleuriet M. et Y. Simon (2003) : *Bourses et marchés financiers*, *Economica*
- [17] Gallois D. (1999) : *Bursa. Origine și evoluție*, Ed. Teora, București
- [18] Ghilic-Micu, B. (2002): *Strategii pe piața de capital*. București, Editura Economica
- [19] Greenspan A.(2007): *The Age of Turbulence*, Penguin Group, London
- [20] Greenwood, J, Smith, B.D. (1997): *Financial markets in development, and the development of financial markets*, *Journal of Economic Dynamics and Control*
- [21] Grigoruț, C. (2001): *Piața de capital*, Editura Expert, București
- [22] Jacquillat, B. (2008): *Innovations financières et croissance économique*, *Travaux préparatoires à la session 7: L'entreprise face aux innovations financières*
- [23] Lehmann P.-J. (1997) : *Histoire de la bourse de Paris*, PUF, Que sais-je?
- [24] Levine, R. (2000): *International Financial Liberalization and Economic Growth*, *Review of International Economics*

- [25] Levine, R. and D. Renelt (1992): *A sensitivity analysis of cross-country growth regressions*, American Economic Review 82, 942-963.
- [26] Levine, R. and S.J. Zervos (1993): *What we have learned about policy and growth from cross-country regressions?*, American Economic Review, Papers and Proceedings 83, 426-430.
- [27] Levine, R. and S.J. Zervos (1996): *Stock market development and long-run growth*, The World Bank Economic Review 10 (2), 323-339.
- [28] Levine, R. and Zervos, S.J. (1998): *Stock Markets, Banks, and Economic Growth*, American Economic Review 88, 537-558.
- [29] Levine, R., Loayza, N and Beck, T. (1999): *Financial Intermediation and Growth : Causality and Causes*, World Bank, Policy Research Working Paper 2059.
- [30] Levine, R. (1997): *Financial Development and Economic Growth : Views and Agenda*, Journal of Economic Literature 35 (2), 688-726.
- [31] Levine, R. (1999): *Law, Finance, and Economic Growth*, Journal of Financial Intermediation 8
- [32] Levine, R., Loayza, N., Beck, T. (2000): *Financial Intermediation and Growth: Causality and Causality*, Journal of Monetary Economics, 46: 1, 31-77.
- [33] Levine, Ross (1997): *Financial Development and Economic Growth: Views and Agenda*, Journal of Economic Literature, Vol. 35, No. 2, 688-726.
- [34] Miclăuș, P.G. (2003): *Bursele de comerț*, Ed. Economica, București
- [35] Mongars P., Marchal-Dombrat M. (2006) : *Les matières premières : une classe d'actifs à part entière ?*, Revue de la stabilité financière N°9
- [36] Morvan J. (2009) : *Marchés et instruments financiers*, Dunod, Paris
- [37] Pilbeam K. (1998): *Finance and Financial Markets*, Ed. MACMILLAN Business
- [38] Pogonaru F., Aposotol C. (1999) : *Evoluția pieței de capital*, CRPE
- [39] Popa I. (1993 și 1994) : *Bursa*, Ed. Adevărul, vol. I și II
- [40] Prisacariu M., Ursu S., Andrieș A. (2008) : *Piețe și instrumente financiare*, Ed. Universității « Alexandru Ioan Cuza », Iași
- [41] Rouseau P.L., Sylla R. (2001): *Financial Systems, Economic Growth and Globalization*, NBER Working Paper Series No 8323
- [42] Sardi, A. (1997) : *Instruments et Marchés Financiers*, AFGES éditions, Paris
- [43] Shumpeter, J.A. (1911): *The theory of economic development*, Harvard University Press, Cambridge, MA
- [44] Simon Y. (1991) : *Techniques financières internationales*, Ed. Economica, Paris
- [45] Sodjahin, W.R. (2003) : *Impacts du développement des marchés boursières sur la croissance économique au Canada*, Université de Montreal
- [46] Stanciu C.V. (2004) : *Managementul de portofoliu pe piața internațională de capital*, Teză de doctorat, Craiova
- [47] Stancu I. (2002) : *Finanțe. Teoria piețelor financiare. Finanțele întreprinderii. Analiza și gestiunea financiară*, Editura Economică, București
- [48] Stiglitz, J. E. (1994): *The role of the State in financial markets*, Proceedings of the World Bank Annual Bank Conference on Developing Economies (eds) M. Bruno and B. Pleskovich, World Bank, Washington, DC.
- [49] Stoica O. (2002) : *Mecanisme și instituții ale pieței de capital: piețe de capital emergente*, Ed. Economică, București
- [50] Tulai H. (2004) : *Piețe financiare*, Casa Cărții de Știință, Cluj-Napoca, 2004.
- [51] Ursu S. (2007): *Implementing MiFID – Challenges for the Capital Market of Romania*, în volumul „România și Uniunea Europeană. Provocările integrării”, Editura Universității Al. I. Cuza, Iași

The Use of Fiscal Policy at the National Level

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Abstract: The purpose of this article is to present the evolution of the index of efficiency of direct and indirect taxes recorded in Romania in 2011 as well as to compare the effectiveness of fiscal policy situation of our country to the countries of Central and Eastern Europe.

Keywords: fiscal policy, macroeconomic stabilization, economic efficiency.

JEL codes: E62; G20.

1. Introduction

Considering the economic crisis of recent years, Romania has felt the need of using fiscal policy as a tool of macroeconomic stabilization but this was not possible due to the unfavorable position it had². During expansion, fiscal policy was also expansionary implemented and it led to rising public debt and budget deficit. Because a wrong fiscal policy applied in the past, room for maneuver has been reduced considerably³. Another problem was the population's lack of confidence in the tax system in Romania because of the frequent legislative changes and unclear areas. Also, there were shortcomings in identifying the most effective tool that fiscal policy could call in the given macroeconomic situation.

Application of pro-cyclical fiscal policies affect macroeconomic stability of the economy, so effective and countercyclical policies should be applied. For this, we have analyzed the current level of effectiveness of fiscal policy and identify key factors that have a negative influence on the efficiency index of taxation.

² Burghilea, C. (2011) "Economic Crisis perspective between current and forecast", Theoretical and Applied Economics, Vol. XVIII, No. 8, pp. 137-147.

³ Gheorghiu, A., Gheorghiu, A., Spânulescu, I., (2009) "Target market risk evaluation", Proceedings of the International Conference on Econophysics, New Economics & Complexity - ENEC-2009, Editura Victor, București, ISSN 2065-2550, p.113.

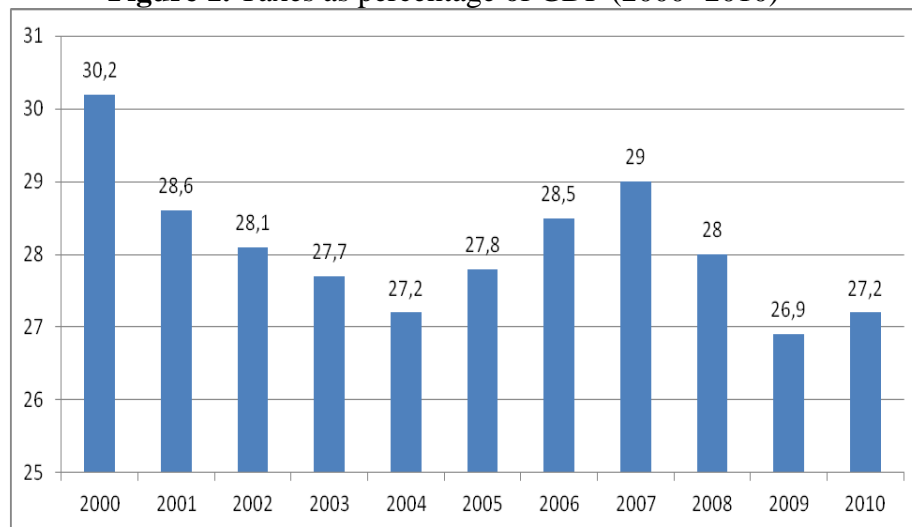
2. Macroeconomic stability

Fiscal policy is considered to be effective if applied instruments will lead to sustainable potential GDP growth. For this, we need to achieve productive public expenditure (education, public investment, R & D) and taxation to apply mainly on capital.⁴

For an expansionary fiscal policy measure to be effective, IT must be adopted immediately after the economy decrease occurred, to be representative as a percentage of GDP, to not lead to lower sustainability of the fiscal system, to be credible and to focus on support of consumption.

If we look at the tax system at EU level we can begin with the revenues from taxes in 2010 that were 27.2% of GDP, while the EU average (27) was 35.6%. Only Lithuania had a share of income from taxes in GDP lower by 27.1%.

Figure 1. Taxes as percentage of GDP (2000- 2010)

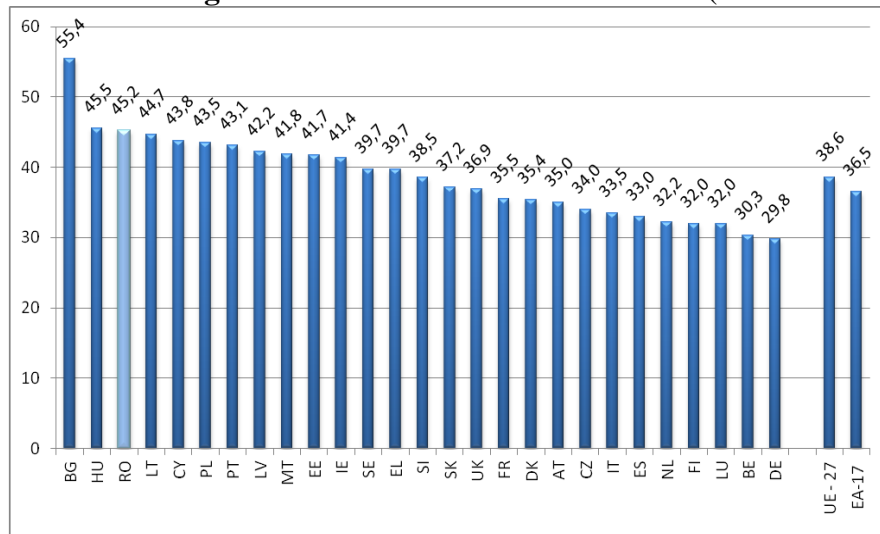


Source: Eurostat

The picture above captures the evolution of the value of taxes in GDP (see Figure 1). It declined considerably from 2000 to 2004 from 30.2% to 27.2%, then began to increase to 29% of GDP in 2007 along with strong growth in GDP. In the next two years the tax rate fell by almost 2 percentage points mainly due to lower revenues from VAT. In 2007, VAT revenues were 8.1% and in 2009 6.6% of GDP. However, in 2010 due to higher excise duties and VAT from 19% to 24%, revenues from indirect taxes have increased and offset the continued decline in direct government revenues and social contributions.

⁴ Mărcuță, L., Mărcuță, A., Tindecu, C., (2013) "Analysis of Romanian GDP during crisis", *20th International Economic Conference - IECS 2013, Post Crisis Economy: Challenges and opportunities*, Sibiu, România

Figure 2. Share of indirect taxes in GDP (UE-27 - 2010)



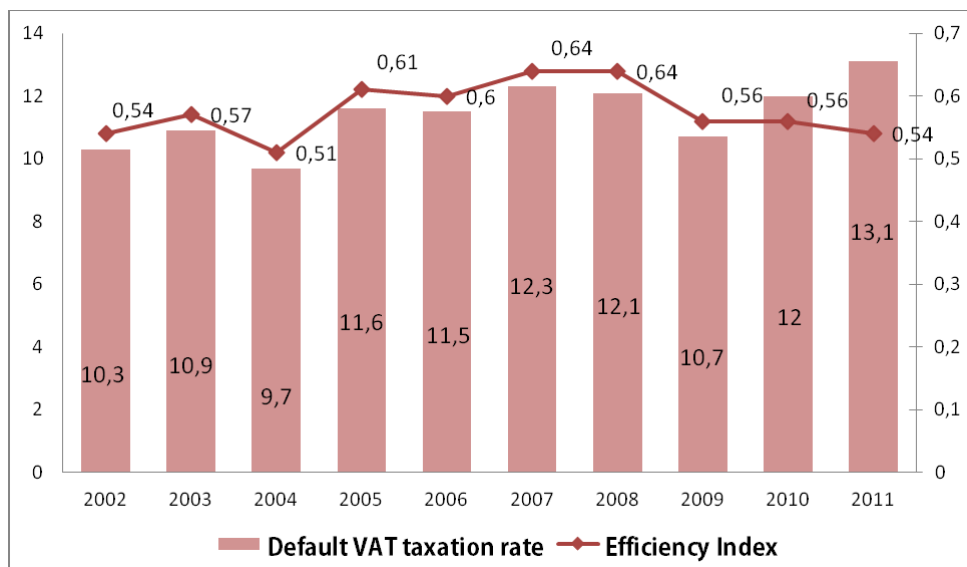
Source: Eurostat

Of total government revenues collected from taxes highest share is 45.2% indirect taxes. Romania is the third country ranked by indirect taxes as a share of total taxes (see Figure 2). The less revenue is collected from direct taxes, only 22.6 % of the total, by 8 percentage points less than the EU average .

According to the Fiscal Council tax collection efficiency is calculated by the ratio of the implicit tax rate and the statutory rate of taxation. The implicit tax rate is equal to the ratio of actual revenues collected from a tax category and the corresponding tax basis of macro .

If we analyze the effectiveness of taxation for VAT in Romania, it is observed that it decreased significantly compared to the period before the economic crisis, but this has not happened only in Romania but also in the new EU member states in Central and Eastern Europe(see Figure 3).

Figure 3. Taxation rate and collection efficiency index related to VAT in Romania



Source: www.consiliulfiscal.ro

In 2011 the revenue collected from VAT were 47.9 billion lei, 6.9 billion lei higher than those in 2010. This increase is attributed to the increase in VAT rate from 19% to 24% from 1 July 2010, increasing household consumption and rising prices.

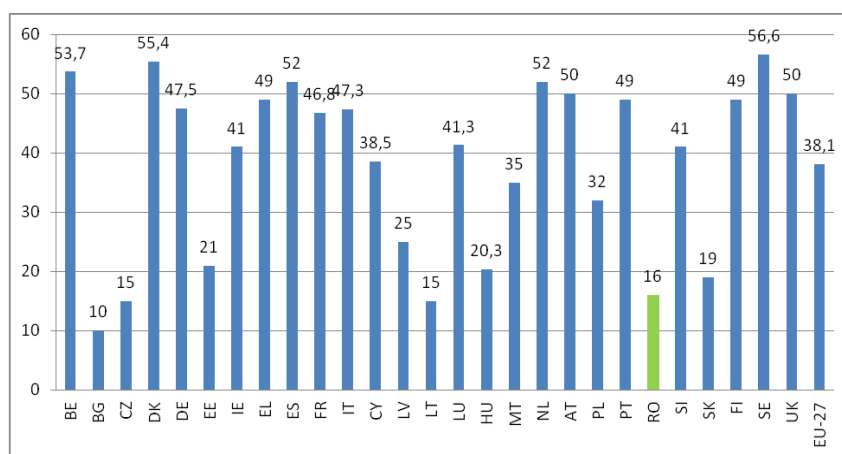
Analysis made at the end of 2011 on value added tax shows a small loss of efficiency compared to 2010 (54% in 2011 compared to 56% in 2010), this loss of efficiency coming from increased macroeconomic base considered.

Another factor that contributed to lower efficiency, "in the context of a shock of favorable supply in agriculture, self-consumption component as well as the peasant marketers, which are not likely to generate tax revenue."⁵ This component has affected efficiency so much that, after calculations, it was concluded that if this element would not change, efficiency would have not decreased. It can be said that revenues have changed in the same direction and about the same size as the basis macroeconomic being adjusted to mitigate the impact of the VAT increase from 16 % to 24 % in 2010.

Comparing the efficiency of VAT collection in Romania to the EU countries shows that the 54% is far below the level of 82 % in Estonia, 72 % in Slovenia and 71% in Bulgaria. In terms of share of GDP, revenue collected from VAT was 8.1% .

Increased excise duty on diesel, gasoline, cigarettes and other products and the introduction of new excise resulted in a 10% nominal increase of government revenue from excise duties, they recorded a value of 19.1 billion lei at the end of 2011 (see Figure 4).

Figure 4. Personal income tax 2012, UE - 27

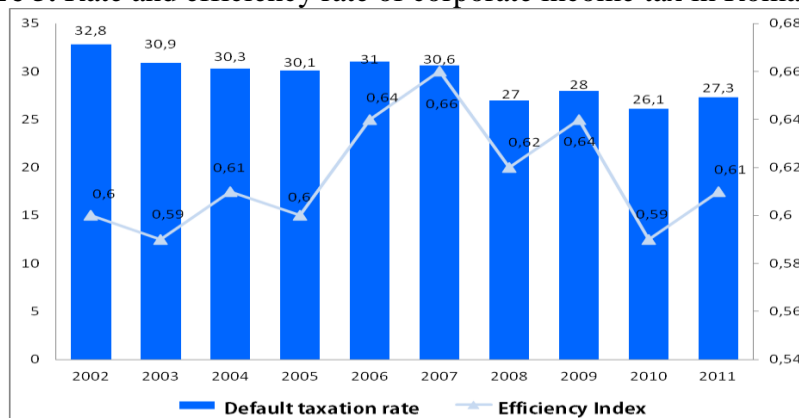


Source: Eurostat

Since 2005 the flat taxation system was implemented, which replaced a progressive tax between 18% and 40%. Tax rate of 16% is among the lowest in the EU-27, only Bulgaria (10%), the Czech Republic and Lithuania (13%) standing before Romania; this represents an advantage for attracting foreign direct investment.

In early 2011 the flat tax was removed. However both the efficiency and the tax rate decreased continuously between 2008-2011 (see Figure 5).

⁵ www.consiliulfiscal.ro - „Raport anual pe anul 2011. Evoluții și perspective macroeconomice și bugetare”

Figure 5. Rate and efficiency rate of corporate income tax in Romania

Source: www.consiliulfiscal.ro

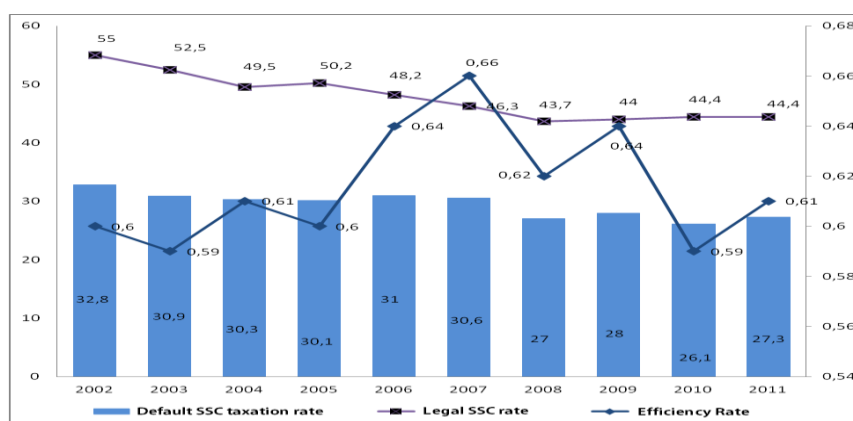
Between Central and Eastern Europe countries, in terms of tax efficiency Romania ranks fifth with 22 % and a default taxation rate of 3.6%.

Revenues from taxes on income and wages rose more than expected. This reflects the average salary increase of 4.9% and also the improvement of the situation on the labor market.

Increasing default taxation rate from 12.3 % to 12.6 % was caused by the impact of the recalculation of pensions of retired military personnel and retired from work classes I and II.

Romania ranks 3rd place in the EU with a degree of tax efficiency of 79%, recording a default taxation rate of 12.6 %, this being calculated as the ratio between the total direct taxes paid by the entire population and gross wages taken from the national accounts.

Income from social contributions rose to 50.6 billion in 2011, leading to increased default taxation rate and efficiency index rising from 0.56 to 0.61. This increase was due to expansion of the tax base and the introduction of social security contributions for military personnel. But there were also negative influences due to redirection of 0.5 percentage points of the total employee pension contributions to the second pillar of the pension system (see Figure. 6).

Figure 6. Default taxation rate of social security contributions in Romania

Source: www.consiliulfiscal.ro

Compared with other countries in the region, Romania ranks last in terms of collection efficiency of social contributions, despite improvements since 2011 . As the share of social contributions is the third largest in the region, only in Slovakia and the Czech Republic it being higher, however implicit tax rate is the 3rd from last, among the lowest rates.

Net budgetary expenditures increased in 2011 by 0.3% over the previous year, registering a level of 202.9 bn; growth was so low due to lower wage bill by 10.1 % since 2010 and also due to the reduction of subsidies by 17%. There were increases in projects financed by post-accession external funds (increased by EUR 3.4 billion) and capital expenditures increased in 2011 by 3.3 billion lei compared to 2010, as well as expenditures for goods and services 2.1 billion lei.

Evolution of the general consolidated budget expenditures shows a concentration in the last quarter. Specifically, total spending in the fourth quarter 2011 totaling 59 billion, higher by 24 % from the previous quarter and 1.5 % higher than the fourth quarter of 2010. More than half of the increase in spending in the fourth quarter of 2011 was due to capital expenditures, which increased by 148 % over the third quarter.⁶

3. Conclusions

Fiscal policy is only considered a good tool for economic stabilization in the case of a fixed exchange rate regime, because the Central Bank intervention counteracts the crowding out of net exports. There is also the possibility that fiscal policy does not lead to higher prices for exports because appreciation may reduce inflation. So, expansionary fiscal policy can also be effective for an open economy with a flexible exchange rate regime .

In formulating and imposing fiscal package not only their composition and size should be taken into account, but it has to be calculated whether it is more effective: change of taxes or change of expenditures.

Even though Romania has a tax system based on a flat rate of 16% , among the lowest in the EU -27 , the overall rate of taxation is 44.2 % due to other taxes. Compared to other countries in Central and Eastern Europe the value added tax is high enough, and the increase in 2010 from 19% to 24 % was significant. The 5 percent have decreased the efficiency index of the collection of VAT and this was due to increased tax evasion.

When we get rid of taxes is a useful indicator to analyze the impact of taxes each year. The calculations include all fees beared by an employer, so looking at the results from each year can identify how much change it affects citizens concerning the taxes they have to pay from that year on.

One thing is clear, the efficiency of the tax system in Romania has to be improved even though in recent years there have been some steps by introducing the online declarations of taxes. One of the problems is the large number of taxes that should decrease, and this will lead to decreasing the time spent by taxpayers at counters and hence lower state bureaucracy.

In conclusion, the fundamental principles that must be met by the tax system to achieve sustainable economic growth are: efficiency, certainty of taxation, stability and predictability, and the national tax system should be based on these.

4. Bibliography

1. Angelescu, C., Ciucur, D., Dinu, M., Gavrilă, I., Ghiță, P. T., Popescu, C., (2009) *Economie*, Editura Economică, București
2. Angelescu, C., Socol, C., (2009) *Politici economice*, Editura Economică, București
3. Băcescu, M., Băcescu-Cărbunaru, A., (2004) *Macroeconomie intermediară*, Editura Universitară, București
4. Blanchard, O., (2001) *Macroeconomics*. Fifth Edition, Editura Pearson, U.S.A.

⁶ www.consiliulfiscal.ro - „Raport anual pe anul 2011. Evoluții și perspective macroeconomice și bugetare”

5. Brezeanu, P., (1998) *Finanțe publice și fiscalitatea între teorie și practică*, Editura România de Mâine, București
6. Burghilea, C. (2011) "Economic Crisis perspective between current and forecast", *Theoretical and Applied Economics*, Vol. XVIII, No. 8, pp. 137-147.
7. Dinu, M., Socol, C., Niculescu, A., (2005) *Economia României. O viziune asupra tranziției postcomuniste*, Editura Economică, București
8. Fischer, S., Dornbush, R., Starz, R., (2007) *Macroeconomie*, Editura Economică, București
9. Gheorghiu, A., Gheorghiu, A., Spânulescu, I., (2009) "[Target market risk evaluation](#)", *Proceedings of the International Conference on Econophysics, New Economics & Complexity - ENEC-2009*, Editura Victor, București, ISSN 2065-2550, p.113.
10. Hall, R., Papell, D., (2005) *Macroeconomics. Economic growth, fluctuation and policy*, Editura Norton, New York
11. Hoanță, N., (2000) *Economie și finanțe publice*, Editura Polirom, București
12. Lipsey, R., Chrystal, A., (2002) *Principiile economiei*, Editura Economică, București
13. Mankiw, G., (2010) *Macroeconomics*, Editura Worth Publishers, New York, 2010
14. Mărcuță, L., Mărcuță, A., Tindeche, C., (2013) "Analysis of Romanian GDP during crisis", *20th International Economic Conference - IECS 2013, Post Crisis Economy: Challenges and opportunities*, Sibiu, România.
15. Popescu, C., Gavrilă, I., Ciucur, D., (2005) *Teorie Economică Generală*, Editura ASE, București
16. Socol, A., (2009) *Macroeconomia integrării monetare europene. Cazul României*, Editura Economică, București
17. Văcărel, I., (1999) *Finanțe publice*, Editura Didactică și Pedagogică, București
18. www.insse.ro
19. www.ec.europa.eu
20. www.consiululfiscal.ro
21. www.mfinante.ro

Patents Assessed through Sectoral Operational Programs

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Abstract: According to the International Accounting Standards – IAS 38 „Intangible assets”; these assets are identifiable non-monetary assets under construction were considered without physical substance. Lack actual physical form must not be understood that an intangible asset would have no material support, because the presence of any intangible asset can be demonstrated only by a support material form. Exmple: frequently encounter compact-disc (in case a software), legal documentation (in the case of licences, trade marks and patents of invention), contracts, permits and licences, technical documentation or films.

Nowadays we are constantly subjected to the changing flow of information that is found in a perpetual technological change which started the emergence of a new stage in the society development that which carries the name of knowledge.

The object of my research is the patent for the structural funds reimbursable project submitted in the "Operational Program, Economic Competitiveness" Operation 2.3.1. "Support for start-ups and innovative spin-offs. Patent is an official document certifying the inventor, the exclusive right to produce a certain good or product or use a particular process.

Remember that evaluation of intangible assets is the most complex and systematic procedure.

Keywords : patents, sectoral operational programs, evaluation, intangible assets.

JEL Codes : D23, H79, D83, D89, M41.

1. Introduction

The evaluation process is a complex system that includes all research, information, reasoning, analysis and conclusions followed by the evaluator to provide customer response on the value⁷.

Valuation of intangible assets is presented and demonstrated according to the International Standard Practice in assessment - GN 4, with the same name. For establishing the right value for any kind of intangibles we need to be in accordance with International Valuation Standard - IVS 1: Market value - value type.

In this context we always have to remember that intangible assets are fundamental to success, providing sustainable competitive advantages and that patents are a part of the intelectual property along with property rights, trademarks, data base, know – how, trade secrets, marketing strategies and the list can go on.

We all know that patents are government licenses that offers the holder exclusive rights to a process, design or new invention for a specific period of time. They are granted by a government to an inventor to manufacture, use, or sell an invention for a certain number of years. They are a set of exclusive rights granted by a sovereign state to an inventor or their assignee for a limited period of time, in exchange for the public disclosure of the invention.

An invention is a solution to a specific technological problem, and may be a product or a process⁸.

⁷ www.eval.ro

2. Patent Process and Invention Timeline for Protecting New Ideas⁹

Now I will like to show you a fairly typical example for the patent process presented in figure no. 1.

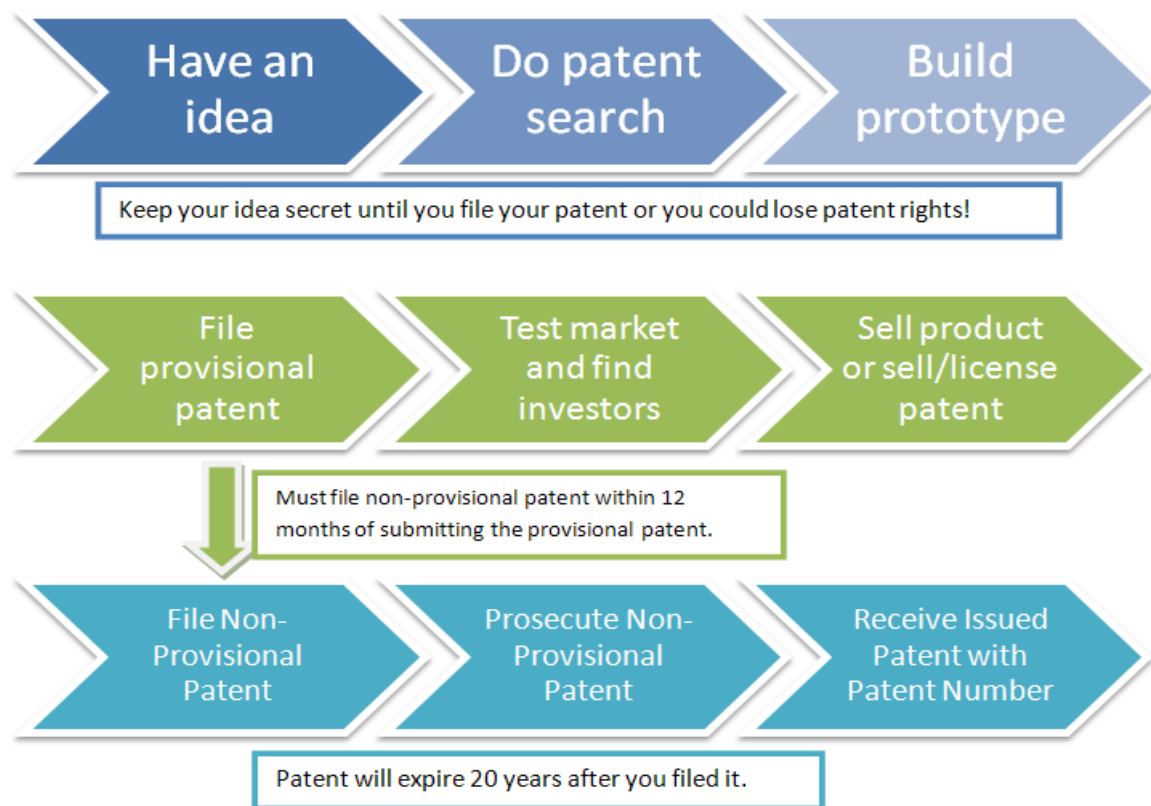


Figure No. 1 : A fairly typical patent process
Source : www.patentlife.org, processed by author

As I was just saying this is just an example and each invention has its own differences and so we can't find a size that fits all ideas and there is no standard invention timeline or patent process. We just have to adjust to the resources held for patenting new ideas.

3. Case Study: Evaluation of the patent for invention : „ A process for the manufacture of non-conventional organic lubricants and drilling fluids, water-based. "

3.1. The description of the patent for invention

The object of my research is the patent for the structural funds reimbursable project submitted in the "Operational Program, Economic Competitiveness" Operation 2.3.1. "Support for start-ups and innovative spin-offs".

The result of the research has resulted in a patent application "unconventional manufacturing process of organic lubricants for drilling fluids, water-based." Request was filed with OSIM under the number A2010/01037. The main objective is the development and

⁸ WIPO Intellectual Property Handbook: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection WIPO 2008

⁹ www.patentlife.org

application of technologies (energy efficient and environmentally sound compared to conventional) to produce lubricants and organic additives with various industrial applications using microwave energy.

He founded a start-up for reaching the patent application and in order to continue and complete the research, to improve the initial parameters and to achieve new products and equipment with heating in the microwave field for organic synthesis, inorganic based on market demand. In the first phase will produce organic lubricants for drilling, and subsequently other lubricant products and organic additives, which would lead to economic support for the construction of at least 2 plants per year, which will be used by the external and internal recipients.

Implementation of research results will contribute to increasing the quality of production technology of lubricants and additives ecological improvement of the manufacturing environment, as well as reducing energy consumption by adopting microwave heating technique, which will significantly reduce their production expenses.

In the process of drilling and tubing of the crude oil and gas probes appear significant diving between metal surfaces (drilling rods or tubing column) and the rock walls of the drill hole of the probe. To minimize the frictions present drilling fluids water-based are treated with a series of additives, lubricants, such names may include: sulfate bitumen, oils and fatty acids, triglycerides sulfonati words, mixtures of alcohols patois with surfactants or diesel, chemicals alcohols or acids oxipopilati words, etc.

Additives mentioned above have a number of disadvantages, namely:

- ✓ they have a negative influence of rheological properties of fluids in which are used;
- ✓ they have a major impact on the environment by the presence in the composition of petroleum products and sulfonated derivatives;
- ✓ they are obtained by processes involving operation in difficult conditions ie pressure and explosion conditions.

This invention overcomes the above-mentioned in that both raw materials and finished product are organic and biodegradable additive practically does not affect the drilling fluid rheology and get through esterification or transesterification reaction in microwave field.

By applying the invention we can obtain the following advantages:

- ✓ it enables obtaining effective organic lubricants with reduced energy consumption in conditions of maximum security;
- ✓ it simplifies the cooking process, which is conducted at atmospheric pressure and in the absence of explosion conditions;
- ✓ the reactions occur in high conversions of over 90% and the process is in the order of tens of minutes;
- ✓ the product obtained is homogeneous, it is not toxic or flammable and readily disperses in the drilling fluid, the country to produce its foaming.

From the data presented in the patent and with the professional experience of the team of researchers was intended to expand the results in the chemical synthesis of the microwave field for lubricants in all types of applications (using a laboratory plant purchased at start-up setting) and achieve technological lines allowing their manufacture.

Current methods for obtaining lubricants are based on the use of mineral oil and petroleum products are usually energy-intensive processes. Conventional methods using superheated steam heating under pressure.

The raw materials used in the process are polluting as well as the process itself, generating pollutants and biodegradable products. Treatment processes related to such processes are costly thus increasing the price of products.

The system of the invention eliminate the above disadvantages, in that the process uses microwave energy to generate heat reduces the energy consumption and the risk of pollution such as air and soil.

To achieve these installations is required to 380V power supply, water supply and sanitation facilities are also present in space.

To achieve the required patent a range of equipment and materials that will serve both research activity and achievement plant for the production of organic lubricants by transesterification in microwave field.

Among these we mention:

✓ laboratory facility for developing recipes and technologies for the production of lubricants and additives ecological various industrial applications;

✓ injection slotted cylindrical chamber oven;

✓ inside and microwave transparent tube for transporting chemical solutions;

✓ microwave generator system;

✓ viscometer BROOKFIELD;

✓ refractometer;

✓ analytical balance;

✓ pH meter;

✓ laboratory glassware;

✓ thermocouple, etc.

Also will use a range of electrical materials (wire fuses, switches, etc..) And connectivity to achieve both the experiments and installation. Experiments and demonstration facility will purchase functionality vegetable oils, bio diesel and other chemicals.

Tabel no. 1. - Effects on the industry and the national economy
Source : Information collected by the author

Effects	Observations
1. Increasing the competitiveness of industry and national economy. Export growth.	Applying new technology significantly reduces energy consumption and technical losses, implicitly lowering production costs. This will ensure the competitive product performance ratio much better price.
2. Significant savings of heat and electricity	One of the features is the technology that uses microwave energy consumption per unit of useful effect much smaller than conventional technologies.
3. Savings of raw materials	Application brevetelui vigorously reduce the size of the technological losses obtaining additives.
4. Currency savings (reducing imports)	By generalizing non relieves technology is searing with import balance of additives for drilling.
5. Reducing pollution	The process is clean.
6. Development of the upstream industry	Increasing business cifer extractive industry (oil, gas).

7. Increasing resources available to the state budget	Increase profits from upstream and downstream businesses, increasing the number of employees and so on will increase the taxable table.
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3.2. Evaluation of the patent

Evaluation of a patent involves several steps which, moreover, will be included in the evaluation report. These are:

- a) legal analysis;
- b) social analysis;
- c) technical analysis;
- d) own assessment - called.

The evaluation itself can be done in the case of the following two classes of patents:

1. active patents, that is used in production at the time of evaluation;
2. inactive, i.e. the patents not implemented at the time of the evaluation, but with a real chance of implementation.

Applied in the company must meet the following cumulative requirements:

- ✓ to have an important contribution to the generation of economic benefits for the enterprise;
- ✓ This contribution can be insulated from the impact of other tangible and intangible assets.

The value of a patent is:

- ✓ directly proportional to the contribution of the patent to generate economic benefit of enterprise or the size of the royalties payable upfront (in the case when the patent ought, hypothetically, to be purchased through a license agreement);
- ✓ directly proportional to technological advance, in relation to competitors;
- ✓ inversely proportional to their length of service;
- ✓ directly proportional to the nature of the invention and the power base of the patent for invention;
- ✓ directly proportional with the scope of the patent (for example at the industrial branch level).

The usual methods of evaluation are:

- a) the profit contribution method;
- b) exemption from royalty method (several variants are possible);
- c) spending economy method;
- d) residual method.

3.2.1. Method of contribution to profit

Determination of the patent, by this approach implies the existence of justification of assumptions necessary calculations, namely:

- ✓ evolution of annual turnover of products manufactured on the basis of patent or proprietary technologies;
- ✓ discount rate of net profit.

The calculations are based on the following data:

- ✓ duration estimated economic useful life of a patent subject to evaluation and applied in the patent, the owner of the company is 8 years;
- ✓ annual turnover, based on the patent is 173,000 mu in the assessment and will increase at a rate of 5% per year
- ✓ share of gross profit realized by the contribution of the patent, the turnover is 8% share
- ✓ tax on gross profit is 16%

✓ net profit discount rate is 10%.

Tabel No. 2 : The results of the Method of contribution to profit
Source : Information collected and processed by the author

Year	Turnover	The patent contribution to turnover 8%	Net profit	Updating Factor k = 10%	Discounted net profit (NP _d)
1	173,000	13,840	6,920	0,909	6,290.91
2	181,650	14,532	7,266	0,826	6,004.96
3	190,733	15,259	7,629	0,751	5,732.01
4	200,269	16,022	8,011	0,683	5,471.46
5	210,283	16,823	8,411	0,621	5,222.76
6	220,797	17,664	8,832	0,564	4,985.36
7	231,837	18,547	9,273	0,513	4,758.75
8	243,428	19,474	9,737	0,467	4,542.45
TOTAL			66,080		43,009

It results that the value of the invention patent, obtained through the update method net profit attributed to him, is 43.009 u.m.

A more simple method to profit contribution is based on direct estimation of net profit year (NPD), obtained from the patent application. The initial NPD can be attached assuming a future annual increases in a constant growth rate, denoted by (g) and a prediction horizon limited remaining economic life of the patent. By establishing a discount rate and the assumptions above, we can calculate the value of the patent (V_b) so:

$$V_b = \text{NPD} * m$$

Where m = capitalization factor

For n = 8 years, k = 10%, g = 5% and NPD = 6.920 m.u. follows that m = 5.334 and B = 6.920 x 5.334 = 36.917,69. So V_b is **36.917,69 m.u.**

This simple approach is appropriate in the case of a patent of invention which may be applied to a single user, apt to satisfy, by products manufactured on the basis of the patent for invention, the total volume of demand for the product concerned. If the calculation of the net annual profit (6.920 u.m.) was not kept account of expenses necessary for carrying out the patent, this expenditure of implementation should lessen V_b resulted from capitalization of net profit.

In this approach may include patents applied in the company proprietor, in evaluations performed in order to establish economic balance and establishment of joint ventures. The value of a patent, able to generate a measurable annual net profit to a potential buyer is made by:

- ✓ the size of annual net profit annually and possibly the average annual growth rate (g);
- ✓ the capitalization rate is calculated according to two main factors: the risk-free rate and subjective estimation of the potential buyer of the patent, the risk resulting from this acquisition, relating to the following matters;
 - ✓ if the patent will stand in front of their main draw;
 - ✓ if you will download a product or a process better than proprietary ones;
 - ✓ if the new processes or technologies will not turn the patent for invention in a mere relic of the technical Museum.

In other words, the realization of the annual net profits will be more uncertain, with both the discount rate or capitalization will be higher.

3.2.2. The exemption method (economy) of fee

This method is usually applied in the case of patents applied by the company's owner. Purpose of evaluation by this method is the value of the patent in the register of economic balance, which is required in case of purchasing the company for another company, some mergers, sale of the enterprise in its totality or of packages of shares.

Conceptual basis of this method lies in the assumption that the economic benefit that can get him a buyer of the patent is relief from the payment of royalties. In other words, being the owner of the patent, you make an "economy of royalty" to pay a third party patent holder by calculating the present value of the stream of royalty payments net of the market, the owner of an intangible asset is exempt.

It uses the same data that were used in the profit contribution method. As a result of analysis performed centralized data in table I below.

Tabel No. 3 : The results of the Exemption method (economy) of fee
Source : Information collected and processed by the author

Year	Turnover	%de redeventa	Updating Factors K =10%	The economy	
				brute	Net updated
1	173,000	5%	0.909	8,650	0,833 X 0,84 (8.650- 0,125 Vb)
2	181,650	5%	0.826	9,083	0,684 X 0,84 (9.083- 0,125 Vb)
3	190,733	5%	0.751	9,537	0,579 X 0,84 (9.537- 0,125 Vb)
4	200,269	5%	0.683	10,013	0,482 X 0,84 (10.013 - 0,125 Vb)
5	210,283	5%	0.621	10,514	0,402 X 0,84 (10.514- 0,125 Vb)
6	220,797	5%	0.564	11,040	0,335 X 0,84 (11.040 - 0,125 Vb)
7	231,837	5%	0.513	11,592	0,279 X 0,84 (11.592 - 0,125 Vb)
8	243,428	5%	0.467	12,171	0,233 X 0,84 (12.171 - 0,125 Vb)
TOTAL				82,600	31.719,62- 0,84 Vb

The last column shows a 0.84 factor represents the percentage of net royalties, which remains to the user certificate, after deducting income tax rate of 16%. Annual share of amortization of the patent which has an economic useful life of 8 years is $100/8 = 12.5\%$ or 0,125. This value is subtracted from the gross royalty to determine which net royalty that would express only the net profit arising from the patent.

So the updated value of the economy of royalty neta is: $62-0,84 \text{ 31.719 Vb}$, but updated the annual depreciation value, for those 8 years, that should be added and a discount rate of 10% is: Depreciation updated $Vb \times 0.125 = m$, where $m = 5,334$, $n = 8$ years; $k = 10\%$. So depreciation updated = $0,125 \times 0,666 = 5,334 \text{ Vb}$ follows that patent value, calculated based on net royalties and depreciation over the useful economic life is:

$$Vb = 31.719,62 - 0,84 Vb + 0,666 Vb$$

$$Vb = 31.719,62 - 0,174 Vb$$

$$Vb = 31.719,62 / 0,826 = \mathbf{38.401,47 \text{ u.m.}}$$

4. Conclusions – significant aspects

The order of evaluation of intangible assets is not random but is based on the credibility of information on which assumptions are established for evaluation.

From the application of the methods for evaluating primary and secondary ones, follows different values, for most of the time and there are often substantial differences. Establishing the final value is based on the following assumption: the arithmetic mean of the two values obtained, but only if, the application of the same methods of the evaluation, follows two levels of value.

The results of my research of the evaluation of the patent are different from one method to another. Between the first and the last method are big differences. Between the royalty savings method and simple version of the method of contribution to profit, the differences are small, leading in the opinion of the assessor's estimated market value 37,500 u.m. patent.

The third method takes into account the costs of the company, leading to an estimated market value of the patent smaller. We must not forget the importance of operating expenditure which are most profit to a firm, given that prices of raw materials, materials and energy are not constant.

Finally, the value of a patent is obtained through negotiation, taking into account developments in the market.

In Romania evaluating intangible assets is very little practiced, that is especially due to avoid trading on such assets and their unique nature. Actually valuation of intangible assets is made by an assessor company, they form part of the assets of a company.

Our country faces a number of problems in this area, this causing a number of particular issues that manifest in the application of each of the specific methods of evaluation. Although evaluators confirmed experience in developed economies, applying automated methods can not provide a valid solution for Romanian companies only if they can have strong arguments.

References

1. International Accounting Standard – IAS 38 - “ Intangible assets”.
2. International Standard Valuation - IVS 1 - “ Market value - the value type”.
3. International Standard of Practice in Evaluation - GN 4 - “ Evaluation of intangible assets”.
4. "Operational Program, Economic Competitiveness" Operation 2.3.1. "Support for start-ups and innovative spin-offs”.
5. WIPO Intellectual Property Handbook: Policy, Law and Use. Chapter 2: Fields of Intellectual Property Protection WIPO 2008.
6. www.consultanta-evaluare.ro
7. www.eval.ro
8. www.nou.anevar.ro .

The Relationship between Added Value Growth and Entrepreneurship in Industrial Sector: Case of Sistan and Baluchestan Province

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Abstract: In this paper, we investigate the relation between entrepreneurship and Added Value Growth in Industrial Sector. For this purpose, we investigated the data related to Sistan and Baluchestan Province in the period of 2000 to 2010 by using endogenous growth model. In this model, we set Added Value Growth in Industrial Sector as a function of entrepreneurship, physical capital and labor based on Cobb-Douglas Form. Estimated elasticity of Added Value Growth included 0.60, 0.38, and 0.92 as compared to entrepreneurship, physical capital and labor, respectively. They all have high statistical significances. The results indicate positive effect of entrepreneurship and innovation on the Added Value Growth. In other words, increase of entrepreneurship and innovation coefficient will increase Added Value of Industrial Sector in Sistan and Baluchestan Province. The positive effect of physical capital and labor on the Added Value Growth is another result of this study.

JEL Classification: Z13, O40, R11, P36, Z19

Keywords: Entrepreneurship, Physical Capital, Endogenous Growth Model, Cobb-Douglas Function, Economic Growth

1. Introduction

One of the most important goals of contemporary economics is determining the factors that cause economic growth. Traditional neoclassical theory holds that the economic growth of a country is determined by the supplies of both labor and capital the country possesses and the level of technology present in that country (Todaro and Smith, p.129). Some neoclassical economists have suggested that both knowledge and pro-market government policies also have a significant influence on economic growth (Audretsch and Kielbach, p. 605; Todaro and Smith, p. 130). The level of technology in a given society is heavily dependent on the level of knowledge in that society; this paper will regard these two factors as essentially the same. The established neoclassical factors of economic growth are thus the levels of capital and labor present in a given society, the level of knowledge (or technology) present in that society, and the extent to which the government of that society pursues pro-market government policies. However, this model ignores any direct effect that entrepreneurship may have on economic growth.

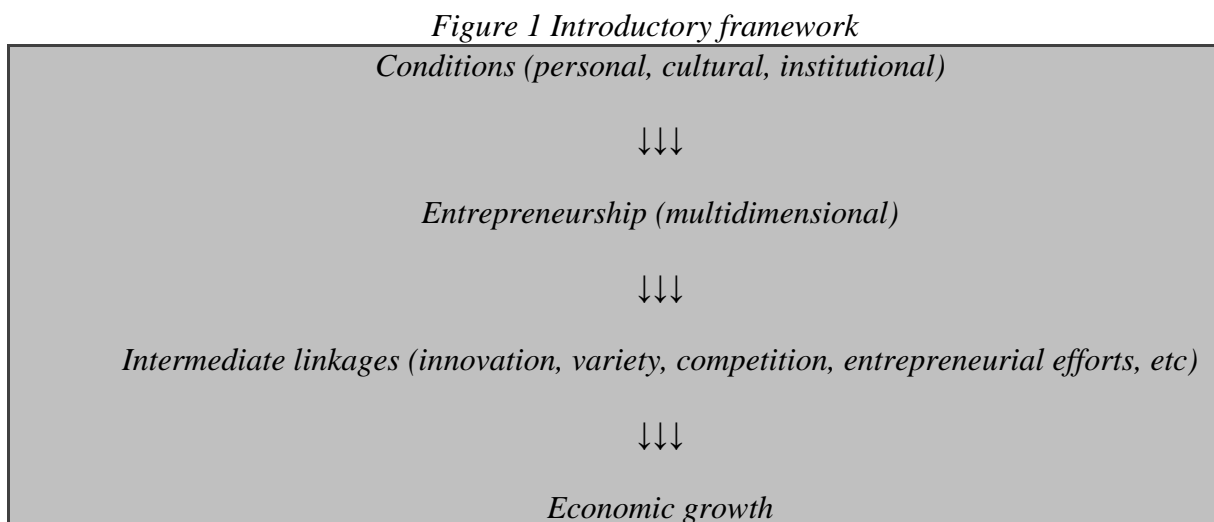
At the end of 1970s, a wave of small businesses and self-employments were created in most of the advanced countries due to changes in the values and tendencies of society as well as demographical changes. Several studies have been made in this regard from 4 viewpoints as the result of deep changes of that. The critical question that has occupied the minds of economists and other policymakers is that why always some countries have high and some other have low economic growths and why some countries are rich and some other are poor. In the recent years, growth models have been somehow changed and other factors such as human capital have been included in them. Most economists put an emphasis on establishment of physical

and human capital as the main determinant of economic growth and development. Capital is one of the most important determinants of economic growth. Improvement of the quality of tools and machineries increases labor productivity and in this way it improves welfare as well. But capital has not just a physical aspect. Human capital which is fulfilled in the forms of skills, education, and training may also indicate a better condition of human capital in that country. Therefore, we may consider entrepreneurship and innovation as a replacement for human capital variable.

The present study aims to investigate the relation between entrepreneurship and Added Value Growth in Industrial Sector. For this purpose, we investigated the data related to Sistan and Baluchestan Province in the period of 2000 to 2010 by using endogenous growth model. The main question of this study is that if there is a positive and significant relation between entrepreneurship and innovation and economic growth. On this basis, this article consists of 7 parts. After introduction and in the second part, we explain the concept of entrepreneurship and innovation and the common definitions and meanings for them as well as the method of their measurement and calculation. In the third part, experimental studies made in this regard are dealt with. In the fourth part, Data and Econometric Methodology and the model used in this paper are explained. Experimental data and findings are investigated in the sixth part and finally a summary and conclusion will be provided in the seventh part.

2. The Concept of Entrepreneurship :

Entrepreneurship is an ill-defined, multidimensional, concept. The difficulties in defining and measuring the extent of entrepreneurial activities complicate the measurement of their impact on economic performance. Understanding their role in the process of growth requires a framework because there are various intermediate variables or linkages to explain how entrepreneurship influences economic growth. Examples of these intermediate variables are innovation, variety of supply, entry and exit of firms (competition), specific efforts and energy of entrepreneurs, etc. See Figure 1 where also some conditions for entrepreneurship are provided. These conditions include personal traits that lie at the origin of entrepreneurship and cultural and institutional elements.¹⁰



Source: Wennekers and Thurik (1999)

¹⁰ - See also Audretsch, Verheul, Thurik and Wennekers (2002) and Wennekers, Thurik and Uhlaner (2002).

Despite the long record of investigation of entrepreneurship as well as much effort of researchers, like other concepts of human science, it is difficult and even impossible to provide a certain definition for that. Addressing the evolutionary process of this concept includes interesting points. Several elements such as risk susceptibility, innovation, etc. have been added to the entrepreneurship concept during its evolutionary process.

The word “Entrepreneurship” has been derived from the French word “Entreprendre” which means “To Undertake”. In summary, entrepreneurship is the process of providing value through establishment of a unique complex of resources in order to enjoy opportunities. Entrepreneurship has to do with activities of individual persons. The concept of economic growth is relevant at levels of firms, regions, industries and nations. Hence, linking entrepreneurship to economic growth means linking the individual level to aggregate levels. In order to consider this link we first pay attention to a definition of 'entrepreneurship'. Inspired by Hébert and Link (1989), Bull and Willard (1993) and Lumpkin and Dess (1996), the following definition of entrepreneurship can be proposed: Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to perceive and create new economic opportunities (new products, new production methods, new organizational schemes and new product-market combinations), and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions (Wennekers and Thurik, 1999). Essentially, entrepreneurship is a behavioral characteristic of persons. It should be noted that entrepreneurship is not an occupation and that entrepreneurs are not a well-defined occupational class of persons. Even obvious entrepreneurs may exhibit their entrepreneurship only during a certain phase of their career and/or concerning a certain part of their activities.

Entrepreneurship is not synonymous with small business. Certainly, small firms are an outstanding vehicle for individuals to channel their entrepreneurial ambitions. The small firm is an extension of the individual in charge (Lumpkin and Dess, 1996, p. 138). However, entrepreneurship is not restricted to persons starting or operating an (innovative) small firm. Enterprising individuals in large firms, the so-called ‘intrapreneurs’ or ‘corporate entrepreneurs’, undertake entrepreneurial actions as well. In these environments there is a tendency of ‘mimicking smallness’, for instance using business units, subsidiaries or joint ventures. Because in colloquial speech many terms like entrepreneurs, self-employed and businessmen are used indiscriminately, its operationalization and measurement are far from obvious. However, one can make some pragmatic distinctions. *First*, between the concepts *entrepreneurial*, and *managerial* in the sense of organizing and coordinating. *Second*, between business-owners or *self-employed* (including owner-managers of incorporated firms)⁵ and *employees*. Based on this double dichotomy of self-employed versus employee and entrepreneurial versus managerial, three types of entrepreneurs may be distinguished. These three types are the Schumpeterian entrepreneurs, the intrapreneurs and the managerial business owners who are entrepreneurs in a formal sense only. This is illustrated in Table 1.

Table 1 Three types of entrepreneurs

Self-employed	Self-employed
Entrepreneurial <i>Intrapreneurs</i>	<i>Schumpeterian entrepreneurs</i>
Managerial	<i>Managerial business owners</i> Executive

managers

Source: Wennekers and Thurik (1999)

Schumpeterian entrepreneurs are found mostly in small firms. They own and direct independent firms that are innovative and creatively destroy existing market structures. After realizing their goals Schumpeterians often develop into managerial business owners, but some may again start new ventures. Intrapreneurs or entrepreneurial managers also belong to the core of entrepreneurship. By taking commercial initiatives on behalf of their employer, and by risking their time, reputation and sometimes their job in doing so, they are the embodiment of leadership resulting in entrepreneurial ventures in larger firms. Sometimes these entrepreneurial employees, either in teams or on their own, spin off, start new enterprises and become Schumpeterian entrepreneurs. Managerial business owners (entrepreneurs in a formal sense) are to be found in the large majority of small firms. They include many franchisees, shopkeepers and people in professional occupations. They belong to what Kirchhoff (1994) calls 'the economic core' and are the seedbed for some of the entrepreneurial ventures.

3. Experimental Studies

Empirical evidence linking entrepreneurship (new business creation) to economic growth There are only a limited number of empirical studies devoted to the econometric link between economic growth at the national level and entrepreneurship in the form of new firm startups. This has been partly due to the difficulty in obtaining a measure of the national level of entrepreneurship that can be appropriately

correlated to national economic growth as measured in terms of output, productivity or wealth. Much of studies have been done on the effect of entrepreneurship on economic growth, most of which used different variables such as human capital, physical capital, research and development costs, etc. in order to show the effect of entrepreneurship and innovation on economic growth. In some of these studies, however, the entrepreneurship has not been directly pointed out, but the variables used by those studies are variables which show the amount of entrepreneurship and innovation index.

King et al, 1993, have studied the relationship between economic growth, entrepreneurship, and finance. In this study, he reviewed the effect of finance system on economic growth. They have used an endogenous growth model in which the forward-looking entrepreneurs' financial systems and equipping savings are evaluated so that the activities, having most probability of efficiency, are financed. This study comes to the conclusion that the better financing systems enhance the probability of creativeness success; thus they improve the economic growth, and similarly distortions of financial systems decrease the economic growth rate through decreasing creativeness rate.

Carree and Thurik (1998, 1999a) show that the share of small firms in manufacturing industries in European countries in 1990 has had a positive effect on the industry output growth in the subsequent four years. Thurik (1996) reports that the excess growth of small firms has had a positive influence on percentage change in gross national product for a sample of 16 European countries in the period 1988 through 1993.

Callejon and Segarra (1999) use a dataset of Spanish manufacturing industries between 1980 and 1992 to link new-firm birth rates and death rates (which, taken together, constitute a measure of turbulence) to total factor productivity growth in industries and regions. They adopt a model based on a vintage capital framework in which new entrants

embody the available edge technologies and exiting businesses represent marginal obsolete plants. Using a Hall type of production function, which controls for imperfect competition and the extent of scale economies, they find that both new-firm startup rates and exit rates contribute positively to the growth of total factor productivity in regions as well as industries. Robbins et al. (2000) perform an analysis for 48 US states for 1986 through 1995 and find that states with a higher proportion of (very) small business employment experience higher levels of productivity growth and Gross State Product growth.

Robbins, Pantuosco, Parker and Fuller (2000) perform an analysis of 48 U.S. states for the 1986-95 period and find that states with a higher proportion of (very) small business employment experience higher level of productivity growth and Gross State Product growth.

Acs and Armington (2002) link a measure of entrepreneurship to growth at the regional level. Their paper makes three important contributions. First, their approach is more comprehensive, including data for the whole private sector economy, rather than selected industries. Second, their unit of analysis is not just cities, but entire local economic areas (394 Labor Market Areas, covering the entire United States), which generally include a metropolitan area and the surrounding rural area from which it draws both employees and consumers. Third, they use a direct measure of entrepreneurial activity, the new firm birth rate in each of these local economies. They test the hypothesis that increased entrepreneurial activity leads to higher growth rates of local economies. They find that the higher levels of entrepreneurial activity are strongly positively associated with higher growth rates, even after controlling for establishment size, and agglomeration effects.

Audretsch, Carree, van Stel and Thurik (2002) find evidence for 17 European countries that the consequences for economic growth of not shifting the industry structure away from large business towards small business have been rather large. Likewise, Carree (2002) shows evidence for the five largest economies (France, Germany, Japan, U.K. and U.S.) that manufacturing industries that underwent only little downsizing in the 1977-90 period experienced less subsequent growth when compared internationally.

Nystrom (2008), in his study, reviewed the relationship between the economic freedom and entrepreneurship. He showed new evidences of factors effective on entrepreneurship, comparing 23 countries of OECD during the period 1972-2002. In this study, entrepreneurship was measured by measuring the amount of self-employment, and economic freedom was measured by five indexes of size of government, legal and security structure of ownership right, access to sound money, international business freedom and regulations related to the credits, manpower, and business. The experimental findings of this studies show that a smaller governmental section, a better ownership right, legal and security structure, and credits regulations, and less manpower and business cause an increase in entrepreneurship.

Rabiei (2009) have analyzed the effect of entrepreneurship and innovation on Iranian economic growth, using Romer Endogenous Growth Model, and considered a model for the Iranian economic growth which analyzes the effect of variables of labor, physical capital, human capital, research and development, and machinery import in proportion to the total machinery. The results of this study shows that intermediate goods, labor, human capital, physical capital, and machinery import, respectively, cause an increase in production in Iranian economy.

Minniti et al, 2010, has studied the effect of different kinds of entrepreneurship on economic growth. In this study, they focus on research costs, so that they have divided the entrepreneurship into two types of imitation-based entrepreneurship and research-based entrepreneurship. In their view, the current growth models have a strong focus on research and development costs. However, the economic growth observed in the past year in some countries such as China, in which the costs of research and development are not practically high, was significant, but in Japan that the costs of research and development are high, was

not significant. They achieved to the result that when the costs of research and development are low, for example in new-found economics, presence of imitator entrepreneurs causes competition and sufficient production for economic growth; and economic growth is not so related to the type of entrepreneurship based on research or imitation-based entrepreneurship as well as research and development costs.

4. Data and Econometric Methodology

This study aims to provide empirical evidence on the effect of entrepreneurship on economic growth for Sistan and Baluchestan Province. Entrepreneurship is a concept which has been investigated so far from different views. Everybody believes that it is motive power for the economic growth of developed and developing countries. However before going to estimate the data it is necessary to check the unit root presence in the data and for that in this study the ADF test is used in order to know the order of integration of the series. Annual time series variables data which utilized in this paper are include logarithm the ratio of Number of Exploitation Permit to Number of Establish Permit as a proxy to entrepreneurship (V) and logarithm Added Value in Industrial Sector, Labor employment in Industrial Sector, Physical Capital, compiled from various issues of the Statistical Yearbooks published by the Statistical Center of Iran. The transformation of the series to logarithms is intended to eliminate the problem of heteroskedasticity. Annual data for the period from 1978 – 2011 are used in this study. We select these period because time series data on Variable are only available for this period in Sistan&Baluchestan Province.

5. Findings and Discussion

5-1. Augmented Dickey-Fuller Unit Root Testing for order of integration:

Most of time series have unit root as many studies indicated including (Nelson and Polsser, 1982), and as proved by (Stock and Watson, 1988) and (Campbell and Perron, 1991) among others that most of the time series are non-stationary. The presence of a unit root in any time series means that the mean and variance are not independent of time. Conventional regression techniques based on non-stationary time series produce spurious regression and statistics may simply indicate only correlated trends rather than a true relationship (Granger and Newbold, 1974). One of the most widely used unit root test is the Augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller, 1979, 1981). To this end, the Augmented Dickey-Fuller (ADF) test were carried out on the time series in levels and differenced forms. If we accept the null hypothesis that a time series is non-stationary (has at least one unit root), we then re-apply the procedures after transforming the series into the first differenced forms. If the null hypothesis of non-stationary (when the time series is expressed in the first differenced form) can be rejected, we then may establish that the time series is integrated of order one. The number of the lags included was determined using Akaike Information Criteria (AIC)

Table2. Augmented Dickey-Fuller Unit Root Test

Variable	With constant & trend	Without Constant & trend
Log(Y)	-5/11*	-2.84*
Log(L)	-5.22*	-3.36
Log(K)	-3.70*	-3/40*
Log(V)	-8.91*	-4.22*

Note : V is entrepreneurship, L is employment in Industrial Sector, K is Physical Capital and Y is

Added Value in Industrial Sector .operator (*), indicate the rejection of null hypotheses in a level of 5 % respectively.

Table 2 reports the results for testing the null hypothesis of unit root using ADF tests with constant and time trend variables as well as without constant and time trend variables were included in the regression. As shown in Table 2, ADF test statistics in all cases we rejected the null hypothesis of unit root. Hence, we maintain the null hypothesis that each variable is integrated of order Zero or I(0).

5-2. Econometrics Patterns:

The importance of human capital, generally, and training, particularity, in growth theories, had been focused in developed neo-classical model (MRW) and endogenous growth models, in the 1980s and 1990s. In the developed neo-classical model, the human capital is input to the model as an additional data, so the countries with the faster training growth, enjoy the higher rate of economic growth and income. In the endogenous growth model, training is considered as a process which changes the production technology, facilitates the conformity with the external technology, and makes the transfer of resources easy through the most dynamic and technologic sections (Farjadi 1388).

One of the methods for quantitative estimation of such a research is using a production function, which is necessary for estimating interests of the costs incurred for training and increasing the human capital. There is, however, no special or definite method of how to apply human capital variable in the production function.

In this study, we consider the production function as the Cobb-Douglas Function, in which the Added Value in Industrial Sector is a function of labor, inventory of the physical capital, entrepreneurship, and innovation:

$$Y_i = AK_i^\alpha L_i^\beta V_i^\gamma$$

where:

Y_i = Added Value in Industrial Sector

L_i = Labor

K_i = Physical Capital

V_i = Entrepreneurship Coefficient

i = Innovation of the Country

A = Technology Parameter and reflecting the production technology of each country and this fact that how each country can convert inputs to output.

α , β , & γ = productive elasticities of physical capital, labor, and entrepreneurship and innovation, respectively, which are obtained as follows:

$$E_{Y_i, K_i} = \frac{dY_i}{dK_i} \cdot \frac{K_i}{Y_i} = A\alpha K_i^{\alpha-1} L_i^\beta V_i^\gamma \cdot \frac{K_i}{Y_i} = A\alpha K_i^{\alpha-1} L_i^\beta V_i^\gamma \cdot \frac{K_i}{AK_i^\alpha L_i^\beta V_i^\gamma} = \alpha$$

$$E_{Y_i, L_i} = \frac{dY_i}{dL_i} \cdot \frac{L_i}{Y_i} = A\beta K_i^\alpha L_i^{\beta-1} V_i^\gamma \cdot \frac{L_i}{Y_i} = A\beta K_i^\alpha L_i^{\beta-1} V_i^\gamma \cdot \frac{L_i}{AK_i^\alpha L_i^\beta V_i^\gamma} = \beta$$

$$E_{Y_i, V_i} = \frac{dY_i}{dV_i} \cdot \frac{V_i}{Y_i} = AK_i^\alpha L_i^\beta V_i^{\gamma-1} \cdot \frac{V_i}{Y_i} = A\gamma K_i^\alpha L_i^\beta V_i^{\gamma-1} \cdot \frac{V_i}{AK_i^\alpha L_i^\beta V_i^\gamma} = \gamma$$

The estimation of productive elasticities has the most useful indications for us which represent the manner and amount of effectiveness of the productive inputs on production and consequently in economic growth. But the Cobb-Douglas Function is not a linear function, so, for estimating the productive elasticities, it should be converted to a linear function. For this purpose, we compute the logarithm of two members of this function:

So, our production function is converted to a linear function that the possibility of estimating their coefficient is obtained by using Ordinary Least Squares (OLS). The estimated coefficients are the productive elasticity of different inputs.

Table 3: Estimated Coefficient

Dependent Variables	Estimated Coefficients	T Statistics	Calculation
C_i	12.21	4.32	
V_i	0.60	2.72	
L_i	0.92	2.53	
K_i	0.38	3.92	
$R^2 = 0.80$	F=9.57	D-W=1.93	

Resource: Research Findings

Also, F-Test (regression total meaningfulness test) indicates the model total meaningfulness in a level of 95 percent. The coefficient level of R^2 is 80 percent. This coefficient level indicates that about 80 percent of changes in gross domestic production could be explained by the variable introduced in the model. Durbin-Watson (D-W) statistic, which represents the presence or non-presence of autocorrelation, enjoys a suitable status, and the obtained number shows that there is no autocorrelation in the model.

6. Conclusion:

In this paper, we are finding a relationship between entrepreneurship and Added Value Growth in Industrial Sector. For this purpose, we investigated the data related to Sistan and Baluchestan, Province in the period of 2000 to 2010 by using endogenous growth model. The obtained results show that there is a meaningful relationship between entrepreneurship and innovation and Added Value Growth. The Added Value Growth increases through raising entrepreneurship and innovation, in a manner that a one percent raises in the entrepreneurship coefficient would lead to a 0.60 percent raise in economic growth. Also, the obtained results show that the rate of Added Value Growth increases through raising the physical capital and employed population, in a manner that a one percent raise in physical capital would lead to a 0.38 percent raise in Added Value and a one percent raise in the employed population would lead to a 0.92 percent raise in Added Value. In other words, productive elasticity of entrepreneurship and innovation, physical capital and labor is 0.60, 0.38, and 0.92, respectively. The coefficient level of R^2 is 80 percent. This coefficient level indicates that about 80 percent of changes in Added Value Growth could be explained by the variable introduced in the model.

The results of this research, regarding the presence of a meaningful positive relationship between entrepreneurship and innovation and Added Value Growth, are similar to the results of the most of studies, and are mentioned in the literature of the research.

Based on the results of this paper, in addition to increasing physical capital and employment, the economic policymakers of the country should have an attention to the entrepreneurship and innovation as well as establishing conditions and suitable grounds in order to develop it, so the activities to be done for improving and promoting the entrepreneurship and innovation character should be considered as a useful investment which will result to an increase in Added Value Growth and society welfare.

7. Resources:

- [1] Acs, Z.J. (1992), Small business economics; a global perspective, *Challenge* 35, November/ December, pp. 38-44.
- [2] Acs, Zoltan J. and Catherine Armington, 2002, "Entrepreneurial Activity and Economic Growth:

- [3] An Empirical Analysis," Paper prepared for the Kaufman Foundation.
- [4] Aghion, P. and P. Howitt (1992), A model of growth through creative destruction, *Econometrica*
- [5] 60, 323-351.
- [6] Aghion, P. and P. Howitt (1997), A Schumpeterian perspective on growth and competition, in
- [7] D.M. Kreps and K.F. Wallis (eds.), *Advances in Economics and Econometrics: Theory and Applications*, Vol. 2, Cambridge: Cambridge University Press, pp. 279-317.
- [8] Aiginger, K. and G. Tichy (1991), Small firms and the merger mania, *Small Business Economics*
- [9] 3, 83-101.
- [10] Audretsch, D.B. (1995), *Innovation and Industry Evolution*, Cambridge, MA: MIT Press.
- [11] Audretsch, D.B. (2000), Entrepreneurship in Germany, in D.L. Sexton and H. Landström (eds.),
- [12] *The Blackwell Handbook of Entrepreneurship*, Oxford: Blackwell Publishers.
- [13] Baumol, W.J. (1968), Entrepreneurship and economic theory, *American Economic Review* 58,
- [14] 64-71.
- [15] Baumol, W.J. (1990), Entrepreneurship: productive, unproductive and destructive, *Journal of Political Economy* 98, 893-921.
- [16] Baumol, W.J. (1993), Formal entrepreneurship theory in economics; existence and bounds, *Journal of Business Venturing* 8, 197-210.
- [17] Berkowitz, D. and J. Holland (2001), Does privatization enhance or deter small enterprise formation?, *Economics Letters* 74, 53-60.
- [18] Carree, M., A. van Stel, R. Thurik and S. Wennekers (2002), Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976-1996,
- [19] *Small Business Economics* 19, forthcoming.
- [20] Carree, M.A. (2002), Industrial restructuring and economic growth, *Small Business Economics* 18, 243-255.
- [21] Kristina, N. (2008), "The institutions of economic freedom and entrepreneurship: evidence from panel data " *Public Choice*, Volume 136, Numbers 3-4
- [22] Mahnaz, R. (2010), *Effect of Innovation and Manpower on Economic Growth in Iran. Knowledge and Development* (Danesh va Tosee) Magazine, 16th year, Issue 26.
- [23] Maria, M., Moren L., (2010), "Entrepreneurial types and economic growth " *Journal of Business Venturing*, Volume 25, Issue 3.
- [24] Norman A., & Borrelli (2008), Education and economic growth in the United States: cross-national applications for an intra-national path analysis Policy.
- [25] Robert, G., King, R. L. (1993), "Finance, entrepreneurship and growth Original Research Article *Journal of Monetary Economics*, Volume 32, Issue 3.