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Impact of Project Leadership
Facets on Project Outcome

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Abstract: The study analyzes the role of project leadership facets on effective project outcome. Numerous such initiatives have already been taken on project outcome/performance in the context of apposite leadership styles or project management. However, the current study is unique in the milieu of project outcome that it introduces a new leadership approach, which throws light on the significance of variant leadership facets on project outcome. The study uses explanatory approach; primary data is collected from project management professionals working in different project organizations. The study uses structural equation model (SEM) technique to test the hypothesis. The study found a positive relationship between project leadership facets and project outcome.

Keywords: Project leadership facets; Project outcome; Pragmatism; Motivation; Creativity; Decision-making; Communication

JEL Classification: O22

1. Introduction

Glimpsing over a decade before, neither the markets were fleet nor was the competition fierce. The process of elapsing shows a new era of competition where there has been an incessant hostility due to a leap of markets in red oceans, where organizational sustainability have to forgo with vitality. This resulted in organizational thrust to project organizations to head on this exuberance; considering time and other resource constraints. Thus, this created a need to understand factors

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that play significant roles in project success. One of the major factors being dominant in project outcome/success is the human capital (Naqvi et al., 2011). Schultz (1961) stated that human capital is the ability, knowledge, capacity, and skills required to yield pre-determined results on time (in Aslam et al., 2013). In this study, we examined effectiveness of project outcome from the perspectives of human. Thus, the objective of this paper is to analyze the role of variant leadership facets on effective project outcome.

Numerous such initiatives have already been taken on analyzing the role of leadership, leadership behaviors, and leadership styles *etc.* on project management and effective project outcome (Cleland, 1995; Crawford, 2000; Mkilouko, 2004; Javidan et al., 2006; Huemann, 2007; Naqvi et al. 2011). However, this study is unique in the context that it introduces a new model of effective project outcome through the deployment of project leadership facets. The study throws light on the importance and the association of leadership facets and leadership behaviors so as to mitigate the escalating debate on varying leadership styles and their impact on the success of projects. Rather, it presents the model that fits in leadership behaviors presented by contingency school hence, resulting in effective project outcome in any of the prevailing leadership styles of organizational culture.

Thus the current study aims to analyze the influence of project leadership facets on effective project outcome. The following research questions are central to this study:

1. How project leadership facets are associated with different leadership behaviors?
2. What is the influence of project leadership facets on effective project outcome?

2. Theoretical Background

In reviewing the literature on project outcome, the role of leadership is at the heart of this predicament. Leadership is defined as the process that involves influencing and motivating individuals or teams towards the achievement of common goals (Hersey and Blanchard, 1993). Handy (1982); Partington (2003) advocated that leadership over the past 70 years can be categorized based on different schools of thoughts, which significantly propose six main leadership theories such as:

1. The trait school;
2. The behavioral or style school;
3. The contingency school;
4. The visionary and charismatic school;
5. The emotional intelligence school;

6. The competency school.

However, in this study we focused on the contingency school of thought. Fiedler (1967), the contingency school was popular in third quarter of 20th century. He

argued that despite of incorporating different leadership styles in organizations, leaders must seek universal leadership styles in accordance with the demands of situations. Chui-Ha and Derek (2008) stated that for different sizable projects, project leaders deploy different leadership styles. Krech et al. (1962), according to contingency theory, leaders tend to follow same patterns such as:

1. Assess leadership behaviors;
2. Assess different situations;
3. Establish match between leadership behaviors and contingent situations.

House (1971) proposed that the contingency theory, which became popular, was the path-goal theory. The theory stated that leaders must assist the teams in identifying paths directed towards goals and objectives. The theory proposed four leadership behaviors *i.e.* directive, supportive, participative, and achievement-oriented.

2.1. Project Leadership Facets and Project Outcome

The rationale behind the adaptation of contingency school of thought for this research leads the underpinning for variant project leadership facets. This trajectory relies on the association between leaders and followers as this behavior determines appropriate leadership styles of communication, ideas' conveyance, reliable facilitating actions that result in effective planning and organizing (Hersey et al., 1996). The facets are pragmatism, creativity, positive intolerance, stability, communication, motivation, and group orientation. Castka et al. (2001), the prime leadership facet, 'pragmatism'; for project leaders, one of the required dynamic skills is the ability of leaders to articulate achievable and clear vision for projects. Avolio et al. (2004) further validated the construct and linked pragmatism skill with the attribute of transformational and authentic leader which helps and inspires others to the proper delivering of project vision.

When your words are insane, it's called abnormality, but when your ideas become insane, it's called creativity. The momentous attribute of leaders in relation to project leadership facets is creativity. David (1998), brainstorming sessions is directly associated with idea generation and for leader to being creative hence, resulting in effective project visioning, planning, and implementing. The next attribute is positive intolerance, which is the ability of leaders to make quick and effective decisions even in tough times. Ofstad (1961), positive intolerance refers to "…making a decision means to making a judgment regarding what one ought to do in a certain situation after having deliberated on some alternative course of action" Simon (1960) referred decision-making to be constituting three phases- identifying proper occasion for making decision, identifying possible courses of actions, and choosing among alternatives.

Stability refers to the extent to which project leaders, individuals, and teams can work under extreme pressures. Project leader thus, require a high degree of stability because of external global and competitive pressures on organizations to be more responsive for being competitively sustained (Wriston, 1991; Druskat and Wheeler, 2003). Janis (1981) argued that stress is exacerbated due to previous failures that groups experienced. Thus, for effective project outcome and success of project, project leaders must deploy stability to maximum levels. Communication and motivation also play dominant role in project success. Chui-Ha and Derek (2008) proposed that a large power distance is required for establishing and developing strong hierarchy among project teams. This results in proper articulation and conveyance of vision through shared goals and objectives. According to Locke (1997), human directedness, perceived needs, and willingness are the key determinants of motivation. Linking motivation to self-esteem and self-determinism is an essential feature of project leaders.

A new research team has emerged in parallel to this phenomenon, the aim of which is innovation and performance through the use of work teams (McAdam and McClelland, 2002); a term used in its specificity in project management is group orientation. Paulus (2000); Barczak and Wilemon (2003) reviewed work teams' formulation in literature as a fundamental success factor.

Much literature has concerned project success and effective project outcome (Morris and Hough, 1993; Kendra and Taplan, 2004). Aaron et al. (2001) identified four main dimensions of project outcome such as efficiency of project, impact of customers, project as well as organizational success, and guiding strategic directions for future (in Naqvi et al., 2011). Schwalbe (2010), nine key areas are recommended to be the consequent of effective project management throughout the project life cycle. These include HR, time, quality, cost, communication, scope, risk, procurement, and integration (Project Management Institute, 2008).

The primary functions of effective project management are the management of triplet project constraints such as scope, time and cost (Naqvi et al., 2011). Thus, the current study is directed towards the analysis of project leadership facets on mitigating the triplet constraints associated with project outcome.

Abundant literature is available on analyzing the role of leadership, leadership behaviors, and leadership styles etc on project management and effective project outcome (Cleland, 1995; Crawford, 2000; Mkilouko, 2004; Javidan et al., 2006; Huemann, 2007; Naqvi et al. 2011). However, this study is unique in the context that it introduces a new model of effective project outcome through deploying variant project leadership facets. The literature sums up with the development of hypothesis H1, based upon extensive review of theory.

H1 Project leadership facets are positively correlated with project outcome
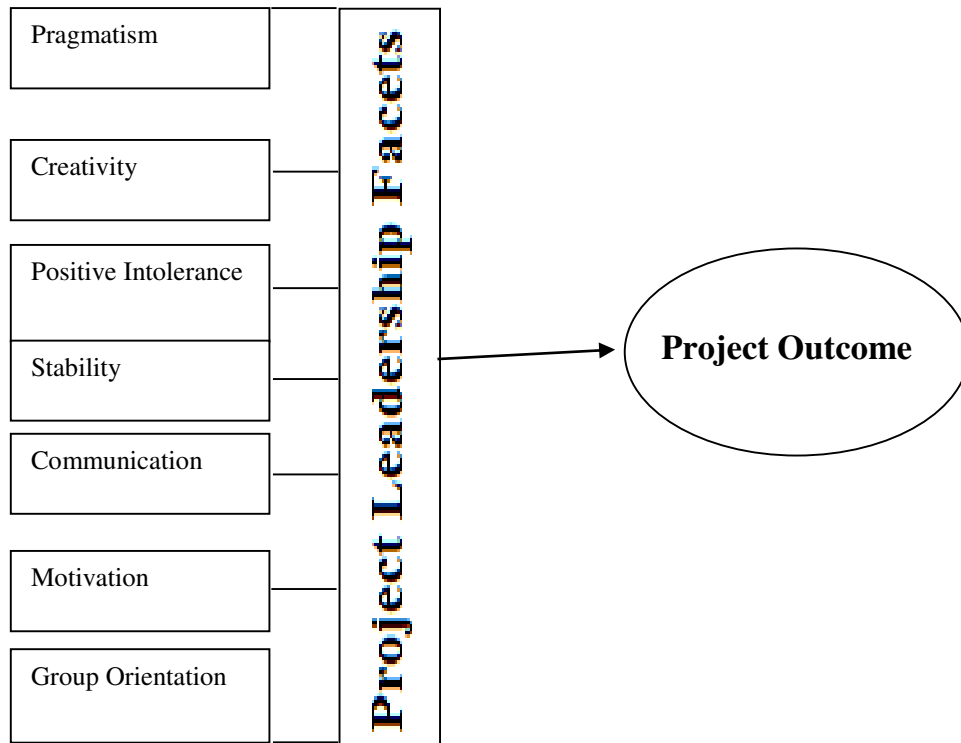
Figure 1. Project Leadership Facets and Project Outcome

3. Research Method

3.1 Sample

Target population for this study was project managers working in different project organizations in Pakistan. Two hundred research questionnaires were administered by research team, a total of 168 questionnaires were received back. It became point of interest for respondents as the questionnaire asked items regarding personality traits and attributes of project leaders. Thus, the response rate was quite high.

3.2 Instrument and Measures

The study is conducted to measure the effect of project leadership facets on project outcomes. Thus, there are two variables in this study. Project leadership facets acted as an enabler for project outcome; hence, it was independent variable. Project outcome served as a dependent variable. The instrument to measure project

leadership facets contained 16 items and is asked on 5-point Likert scale (1 for strongly agree and 5 for strongly disagree). The dependent variable is project outcome. The instrument to measure project outcome contains 5 items and is measured on 5-point Likert scale.

3.3. Procedure

Questionnaires were distributed to project managers working in different project organizations in Pakistan. Questionnaire contained two parts. First part was regarding demographics of participants. And 2nd part consisted of items related to dependent and independent variables. In two phases the survey questionnaires were distributed. In first phase, the self-explanatory questionnaires were administered by research team to project managers, and in second phase, the questionnaires were received. A reminder buzz was also given to ensure maximum response.

4. Results and Discussions

The response rate of 84% was noticed as 200 questionnaires were administered and 168 usable questionnaires were received back. There was no statistical difference between gender, age, and qualification. Thus, the results can be generalized to larger population.

Table 1 shows mean, standard deviation, and cronbach's of the data. The results of this analysis are quite encouraging. The results reveal that pragmatism has the largest mean and stability has the lowest mean. Standard deviation ranged from .91271 to 1.78530.

Table 1. Descriptive Statistics

Variables	Items	N	Mean	SD	Cronbach's Alpha
Pragmatism	3	168	5.5298	1.75071	.849
Creativity	2	168	3.8214	.93707	.624
Positive Intolerance	2	168	3.7976	.91271	.778
Stability	2	168	3.6667	1.02465	.671
Communication	3	168	5.3512	1.78530	.860
Motivation	2	168	3.7440	.98490	.654
Group Orientation	2	168	3.9881	.96643	.744
Project Outcome	5	168	8.6786	2.09454	.832
Porject Leader Facets	16	168	29.8988	7.36364	.932

Table 2 shows Pearson correlation analysis of project leadership facets and project outcome. Table 2 reveals positive relationship among all facets of project leadership on project outcome; it reveals a slight lower value of positive intolerance than other project leadership facets. It shows the highest positive relationship among stability and project outcome. All the while, Table 2 shows a significant positive relationship between independent and dependent variables. Thus, it supports our hypothesis H1, which refers towards the positive correlation between project leadership facets and project outcome.

Table 3 shows regression weights of the analysis. The value of P should be less than 0.05 for any hypothesis to be accepted. The value of P for our analysis is well below than 0.05. Hence, we accept our hypothesis. There is a strong positive relationship between project leadership facets and project outcome. The analysis is well supported with different schools of thoughts as discussed in depth in literature review section.

Table 2. Correlations

		PLF	PLFP	PLFC	PLFPI	PLFS	PLFCOM	PLFM	PLFGO	PO
PO Correlation	Pearson	.790*	.778*	.657*	.552*	.812*	.701*	.616	.670	1
			.000		.000		.000	.000	.000	
Sig.(2-tailed)		.000	168	.000	168	.000	168	168	168	
N		168		168		168				

Table 3. Regression weights

Hypotheses	Estimate	S.E.	C.R.	P	Decision
H1 PO < --- PLF	0.225	.013	16.667	.000	Accept

Figure 2 verifies the model of dependent and independent variables in the form of Structural equation modeling technique (SEM). Figure 2 reveals that if project leadership facets go up by 1, project outcome goes up by .22.
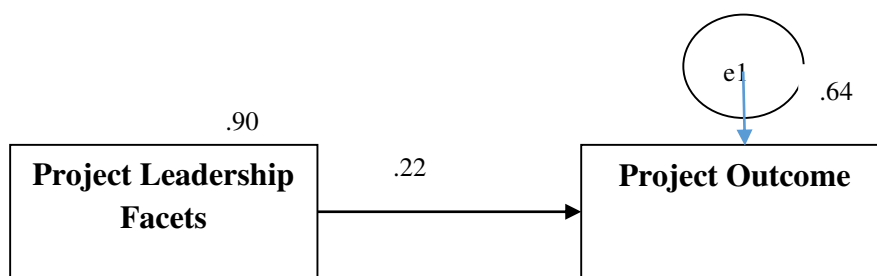
Figure 2. Structural Equation Model

5. Conclusion

This study is conducted to analyze the influence of project leadership facets on project outcome. It is an important study in the domain of project management, as it incorporated and analyzed project leadership facets with effective project outcome. The study is unique in the milieu of project outcome that it introduces a new leadership approach, which throws light on the significance of variant leadership facets on project outcome. The study found significantly positive relationship between project leadership facets and project outcome. Moreover, it is found that among all facets of project leadership; stability is strongly correlated with project outcome. Stability- the ability of leaders to make decisions and outer perform in all situations even under severe pressure. Sturman et al. (2005) advocated that there is a positive relationship between stability and individual performance; this is also verified by this study. Furthermore, the study shows significant positive relationship of all project leadership facets with project outcome. Proposed model in this study is verified by using multiple analysis and structural equation modeling technique (SEM). By deploying all leadership facets exclusively, project managers shall be able to get nearer towards an effective project leadership approach. The study also provides grounds for researchers with useful future references.

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Abbreviations

PLF Project Leadership Facets, **PLFP** Project Leadership Facets Pragmatism **PLFC** Project Leadership Facets Creativity **PLFPI** Project Leadership Facets Positive Intolerance **PLFS** Project Leadership Facets Stability **PLFCOM** Project Leadership Facets Communication **PLFM** Project Leadership Facets Motivation **PLFGO** Project Leadership Facets Group Orientation **PO** Project Outcome.

Applying the Theory of Planned Behavior in Predicting Pro-environmental Behaviour: The Case of Energy Conservation

Octav-Ionuţ Macovei[1]

Abstract: This paper aims to propose and validate a model based on the Theory of Planned Behavior in order to explain consumers' pro-environmental behaviour regarding energy conservation. The model was constructed using the five variables from Ajzen's Theory of Planned Behavior (TPB) (behaviour, intention, perceived behavioural control, subjective norms and attitude) to which a variable adapted from Schwartz's Norm Activation Theory (NAT) was added ("awareness of the consequences and the need") in order to create a unique model adapted for the special case of energy conservation behaviour. Further, a survey was conducted and the data collected were analysed using structural equation modelling. The first step of data analysis confirmed that all the constructs have good reliability, internal consistency and validity. The results of the structural equation analysis validated the proposed model, with all the model fit and quality indices having very good values. In the analysis of consumers' pro-environmental behaviour regarding energy conservation and their intention to behave in a pro-environmental manner, this model proved to have a strong predictive power. Five of seven hypotheses were validated, the newly introduced variable proving to be a success. The proposed model is unique and will offer companies and organizations a valuable green marketing tool which can be used in the fight for environment protection and energy conservation.

Keywords: awareness of environmental problems; global warming; climate changes; structural equation modelling

JEL Classification: C52; M31; Q57

1. Introduction

Environmental problems like climate changes, pollution and global warming are primarily caused by society and human behaviour (Lehman and Geller, 2004). In order to solve these environmental problems a series of actions must be taken by society and individuals, because it affects each of us, directly or indirectly. However, solving environmental problems proved to be very difficult because the changes induced by a pro-environmental behaviour cannot be seen immediately by individuals and very often don't affect them directly (Leary, Toner & Gan, 2011).

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For example, some people may believe that the negative consequences of global warming are uncertain and they will not be immediately seen, but rather in a distant future (Clement, Henning & Osbaldiston, 2014, Gifford, 2011) and, in their opinion, environmental changes will not affect them personally more than other persons. Due to this particular opinion that many people adopted, individuals may think that environmental problems such as energy conservation belong to the entire society, and it is not their personal concern. This is why inducing individuals a pro-environmental behaviour (PEB) is often a challenge and a priority, being the only path to sustainability (Brewer & Stern, 2005; Turaga, Howarth & Borsuk, 2010).

The consequences of global warming and climate changes can be seen everywhere, as for example quick transitions from excessive rainfalls and flooding to drought and fires that lead even to famine. People continue to produce massive quantities of greenhouse gases and consume resources in excess if they have enough funds. Wasting unnecessary water when washing, gas when driving and electricity are just some examples. For these environmental problems, energy conservation is the key to stop the global warming and climate changes. But convincing individuals to act pro-environmentally by saving and conserving energy is the real challenge which needs to take into consideration several of factors. For example, low income could act as a barrier for consuming unnecessary resources, but will also act as a barrier for adopting ecological substitutes to conventional sources, like solar panels which may be more expensive than conventional sources of energy. Also, individuals with high incomes will not be constrained by financial resources and will not adopt a pro-environmental behaviour consisting in energy conservation unless they realize the consequences of this type of behaviour and the problems which could occur in the future.

Energy conservation is a pro-environmental behaviour (PEB). A pro-environmental behaviour is that behaviour addopted by an individual that is considered by the society protective for the environment (Krajhanzl, 2010, p. 252) and implies performing a series of actions that diminishes as much as possible the harm done to the environment (Steg & Vlek, 2009). Like other pro-environmental behaviours, in order determine why some individuals adopt an energy conservation behaviour while others don't, it is necessary to study the predictors of this actual behaviour. The socio-psychological Theory of Planned Behavior – TPB (Ajzen, 1991), that is a good framework used very often to predict pro-environmental behaviours (PEB), will be employed in this study, in order to establish the determinants of energy conservation behaviour. Besides the specific variables of this theory, a variable using two dimensions of Schwartz's Norm Activation Theory (1977), "awareness of the consequences and the need", will also be used to enhance the predictability power of the structural equations model.

2. Theoretical Background

2.1. Theory of Reasoned Action (TRA)

The Theory or Planned Behavior - TPB was first introduced in 1985 by Icek Ajzen and is a development of the Theory or Reasoned Action – TRA developed in 1975 by Fishbein and Ajzen. The purpose of the Theory or Reasoned Action – TRA is to explain human behaviour on the basis of his intention to adopt a certain behaviour.

The Theory or Reasoned Action assumes that individuals behave in a rational manner in order to achieve favorable results, and to avoid disappointing others by confounding their expectations. According to this theory people's intention to behave in a certain manner is a predecessor variable of their actual behaviour. Moreover, the intention of the individual to behave in a certain way is determined by the attitude toward that behaviour and by the subjective norms. (Hale et al., 2003).
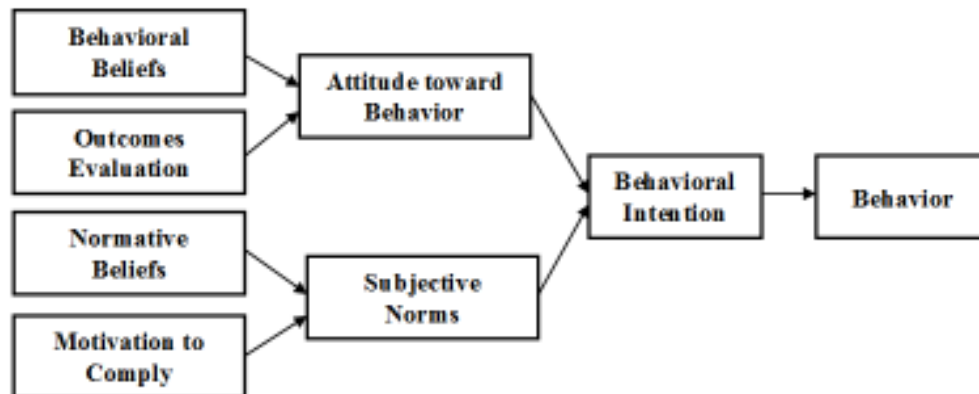
Figure 1. Theory of Reasoned Action – TRA (Fishbein & Ajzen, 1975)

The "attitude" component is represented by individual's beliefs which refer to behaviour's probability to generate the desired outcomes which can be evaluated as favorable or unfavorable (Hale et al., 2003). Subjective norms represent individual's perception about the correlation between a certain type of behaviour and what reference groups are thinking about this behaviour (Fishbein and Ajzen, 1975).

Behavioral intention is a function of attitude and subjective norms:

BI = AB(W1) + SN(W2) (Hale et al., 2003, p. 260).

The Theory or Reasoned Action lies behind the development of the Theory of Planned Behavior (Ajzen, 1991).

2.2. Theory of Planned Behavior (TPB)

Theory of Planned Behavior (TPB) was introduced by Icek Ajzen in 1985 and it further develops the Theory of Reasoned Action by adding a new variable called

"perceived behavioral control". The new theory can better explain human's behaviour in specific contexts where the individual has no control over his behaviour (Ajzen, 1985; Ajzen, 1991). Perceived behavioral control refers to either the ease or the difficulty to adopt a certain behaviour, and it is determined both by past experience and anticipated impediments or obstacles (Ajzen, 1991, p. 183). The "*perceived behavioural control*" variable consists of the situational factors and the availability of opportunities and resources such as time, money and knowledge, which reflect the real degree of control over behaviour. If the other variables remain unchanged, the intention to behave in a certain way is the central variable that determine the actual behaviour.
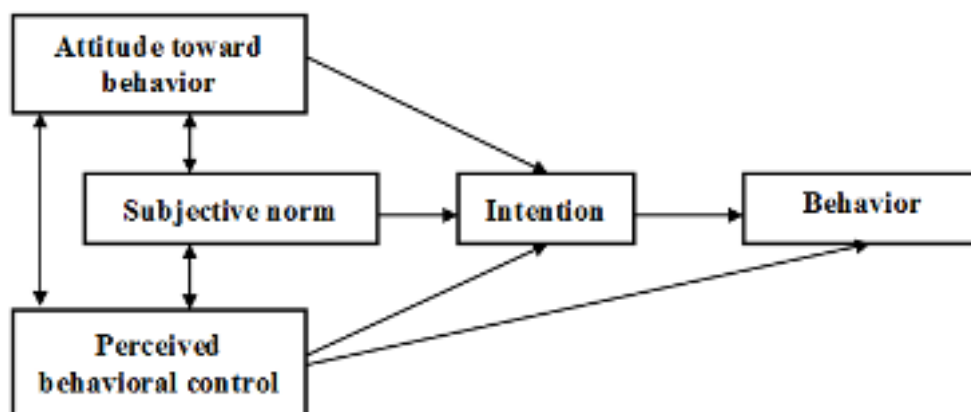
Figure 2. Theory of Planned Behavior – TPB

(Ajzen, 1991)

The Theory of Planned Behavior is used in many fields and has demonstrated its effectiveness over time in predicting actual behaviour in fields like care and health and care practices, educational behaviour, sexual behaviour, pro-environmental behaviour, the use of the Internet or in tourism (Macovei, 2015; Synodinos and Bevan-Dye, 2014).

The Theory of Planned Behavior is very used in the field of pro-environmental behaviour, serving throughout time as a solid framework for many empirical researches conducted by authors like Clement, Henning & Osbaldiston, in 2014 on energy conservation behaviour, Synodinos and Behan-Dye in 2014 on green purchasing behaviour, Chan and Bishop in 2013 on recycling behaviour, Kim, Njite, and Hancer in 2013, on eco-friendly restaurants, Greaves, Stride and Zibarras in 2013, on behavioural intentions in the workplace, Han, Hsu and Sheu in 2010 on green hotel choice, Fielding, McDonald and Louis in 2008, on environmental activism.

Because of the good results shown in many studies on pro-environmental behaviour, and the great prediction power of individuals' intention to behave in a pro-environmental manner and actual pro-environmental behaviour, the Theory of Planned behaviour will be further used as the main framework for this study regarding the energy conservation behaviour.

3. Research Model and Hypotheses

Ajzen's Theory of Planned Behavior (1991) is the main framework which will be employed in this study to predict consumers' actual pro-environmental behaviour of conserving energy. The main predictor of a pro-environmental behaviour is consumers' intention to behave in a pro-environmental manner, this relationship being studied by many researchers (Clement, Henning & Osbaldiston, 2014; Synodinos & Bevan-Dye, 2014; Macovei, 2015). The intention to adopt a certain behaviour or to act in a certain way, remains, like in the Theory of Reasoned Action (Ajzen, 1975), a central factor in determining individuals' current behaviour (Ajzen, 1985; Ajzen, 1991). The intention construct consists of motivational factors that influence a particular behaviour having a strong direct and positive influence on the actual behaviour (Ajzen, 1991).

Hypothesis 1: Consumers' intention to behave in a pro-environmental manner (energy conservation) has a positive influence on consumers' pro-environmental behaviour.

Individual behaviour often depends on the existence of resources: time, money, knowledge or wisdom (Ajzen, 1991). These resources act as constraints in individuals' intention and adoption of a certain behaviour, representing the actual degree of control over one's behaviour (Macovei, 2015). Although individuals with a high perceived behavioural control in term of the above mentioned resources are more likely to adopt a pro-environmental behaviour, if the effort associated with performing that behaviour is high, it will act as an impediment to action (Schultz & Oskamp, 1996).

Hypothesis 2: Consumers' perceived behavioural control has a positive influence on consumers' intention to behave in a pro-environmental manner.

Hypothesis 3: Consumers' perceived behavioural control has a positive influence on consumers' pro-environmental behaviour.

Subjective norms are perceived as a social pressure to engage or not to engage in certain behaviour (Ajzen and Fishbein, 2005). Subjective norms are determined by a set of normative beliefs which consist in the expectations of individuals' reference group formed by their immediate social network, such as family, friends, colleagues or neighbours. In Ajzen's Theory of Planned Behavior, the subjective norms have a

positive influence on individuals' intention to behave in a pro-environmental manner. Practically, the approval or disapproval of individuals' immediate social network has an amount of pressure on their intention, like in the particular case of energy conservation where family could have an influence on individuals' energy saving and conservation behaviour, like turning off the lights when leaving the room.

Hypothesis 4: Consumers' subjective norms have a positive influence on their intention to behave in a pro-environmental manner.

Attitude toward a behaviour represents the degree to which an individual values a behaviour as being positive or negative, good or bad. Attitude toward a behaviour is determined in the Theory of Planned Behavior by the total set of accessible behavioural beliefs (Ajzen, 1991). In the case of pro-environmental behaviour, consumers' intention to adopt a pro-environmental behaviour will be analyzed through respondents' stated behavioural intention. Attitude towards a certain behaviour has a strong direct and positive influence on behavioural intention, as shown by previous studies (Clement, Henning & Osbaldiston, 2014; Synodinos & Bevan-Dye, 2014; Ajzen & Fishbein, 2005; Fishbein & Ajzen, 1975):

Hypothesis 5: Consumers' attitude towards behaving in a pro-environment manner (Energy conservation) has a positive influence on their intention to behave in a pro-environmental manner.

Environmental awareness means "knowing the impact of human behavior on the environment" (Kollmuss & Agyeman, 2002). Environmental awareness is conceptualized in this study as awareness of the consequences and the need of a pro-environmental behaviour and has two dimensions according to the Norm Activation Theory – NAT (Schwartz, 1977, Harland et al., 1997): a personality dimension based on the knowledge and awareness of the consequences of environmental behaviour, and a situational and affective factor, based on the awareness of the need of pro-environmental behaviours. By being aware of the need to adopt pro-environmental behaviours like energy conservation, individuals should be more receptive to behave in a pro-environmental manner and should have a stronger intention to adopt a pro-environmental behaviour.

Hypothesis 6: Consumers' awareness of the consequences and the need of a pro-environmental behaviour has a positive influence on their intention to behave in a pro-environmental manner.

Hypothesis 7: Consumers' awareness of the consequences and the need of a pro-environmental behaviour has a positive influence on consumers' pro-environmental behaviour.

The proposed research model based on Ajzen's Theory of Planned Behavior enhanced with a variable construct which has two dimensions of Schwartz's Norm Activation Theory – NAT (1977). The model is presented in Figure 3 and will serve

as a framework for explaining consumers' intention to behave in a pro-environmental manner and their actual pro-environmental behaviour consisting in energy conservation.
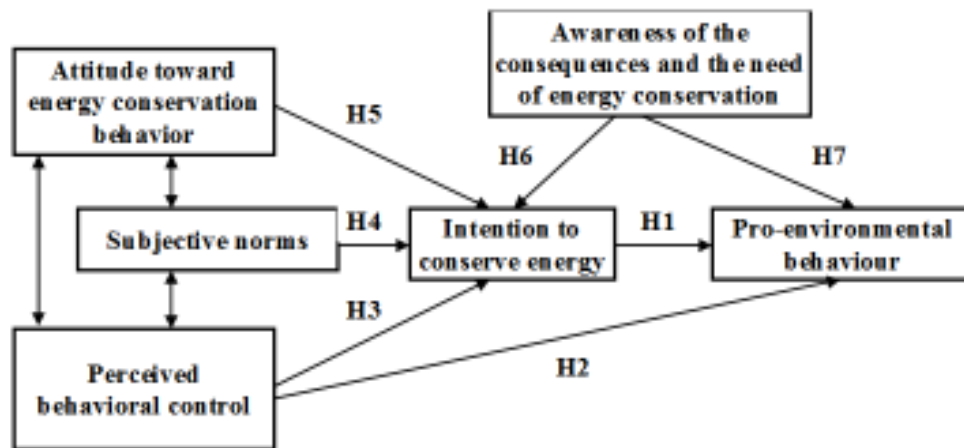
Figure 3. Proposed Research Framework of Pro-environmental Energy Conservation Behaviour

4. Measurements

The proposed research framework in this study has six latent variables or constructs. The constructs are "verbal surrogates for the phenomena named by the construct" (Freeze & Rascheke, 2007), measured using items.

Five variables are measured on a 5 point Likert Scale: 1 – Strongly Disagree, 2 – Disagree, 3 – Neither agree nor disagree, 4 – Agree to 5 – Strongly Agree. One variable, *pro-environmental behaviour* is measured on a 5 point frequency scale: never (1), sometimes (2), often (3), very often (4) and always (5). Each variable will be further defined at a conceptual and operational level.

Consumers' attitude toward a pro-environmental behaviour (energy conservation) represents "the degree to which performance of the behaviour is positively or negatively valued" (Fishbein & Ajzen, 1975; Ajzen, 1991). In this study it is measured as a latent reflective construct with four items which were adapted from Van den Berg's (2007) list of affective and cognitive attitude items: like, adequate, wise and useful.

Table 1. „Pro-environmental Attitude" measurements

Items	Adapted after
I believe it is adequate to conserve energy.	Van den Berg (2007)
I believe it is wise to conserve energy.	Van den Berg (2007)
I believe it is useful to conserve energy.	Van den Berg (2007)
I like to think that people should conserve energy.	Van den Berg (2007)

Subjective norms represent the social pressure coming from consumers' immediate social network consisting of reference groups: family, friends, neighbours or colleagues). In this study, subjective norms are a formative construct consisting of three items adapted from Clement, Henning & Osbaldiston, (2014) measuring the extent to which people who are important to an individual approve, support and have a pro-environmental behaviour.

Table 2. „Subjective norms" measurements

Items	Adapted after
Most people who are important to me support my effort to conserve energy for environmental reasons	Clement, Henning & Osbaldiston, (2014)
Most people who are important to me think I should conserve energy for environmental reasons	Clement, Henning & Osbaldiston, (2014)
Most people who are important to me take steps to conserve energy for environmental reasons	Clement, Henning & Osbaldiston, (2014)

Perceived behavioural control reflects individuals' perceptions of their ability to perform a behaviour (Ajzen, 1991). Perceived behavioural control is determined by a set of control beliefs (Ajzen, 1991) and consists of situational factors and resources like time, money and knowledge that facilitate the conditions that determine individuals to behave pro-environmental. The perceived behavioural control is a formative construct with four items, of which two are adapted after Ajzen (1991) and two are were developed for the context of this study.

Table 3. „Perceived behavioural control" measurements

Items	Adapted after
I have enough environmental knowledge for discerning between responsible and harmful behaviour.	Ajzen (1991)
I have the necessary will and wisdom to reduce energy consumption for environmental reasons.	Developed for this study
I have enough time and resources to use alternative means of ecological transport.	Developed for this study
I believe I am responsible for the environment we're living in.	Ajzen (1991)

Consumers' intention to behave in a pro-environmental manner, which is materialized by conserving energy in this study, consists in a series of expectations, wants and certainties, which are rational choices for environmental problems.

Intention variable is measured as a formative construct with four items of which two items are adapted from Soderlund and Ohman's (2006) approach for measuring intentions as expectations, plans and wants, one item is adapted from Mancha & Yoder (2015) and another one is developed for this study.

Table 4. „Consumers' intention to behave in a pro-environmental manner" measurements

Items	Adapted after
I want to conserve energy for environmental reasons.	Soderlund and Ohman (2006)
I intend to conserve energy for environmental reasons.	Soderlund and Ohman (2006)
I intend to use natural resources in a responsible manner (e.g. water, electricity, gas).	Developed for this study
I will try to reduce my carbon footprint in the forthcoming month.	Mancha & Yoder (2015)

Consumers' awareness of the consequences and the need of a pro-environmental behaviour is a construct which has two dimensions adapted from Schwartz's Norm Activation Theory – NAT (1977). The first dimension is a situational factor or activator, awareness of the need of pro-environmental behaviours, and it contains two items, one adapted from Harland et al. (2007) and another one is developed for this study and represents individuals' awareness of the need to take certain actions to conserve energy for environmental reasons. The second dimension is a personality trait, awareness of the consequences of environmental behaviour, and consists of two items adapted from Harland et al. (2007) which represents individuals' knowledge about environmental problems and potential consequences.

Table 5. „Awareness of the consequences and the need of a pro-environmental behaviour" measurements

Items	Adapted after
I am aware of the importance of energy conservation toward the future of environment	Harland et al. (2007)
I am aware of the need to reduce energy consumption for environmental reasons	Developed for this study
I am concerned about climate changes and its consequences	Harland et al. (2007)
I am concerned about global warming and its consequences	Harland et al. (2007)

A behaviour is a manifest, an observable response in a given context regarding a given target (Ajzen, 1991). A pro-environmental behaviour reflects the extent to which consumers perform activities which are environmentally-friendly.

Pro-environmental behaviour consisting of energy conservation is a formative latent variable with five items representing actions that individual should take in

order to conserve energy and protect the environment. Four items are adapted from Markowitz's et al. (2012) Student Environmental Behavior Scale (SEBS) and another one is developed for this study. All the five items are measured using a five point frequency scale: never (1), sometimes (2), often (3), very often (4) and always (5) and three of them are reverse coded.

Table 6. „Pro-environmental behaviour" measurements

Items	Adapted after
I leave the lights on when I leave a room*	Markowitz et al. (2012)
I leave the water running while brushing my teeth*	Markowitz et al. (2012)
I leave my computer on or asleep at night (not fully turned off)*	Markowitz et al. (2012)
I replace incandescent light bulbs with energy efficient alternatives	Markowitz et al. (2012)
I don't drive unless it's necessary and I try to use public transportation or the bicycle.	Developed for this study

*reverse coded items

5 Methodology, Data Analysis and Results

The survey instrument was pretested on a sample of 30 individuals that took part in pro-environmental actions regarding energy conservation.

The final survey was administered to a large sample of individuals in Romania, consisting of faculty, master and PhD students from Lumina – The University of South-East Europe, from the Bucharest University of Economic Studies, high school students and employees from a series of companies from IT&C and economic fields.

A total of 152 questionnaires were collected, 84 in classic paper and 68 in electronic format, from which 133 have been validated and subjected for further analysis. Electronic questionnaires have been sent via e-mail, accompanied by a cover letter expressing the objective of this research. A total of 312 e-mails were sent, but only 68 were received back, meaning a response rate of 21.8%.

The 133 valid questionnaires have been centralized in a database and further analyzed using IBM SPSS Statistics. The proposed research model was analyzed using the structural equations modelling technique with IBM SPSS Statistics v. 20 and Warp PLS 5.0 (Kock, 2015).

5.1 Data Analysis

Data analysis consists in measuring latent variables or constructs' reliability, internal consistency, convergent and discriminant validity, the PLS-based SEM analysis and model fit.

The reliability and internal consistency analysis followed Bagozzi and Yi (1988) approach according to which the items corresponding to each construct should be tested for internal consistency by computing Cronbach's Alpha coefficients, composite reliability coefficients and average extracted variance (AVE). Table 7 shows that Cronbach's Alpha values are over 0.7 (Nunally, 1978) and composite reliability values are over 0.7 (Fornell and Larcker, 1981), for all the constructs, thus demonstrating reliability and internal consistency. This means that the measuring instrument is reliable and all the items associated to each latent variable are understood in the same way by different respondent and each item describes accurately the underlying latent factor (Cătoiu et al., 2013).

Table 7. Reliability and validity statistics

	Cronbach Alpha	Composite Reliability	AVE	VIF	1	2	3	4	5	6
1. BEHAVIOUR	0.869	0.910	0.718	3.411	(0.847)	0.789	0.475	0.618	0.524	-0.576
2. INTENTION	0.858	0.904	0.703	2.841	0.789	(0.838)	0.417	0.542	0.531	-0.515
3. SUB_NORMS	0.786	0.876	0.702	1.499	0.475	0.417	(0.838)	0.330	0.411	-0.491
4. AWARENESS	0.819	0.881	0.651	1.700	0.618	0.542	0.330	(0.807)	0.413	-0.459
5. PBC	0.770	0.853	0.593	1.550	0.524	0.531	0.411	0.413	(0.770)	-0.304
6. ATTITUDE	0.757	0.847	0.584	1.719	-0.576	-0.515	-0.491	-0.459	-0.304	(0.764)

Note: Square roots of AVE's shown on diagonal

The validity of the measures were tested with both convergent and discriminant validity.

The square roots of AVE are higher than any other correlation among latent variables (Table 7) resulting a good discriminant validity (Fornell and Larcker, 1981).

The convergent validity of the constructs was assessed through the analysis of average variance extracted (AVE) and combined loadings and cross-loadings. AVE values from Table 7 are all over 0.5, showing constructs' good convergent validity (Fornell and Larcker, 1981).

Table 8. Combined loadings and cross-loadings*

	BEHAVIO	INTENTI	SUB_NOR	AWARENE	PBC	ATTITUD	Type (a	SE	P value
BEH1	0.830	-0.089	-0.083	0.004	0.146	-0.173	Formati	0.075	<0.001
BEH2	0.849	0.134	0.024	0.003	-0.073	0.024	Formati	0.075	<0.001
BEH3	0.882	-0.150	0.011	-0.024	-0.061	-0.003	Formati	0.074	<0.001
BEH4	0.827	0.112	0.047	0.019	-0.006	0.152	Formati	0.075	<0.001
INT1	0.008	0.798	0.106	0.016	0.162	0.058	Formati	0.076	<0.001
INT2	-0.172	0.878	-0.087	0.102	0.069	-0.116	Formati	0.074	<0.001
INT3	-0.015	0.862	-0.151	-0.004	-0.056	-0.039	Formati	0.074	<0.001
INT4	0.194	0.813	0.149	-0.121	-0.174	0.110	Formati	0.075	<0.001
SN1	-0.049	0.034	0.836	-0.086	0.087	-0.111	Reflect	0.075	<0.001
SN2	0.119	-0.049	0.895	0.007	0.013	-0.025	Reflect	0.074	<0.001
SN3	-0.084	0.020	0.777	0.084	-0.108	0.147	Reflect	0.076	<0.001
AWR1	0.164	-0.066	0.003	0.730	0.073	0.081	Formati	0.077	<0.001
AWR2	-0.002	0.147	0.099	0.875	-0.128	0.109	Formati	0.074	<0.001
AWR3	-0.033	0.052	-0.058	0.796	-0.050	-0.104	Formati	0.076	<0.001
AWR4	-0.112	-0.149	-0.052	0.819	0.120	-0.088	Formati	0.075	<0.001
PBC1	0.032	-0.137	0.212	0.016	0.747	0.071	Formati	0.077	<0.001
PBC2	0.134	-0.149	0.008	-0.083	0.826	-0.078	Formati	0.075	<0.001
PBC3	0.160	-0.015	-0.175	0.087	0.786	0.074	Formati	0.076	<0.001
PBC4	-0.364	0.331	-0.038	-0.017	0.716	-0.065	Formati	0.077	<0.001
AT1	-0.005	0.015	0.011	-0.122	0.081	0.836	Reflect	0.075	<0.001
AT2	-0.058	0.202	-0.029	-0.039	-0.013	0.825	Reflect	0.075	<0.001
AT3	0.320	-0.131	-0.061	0.014	-0.304	0.619	Reflect	0.079	<0.001
AT4	-0.193	-0.129	0.069	0.165	0.174	0.758	Reflect	0.076	<0.001

*Notes: Loadings are unrotated and cross-loadings are oblique-rotated. SEs and P values are for loadings. P values < 0.05 are desirable for reflective indicators.

Loadings are the Pearson correlations between latent variables and indicators. The cross-loadings from the matrix (Table 8) were obtained through an oblique rotation, which is recommended in the case of PLS-based structural equations modeling analysis (Kock, 2015).

The combined loadings and cross-loadings (Table 8) analyzed following Jewell's approach which states that indicators among constructs should have high and similar loadings (Jewell, 2011) also confirm a good convergent validity. The correlation among the indicators of model's latent variables are shown in Table 9.

Table 9. Correlations among indicators

	BEH1	BEH2	BEH3	BEH4	INT1	INT2	INT3	INT4	SN1	SN2	SN3	AWR1	AWR2	AWR3	AWR4	PBC1	PBC2	PBC3	PBC4	AT1	AT2	AT3	AT4
BEH1	1.000																						
BEH2	0.668	1.000																					
BEH3	0.618	0.647	1.000																				
BEH4	0.534	0.562	0.712	1.000																			
INT1	0.573	0.597	0.515	0.508	1.000																		
INT2	0.558	0.581	0.568	0.593	0.628	1.000																	
INT3	0.560	0.574	0.552	0.549	0.539	0.712	1.000																
INT4	0.492	0.593	0.551	0.604	0.529	0.584	0.623	1.000															
SN1	0.345	0.375	0.317	0.308	0.386	0.256	0.245	0.360	1.000														
SN2	0.425	0.399	0.460	0.379	0.443	0.357	0.267	0.345	0.662	1.000													
SN3	0.212	0.242	0.257	0.281	0.204	0.228	0.121	0.291	0.427	0.561	1.000												
AWR1	0.472	0.422	0.399	0.388	0.441	0.360	0.378	0.243	0.193	0.281	0.168	1.000											
AWR2	0.449	0.496	0.469	0.513	0.398	0.509	0.446	0.367	0.237	0.326	0.264	0.586	1.000										
AWR3	0.392	0.395	0.465	0.436	0.326	0.456	0.381	0.329	0.214	0.245	0.155	0.380	0.597	1.000									
AWR4	0.403	0.378	0.370	0.310	0.319	0.362	0.253	0.275	0.176	0.254	0.128	0.434	0.609	0.581	1.000								
PBC1	0.354	0.270	0.295	0.363	0.364	0.312	0.286	0.235	0.370	0.383	0.257	0.231	0.235	0.211	0.301	1.000							
PBC2	0.400	0.364	0.406	0.300	0.451	0.359	0.295	0.305	0.347	0.328	0.220	0.331	0.220	0.216	0.261	0.538	1.000						
PBC3	0.451	0.369	0.355	0.408	0.417	0.417	0.362	0.328	0.269	0.225	0.093	0.317	0.299	0.331	0.324	0.393	0.553	1.000					
PBC4	0.308	0.281	0.205	0.322	0.369	0.445	0.300	0.241	0.198	0.285	0.178	0.206	0.261	0.167	0.195	0.377	0.412	0.457	1.000				
AT1	-0.487	-0.450	-0.408	-0.322	-0.307	-0.422	-0.359	-0.345	-0.386	-0.360	-0.258	-0.266	-0.372	-0.371	-0.402	0.114	0.220	0.167	0.191	1.000			
AT2	-0.438	-0.348	-0.387	-0.310	-0.284	-0.367	-0.252	-0.278	-0.339	-0.419	-0.261	-0.278	-0.287	-0.344	-0.282	0.161	0.221	0.158	0.144	0.591	1.000		
AT3	-0.333	-0.225	-0.306	-0.325	-0.327	-0.344	-0.304	-0.237	-0.320	-0.317	-0.281	-0.216	-0.231	-0.250	-0.228	0.282	0.270	0.262	0.266	0.329	0.422	1.000	
AT4	-0.401	-0.428	-0.441	-0.323	-0.323	-0.388	-0.393	-0.356	-0.337	-0.354	-0.115	-0.210	-0.274	-0.278	-0.183	0.136	0.193	0.062	0.090	0.561	0.457	0.270	1.000

5.2 Hypotheses Testing

The structural research model was analyzed with WarpPLS 5.0 using bootstrap resampling method. WarlPLS 5.0 is able to analyze nonlinear relationships between latent variables (Kock, 2015), like U-curve or S-curve relationships, using the variance-based or PLS-based method. Moreover, WarpPLS software is able to estimate parameters of both formative and reflective constructs (Kock, 2015).
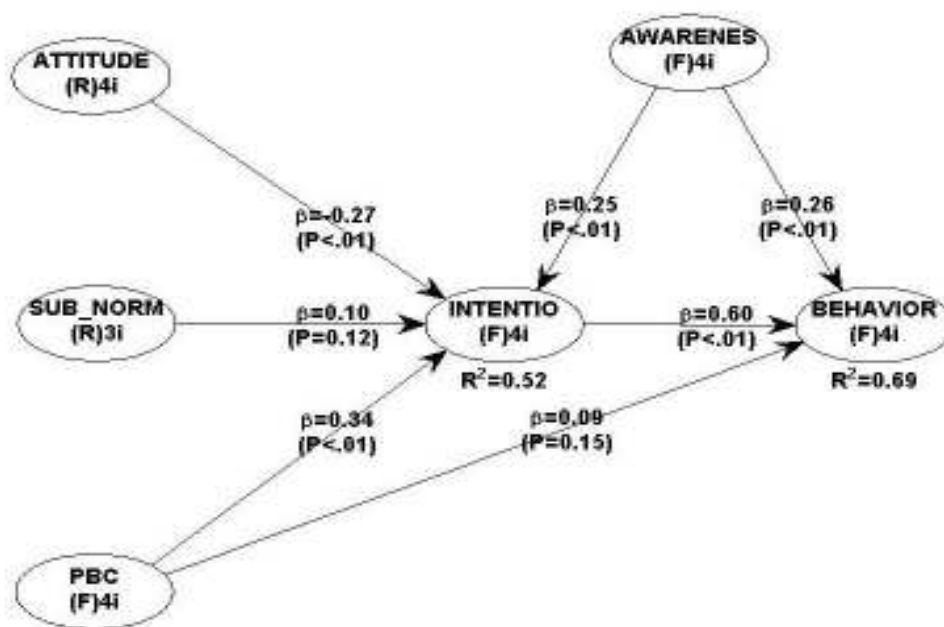
Figure 4. **Pro-environmental Energy Conservation Behaviour Model**
(analyzed using WarpPLS 5.0)

Figure 4 shows model's estimates consisting of β path coefficients with their probability values and the R^2 determination coefficients.

First, model's hypotheses will be tested using the β path coefficients and their probability values.

Intention has the strongest influence on *Behaviour*, with a β path coefficient of 0.60, thus validating H1.

Perceived behavioural control has a weak influence on *Behaviour* with β of 0.09 which is statistically insignificant for a p > 0.05 (p=0.15), thus rejecting H2. *Perceived behavioural control* also positively influence *Intention*, β being 0.34 for a p <0.01, validating H3. *Subjective norms* have an insignificant effect of 0.10 on *Intention* for a p>0.05 (p=0.12), rejecting H4, and *Attitude* has an effect of 0.27 on *Intention* for a p<0.01, validating H5.

The new variable developed especially for this study, *Awareness of the consequences and the need*, significantly influences *Intention* with a β of 0.25 and *Behaviour* with a β of 0.26, thus validating H6 and H7.

The cumulative effects of the three predictors: *intention, perceived behavioural control and awareness* explain in a proportion of 69% the variance of *consumers' pro-environmental behaviour* (R^2=0.69).

The *Intention to behave in a pro-environmental manner* variable is explained in a proportion of 52% by its four predictors: *attitude, subjective norms, perceived behavioural control and awareness* ((R^2=0.52).

In conclusion, five research hypotheses are validated (H1, H3, H5, H6 and H7) and two are rejected, H2 and H4.

5.3 Model Fit Indices

The proposed research model analysed with WarpPLS 5.0 using structural equation modelling method based on PLS technique will be validated by analysing its model fit and quality indices shown in Table 10. These ten model fit and quality indices are another great advantage of WarpPLS 5.0, because in variance based SEM analysis methods usually these can't be provided.

Table 10. Model fit and quality indices

Indices	Criterion
Average path coefficient (APC)=0.274,	P<0.001
Average R-squared (ARS)=0.603,	P<0.001
Average adjusted R-squared (AARS)=0.591,	P<0.001
Average block VIF (AVIF)=1.466,	acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF)=2.120,	acceptable if <= 5, ideally <= 3.3
Tenenhaus GoF (GoF)=0.630,	small >= 0.1, medium >= 0.25, large >= 0.36
Sympson's paradox ratio (SPR)=1.000,	acceptable if >= 0.7, ideally = 1
R-squared contribution ratio (RSCR)=1.000,	acceptable if >= 0.9, ideally = 1
Statistical suppression ratio (SSR)=1.000,	acceptable if >= 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)=1.000,	acceptable if >= 0.7

*Computed with WarpPLS 5.0

All the ten model fit and quality indices are in the recommended range or have probability values less than 0.001. Moreover, the ARS index is 0.603 for a p<0.001 and AVIF, the most important measure of model fit, is 1.466, under the ideal limit of 3.3 (Kock, 2015). Also the APC is 0.227 for a p<0.001.

In conclusion, the **proposed model of pro-environmental energy conservation behaviour is validated**, having very good model fit and quality indices.

6. Conclusions, Limitations and Future Research

Ajzen's Theory of Planned Behavior – TPB (1991) is a rational choice theory from social psychology, which is very often used in the study of individuals' pro-environmental behaviour (Macovei, 2015). Ajzen's Theory of Planned Behavior – TPB enhanced with a variable adapted from Schwartz's NAT – Norm-activation Theory (1977) was once again successfully applied in the case of energy consumption behaviour, explaining in a proportion of 69% *consumers' pro-environmental behaviour* and in a proportion of 52% their *intention to behave in a pro-environmental manner*, the proposed model being validated with very good model fit and quality indices.

The newly introduced variable, *consumers' awareness of the consequences and the need of a pro-environmental behaviour*, has proved to be a strong determinant of *intention to behave in a pro-environmental manner* and *actual pro-environmental behaviour* consisting in energy conservation, and may serve as a predictor for future research in the field of pro-environmental behaviour.

Regarding two important relationships among the TPB's variables, in this study, the influence of *Perceived behavioural control* on *Behaviour* and the influence of *Subjective norms* on *Intention* variable, weren't validated because of the weak β coefficients which had probabilities values over 0.05. One of the reasons why this happened is the sample of only 133 respondents which is relatively small because in structural equation modelling (SEM) it is recommended to have 10 answers for each item involved in the research model, and in this study there are 23 items in the proposed model. Also, the collected answers weren't tested for multivariate outliers using de Mahalanobis D-Squared distance test in order to identify the unusual answers and deeper analyse it. *Subjective norms* and *Perceived behavioural control*, although have a good reliability, internal consistency and validity, may require a different formulation of their items for the case of energy conservation, which could be a subject for future research.

The model proposed and validated in this study will offer companies and organizations a valuable tool which can be used in their social and green marketing campaigns (Serban et al., 2012), organization green events (Moise & Macovei, 2014) and to better understand the consumers that don't have a pro-environmental behaviour in order to find out new ways to convince them to protect the environment and conserve the energy in order to combat global warming, pollution and climate changes.

The proposed model in this study can be used as a solid base for future research in the field of pro-environmental behaviour and energy conservation. More variables can be added to this model from other theories and fields according to the research context, like economic or demographic variables which could better explain consumers' pro-environmental behaviour in certain situations.

7. Acknowledgement

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The Influence of Market Context on Business Strategy, Competitor Imitation and Operational Effectiveness

Madalina Balau[1]

Abstract: The importance of strategic positioning, along with operational effectiveness, has long been presented as key for the success of the company. There are few studies that highlighted the way in which the market context affects these efforts of the company. The aim of this paper is to explore the influence of the market context on competitor imitation and its further implications on strategy. For this purpose, a literature review was conducted and major concepts were drawn from works of M. Porter, while the influence of market context was found in research papers. Putting together these different perspectives on the company and the strategic choices it must make, the results of our analysis suggest that choosing a differentiation strategy and not imitating the reference competitors is a daring initiative, that involves the risk of standing out from the crowd. The implication of this finding is that imitation of the competitor is an easier solution for the company and it has an important attraction, due to the short term influence on increasing sales, while deterring innovation. The value of this paper consists in exploring the contextual influence of well-established concepts for company's management.

Keywords: business strategy; competitor imitation; market context; operational effectiveness

JEL Classification: M20

1 Introduction

In business literature, it is widely accepted that strategy is important for company's success, and in practice, it should translate into efficiency and value for the clients. The efficiency imperative relates to performing business activities with as few costs as possible, and at this level, comparison with competitors offers the answer to the concern of whether costs are low enough. The problem of value for clients is defined mainly as the capacity of the company to satisfy clients' needs and wants, and in concrete actions it relates to the company's reactivity to clients, which is rather opposed to the efficiency problem. Thus, strategy means the creation of a unique and valuable position for the company, involving different groups of interconnected activities, and nonetheless, making trade-offs in competition which importantly involves the choice of what activities not to do (Porter, 2013).

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The external environment, and the market context as well, has always provided important information in strategic positioning, but its influence has been considered that of a stable framework to which the company gives an answer through its strategy. But the rapid changes in the market context in today's global economy has led us to see that the strategic answer of the company isn't made independently of this context and it does further influence the context. Recent research (Peteraf & Reed, 2007) has shown that the direct link between strategy and business performance depends both on the responsiveness to the clients and the market context, understood mainly as a growing or a mature market.

The aim of this paper is to explore the influence of the market context on competitor imitation and its further implications on strategic positioning and operational effectiveness. In general, competitor imitation is considered, theoretically, as a weak point in a company's strategy, yet in practice it is more than generalized, so there must be some serious reasons for which companies choose this path. What can we learn from this competitor imitation in relation to the context where this happens? What are its pros and cons? And if differentiation is the best solution to achieving a good financial performance on the long run, what prevents companies from taking this approach more often?

This paper is structured as follows: Section 2 presents the general perspective on strategic positioning and operational effectiveness, justifying why companies tend to lean more on the second one; Section 3 highlights the existing research about competitor imitation according to the market context; Section 4 discusses the implications of findings about competitor imitation on previously discussed concepts of strategic positioning and operational effectiveness, and Section 5 concludes, offering recommendations for further research in this field.

2. Business Strategy and Operational Effectiveness

The characteristics of successful companies involve flexibility for a rapid response to changes in competition and market, it should benchmark and outsource to gain efficiency and cultivate its essential competencies. For Michael Porter, "competitive strategy is about being different and means deliberately choosing a set of different activities to deliver a unique mix of value" (Porter, 2013, p. 43). Thus, starting from this perspective, strategy is a plan that aims to give the company a competitive advantage over rivals through differentiation.

In today's dynamic markets and changing technologies, strategic positioning can be rejected and considered static, as rivals can easily copy any market position, and this leads to a belief of hyper competition that Porter considers as only being a half-truth, since the root of the problem is the failure to distinguish between operational effectiveness and strategy. One explanation for this situation comes from the great

expansion of management tools that enable managers to pursue improvement on all fronts. This abundance may negatively influence the capacity to pursue viable competitive positions and it isn't always correlated to gains in profitability at a consistent pace.

Strategy and operational effectiveness are both vital for a better performance of the company, yet they have separate ways of functioning. Operational effectiveness means performing activities better than rivals, while strategic positioning means performing different activities or similar activities in different ways (Porter, 2013, p. 38).

2.1. Operational Effectiveness

A company succeeds in comparison to its reference competitors if it can establish a difference and maintain it on long term. All differences between companies in cost or price arise from the activities implemented, which all involve a cost that can lead to a cost advantage only when the company performs activities more efficiently.

Differences in operational effectiveness become rapidly common in a sector, since they employ tactics easy to copy such as eliminating the wasteful effort, using advanced technology, better motivating the employees, etc. They constitute an important source of differences in profitability among competitors, due to their direct effect on cost. In such a context, there can be identified a productivity frontier, that constitutes the sum of all existing good practices at the moment (Porter, 2013, pp. 39-40).

While approaching the productivity frontier, companies may try to push it further, through new technologies, new management approaches and new inputs available. This forces all companies from an industry to keep up with the shifts in the productivity frontier, through continuous improvement, empowerment, change management, the learning organization, but also by increasing outsourcing. It is obvious that constant improvement of operational effectiveness is necessary to achieve superior profitability, but this isn't enough. The rapid diffusion of practices makes this type of competition a perpetual race, while staying in the same place relative to rivals. It seems that competition based only on operational effectiveness is raising expectations for everybody, but it leads to a relative improvement for no one (Porter, 2013, pp. 38-43).

In addition, operational effectiveness contributes to competitive congruence; the more benchmarking companies do, the more they seem identical. As competitors imitate one another in increasing quality, improving the production cycle or supplier relationships, strategy convergence drives companies into identical paths that no one can win on the long run. Competing on operational effectiveness alone is mutually destructive as it leads eventually to limiting competition.

2.2. Strategic Positioning

Business strategy has its starting point in defining the strategic position of the company, and M. Porter mentions three different sources for such positions: "variety-based positioning", concerned with the choice of products and services to be offered, "needs-based positioning" which involves targeting a specific segment of customers and "access-based positioning" referring to customer geography and customer scale (Porter, 2013, pp. 47-54).

In addition to these rather expected recommendations, business strategy necessarily involves trade-offs in what to compete on, and deliberately choosing what to do and what not to do. Thus, strategy involves a conscious choice and when choice is lacking, so is the strategy. Another distinction between strategy and operational effectiveness comes from the fact that the second term refers to achieving performance in individual activities, while the former is about combining activities. This issue of mixing the right activities leads to the fit problem between these activities, and their integration is crucial for strategic success (Porter, 2013, pp. 54-58).

Trade-off is necessary in defining the business strategy for three reasons. Firstly, without trade-offs there would be inconsistencies in the company's image or reputation. Secondly, the different positions require different products, different equipment, different skills and employee behavior and different management systems. Finally, they also arise from the limits on internal coordination and control.

On the other hand, the fit between the activities of the company is one of the oldest ideas in strategy, and the reason for that is simply because different activities affect one another. Porter (2013, pp. 59-60) identifies three types of fit among activities: first-order fit is the simple consistency each activity and the overall strategy, second-order fit occurs when activities are reinforcing and third-order fit is defined as an optimization effort, implemented effectively through coordination and information exchange, so that redundancy and wasted effort are minimized.

Thus Michael Porter advocates for the stringent need of the company to hold a business strategy based on differentiation, he offers a detailed explanation for what makes companies neglect strategy formulation and trade-offs. In the third section of this paper we will try to look into the possible explanations for this situation starting for the market context in order to get some insight on what current companies could do, in order to avoid the trap of competing on operational effectiveness alone.

3. Market Context and the Choice of Competitor Imitation

For a brief formulation, the distinction between operational effectiveness and strategy stems from the focus of the former on quantitative aspects, reflected in costs, prices and sales volume, while the second is rather qualitative and starts from the

interaction the company's capabilities and the needs and wants of potential customers. This attention to customers is reflected in the company's customer responsiveness defined as the action taken in response to market intelligence concerning individual needs of target customers (Pehrsson, 2011; Kohli & Jaworski, 1990). This responsiveness includes after-sales services, solutions to customer problems and relationships with customers, with various mixes of them, among firms.

From a contingency approach to business strategy, there seems to be a fit between customer responsiveness and the market context (Peteraf & Reed, 2007), but Soberman and Gatignon (2005) suggested that there is limited knowledge on the interactions between market context and competitive dynamics. The market context seems to have a moderating role on the link between customer responsiveness, on one hand, and competition and firm performance, on the other (Matsuno & Mentzer, 2000). A firm may imitate or follow several attributes of a reference competitor or try to differentiate all attributes from those of the rival (Greve, 1998).

The study of Pehrsson (2011) examines important relationships that are linked to the customer responsiveness of the firm, such as the influence of the main competitor and financial performance. Market growth is seen as a central moderator of these relationships, as a growing market has less established competition standards and patterns than a mature market (Porter, 1980; Robinson, 1988; Soberman & Gatignon, 2005).

The results of the study show that customer responsiveness of the firm is associated with the same feature in the main competitors strategy (t=0,34; p<0,001). Yet, the moderating effect of the market growth is very important, as it doesn't reinforce the relationship between the firms customer responsiveness and that of the competitor and it reinforces negatively the relationship between the attention paid to sales volume by the main competitor and the attention paid customer responsiveness by the firm (t=-2,22; p<0,05). In the growing market context, competition-based obstacles in customer access reinforced the responsiveness strategy in the firm (t=2,23; p<0,05) and also the relationship between customer responsiveness and financial performance was reinforced (t=2,06; p<0,05). But, on a mature market, this final relationship wasn't found significant, implying that customer responsiveness doesn't necessarily lead to financial performance in a mature market.

Starting from this study we can describe in short the competitive dynamics in a growing market as follows: when a new company enters the growing market, customer responsiveness will be an important feature of its strategy, especially if competitors try to increase obstacles in customer access. Then, if reference competitors focus on customer responsiveness, so will the company, but as soon as a reference competitor will start focusing more on sales volume, the others will follow. We already know from Porter that this convergence of strategy reduces

competition, leading to mergers and acquisitions among players, thus approaching a mature stage of the market. And, as the cited work descovered, in a mature market there isn't a significant link between customer responsiveness and financial peformance, so there will not be incentives for this attribute in the strategy of the company. In short, the attraction of sales volume strategy is contagious, and resisting it means for the company to follow its own path, away from the alignment in industry's behavior.

4. Implications of Market Context on Strategic Positioning and Operational Effectiveness

This section of the paper puts together the recommendations of Michael Porter, advocating strongly for strategic positioning and for a rediscovery and a reconnection of companies with strategy, with the findings of papers that investigated the influence of the market context on competitor imitation and dynamics. A major conclusion of Perhsson's work is that factors from the environment, i.e. the market context, have an important influence on competition evolution and it distorts the traditional ideas about the link between customer responsiveness and financial performance (Pehrsson, 2011).

In his insertion, named "Reconnecting with Strategy", M. Porter acknowledges that the initial success of a company is due to its unique strategic positioning, but with "the passage of time and the pressures of growth", compromises are accepted (Porter, 2013, pp. 64-65). At start, these compromises are almost imperceptible, but the succession of changes, companies wake up finally being homogenous to their rivals. Thus, the two main enemies to maintaining the strategic positioning identified by Porter are passage of time and pressure to grow, and fighting these, nowadays, would seem like wanting to fight a relentless destiny.

All the arguments for a strategic positioning make perfectly sense from a theoretical or ideal perspective. On the other hand, we should not forget that new entrants always show up in a growing market, using more or less a strategy of customer responsiveness in order to attract new clients and create loyalty for the company. The study on the influence of the growing market on competitive dynamics tell us that any company will feel attracted to follow a sales volume strategy as soon as one of the reference competitors will do so. This involves selling to more people, extending the rather narrow segments approached at the start, or offering incentives for buying and/or consuming more, sometimes against the needs of customers. Not following this attraction means stepping aside from the rest of the companies in the industry, a risky decision which is even riskier in a growing market context, where there exists a great general uncertainty and changing competition patterns (Soberman & Gatignon, 2005).

Some of the individual company behaviours that lead to this attraction are critically highlighted by Porter: managers chase every new technology for its own sake, publications and consultants flood the market with information about the others, reinforcing the best-practice mentality, some managers mistake customer focus for serving all customer and all needs, and imitation is also fuelled by an assumption that rivals know something that they don't. Quite surprisingly, Michael Porter describes a growth trap that companies face, stating that "the growth imperative is hazardous to strategy", that managers should avoid organizational distractions, and also teach others in their organization to say no, as "setting limits is another function of leadership" (Porter, 2013, p. 67).

5. Conclusion

Business strategy and operational effectiveness are two important pillars on which the success of the company rests. It becomes obvious that when one of them is insufficiently considered by the managers the company position on the market will be weakened. Nonetheless, many companies favour operational effectiveness, while they don't understand what more to do with strategy, especially when competition dynamics move towards reducing costs and adopting sales volume strategies, where differentiation might even be a burden.

The study of Pehrsson (2011) showed that the market context has an important influence on whether the company will choose to follow a customer responsive strategy, where differentiation is key, or a sales volume strategy. The strategy followed is in relation to reference competitors, imitation not being a path consciously followed, but rather a tendency on the market, hard to resist.

The reason why a company follows its competitors, especially in a growing market context, comes from the greater degree of uncertainty on such a market, where competition practices are well-established. From company's perspective, the advantages of following the industry's reference competitors and its trends are obvious: it avoids riskier activities and making a wrong choice. The disadvantage of this can only be seen of the long-run, when the big remaining companies end up buying smaller companies, and reducing competition on that market. But the current economic context isn't favourable to this long-run perspective, so, such a disadvantage might seem important for a business consultant but not for a manager or temporarily entrepreneur.

Further research on this matter is highly important, especially among the small and medium sized companies, in relation to their difficulties in defining and following the business strategy. Future research could also give more information on the mechanism through which the sales volume strategy gains popularity in a growing market, where differentiation and customer responsiveness used to be important.

Thus could be studied not from a macro-perspective, but rather at company level, understanding what types of decisional steps make the company lose its strategic identity.

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Mathematical and Quantative Methods

A Study of Integers Using Software Tools – III

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Abstract: The paper deals with a generalization of polite numbers that is of those numbers that are sums of consecutive integers to the numbers called almost polite numbers of order p,m which can be written in m ways as sum of two or more consecutive of same powers p of natural numbers.

Keywords: polite numbers; divisibility

1 Introduction

Let note for any $n \in \mathbf{N}^*$, $p \in \mathbf{N}^*$, $S_{n,p} = 1^p + ... + n^p$ and $S_{k,n,p} = k^p + ... + n^p = S_{n,p} - S_{k-1,p}$, $k = \overline{2, n}$.

It is well known that:

$$S_{n,p} = \frac{(n+1)^{p+1} - 1 - \sum_{j=1}^{p} C_{p+1}^{j+1} S_{n,p-j}}{p+1}$$

and also:

$$S_{k,n,p} = \frac{(n+1)^{p+1} - k^{p+1} - \sum_{j=1}^{p} C_{p+1}^{j+1} S_{k,n,p-j}}{p+1}$$

It is easly to see that the first 10 sums are:

$$S_{n,1} = 1 + ... + n = \frac{n(n+1)}{2}$$

$$S_{n,2} = 1^2 + ... + n^2 = \frac{n(n+1)(2n+1)}{6}$$

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$$S_{n,3}=1^3+...+n^3=\frac{n^2(n+1)^2}{4}$$

$$S_{n,4}=1^4+...+n^4=\frac{n(n+1)(2n+1)(3n^2+3n-1)}{30}$$

$$S_{n,5}=1^5+...+n^5=\frac{n^2(n+1)^2(2n^2+2n-1)}{12}$$

$$S_{n,6}=1^6+...+n^6=\frac{n(n+1)(2n+1)(3n^4+6n^3-3n+1)}{42}$$

$$S_{n,7}=1^7+...+n^7=\frac{n^2(n+1)^2(3n^4+6n^3-n^2-4n+2)}{24}$$

$$S_{n,8}=1^8+...+n^8=\frac{n(n+1)(2n+1)(5n^6+15n^5+5n^4-15n^3-n^2+9n-3)}{90}$$

$$S_{n,9}=1^9+...+n^9=\frac{n^2(n+1)^2(n^2+n-1)(2n^4+4n^3-n^2-3n+3)}{20}$$

$$S_{n,10}=1^{10}+...+n^{10}=$$
$$\frac{n(n+1)(2n+1)(n^2+n-1)(3n^6+9n^5+2n^4-11n^3+3n^2+10n-5)}{66}$$

All over in this paper, the software presented was written in Wolfram Mathematica 9.0.

2 Almost Polite Numbers of Order p,m

A natural number N greather than 2 will be called almost polite number of order p if it can be written as sum of two or more consecutive of a same power p of natural numbers.

If N is odd it is natural that for N=2k+1 we have N=k+(k+1) therefore each odd natural number is polite of order 1.
A natural number N greather than 2 will be called almost polite number of order p,m if it can be written in m ways as a sum of two or more consecutive of same powers p of natural numbers.
Therefore N is a polite number of order p,m if:

$$N=S_{k_1,n_1,p_1}=S_{k_2,n_2,p_2}=...=S_{k_m,n_m,p_m} \quad \text{with } p_1 \neq p_2 \neq ... \neq p_m$$

The software for determining the almost polite numbers of order p,m (m≥3) limited to 30000 and powers less than or equal with 10 is:

```
Clear["Global`*"];
limit=30000;
pmax=10;
nrorimax=3;
nrk=Table[i,{i,nrorimax}];
nrn=Table[i,{i,nrorimax}];
nrp=Table[i,{i,nrorimax}];
S[0]=n;
(*The calculus of sums of powers from 1 to n*)
For[p=1,p≤pmax,p++,
 suma=0;
 For[j=1,j≤p,j++,suma=suma+Binomial[p+1,j+1]*S[p-j]];
 S[p]=Factor[((n+1)^(p+1)-1-suma)/(p+1)]]
(*The calculus of sums of powers from k to n*)
For[p=1,p≤pmax,p++,sumpower[n_,p]=S[p]];
For[p=1,p≤pmax,p++,sumpowerkn[n_,k_,p]=Factor[Simplify[sumpower[n,p]-
sumpower[k-1,p]]]]]
(*The analysis*)
For[number=2,number≤limit,number=number+1,nrori=0;
 For[p=1,p≤pmax,p++,
  For[n=2,n≤number^(1/p),n++,
   For[k=1,k≤n-1,k++,

If[sumpowerkn[n,k,p]==number,nrori=nrori+1;nrk[[nrori]]=k;nrn[[nrori]]=n
;
nrp[[nrori]]=p;
   If[nrori≥2&& nrp[[nrori]]==nrp[[nrori-1]],nrori=nrori-1]]]];

If[nrori≥nrorimax,For[k=1,k≤nrori,k++,Print[number,"=\[Sum](power=",nr
p[[k]],") from ",nrk[[k]]," to ",nrn[[k]]]];Print[""]]]]
```

We found (till 30000):

- $91 = 1 + 2 + ... + 13 = 1^2 + ... + 6^2 = 3^3 + 4^3$
- $559 = 9 + 10 + ... + 34 = 7^2 + ... + 12^2 = 6^3 + 7^3$
- $855 = 4 + 5 + ... + 41 = 11^2 + ... + 15^2 = 7^3 + 8^3$
- $6985 = 9 + 10 + ... + 118 = 20^2 + ... + 30^2 = 9^3 + ... + 13^3$
- $19721 = 200 + 201 + ... + 281 = 14^2 + ... + 39^2 = 4^6 + 5^6$
- $24979 = 12489 + 12490 = 62^2 + ... + 67^2 = 5^4 + ... + 10^4$
- $29240 = 29 + 30 + ... + 243 = 35^2 + ... + 50^2 = 2^3 + ... + 18^3$

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The Unemployment Rate Forecasts Evaluation Using New Aggregated Accuracy Indicators

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Abstract: In this study, the unemployment rate forecasts for Romania were assessed using the predictions provided on the horizon 2006-2013 by three experts in forecasting or forecasters (F1, F2 and F3). The absolute and relative accuracy indicators, excepting mean relative absolute error (MRAE) indicated that F3 forecasts are the most accurate on the mentioned horizon. The high value of this indicator brought differences in accuracy hierarchy. New aggregated accuracy indicators were proposed (modified sum of summary statistics- S1, sum of relative accuracy measures- S2 and sum of percentage for directional and sign accuracy- S3). The contradictory results of S1 and S2 were solved by the method of relative distance with respect to the best forecaster that indicated F2 forecasts for unemployment rate forecasts in Romania as the best. It is clearly that F3 outperformed the other experts as directional and sign accuracy. The Diebold-Mariano test identified F1 predictions as the less accurate, but significant accuracy differences were not found between F3 and F2 predictions.

Keywords: forecasts accuracy; forecast error; unemployment rate; Diebold-Mariano test; directional accuracy

JEL Classification: E37; E66

1 Introduction

In this study, the forecasts accuracy was assessed for unemployment rate predictions in Romania provided by three anonymous forecasters (F1, F2 and F3). The novelty of the research compared to previous studies is that new aggregated indicators (S1, S2 and S3) were proposed in order to solve the problem of contradictory results provided by different accuracy measures. However, for this particular case of unemployment rate predictions in Romania different results were obtained, but a multi-criteria ranking method was applied for S1 and S2 measures to select the best forecaster.

The paper is structured as it follows. After a brief literature review, the third section describes the methodological framework, while the forecasts accuracy assessment

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for unemployment rate in Romania is presented in the fourth section. The last section gives a brief conclusion.

2. Literature Review

There are many international organizations that provide their economic predictions for various countries. The comparisons between forecasts consider these institutions anticipations (OECD, IMF, World Bank, European Commission, SPF etc.) and those of other international organizations, the accuracy assessment being made. The forecast errors for these institutions are in general large and non-systematic. Three international institutions (European Commission- EC, IMF and OECD) made predictions using macroeconomic models, but these forecasts failed to anticipate the downturn from 2007. Other providers of forecasts are statistical institutes, ministries of finance, and private companies like banks or insurance companies.

Literature usually makes comparisons between OECD and IMF forecasts and Consensus Economics ones or private predictions. The accuracy is evaluated according to different criteria: forecasts errors and associated accuracy measures, comparisons with naïve predictions that is based on random walk, directional accuracy evaluation.

For 25 transition countries the EBRD predictions during 1994-2004 improve in accuracy with the progress in transition. These predictions accuracy for late GDP is better than of other institutions with around 0.4 percentage points. The Russian crisis seems to be the only structural break (Krkoska & Teksoz, 2007).

The European Commission's forecasts analyzed on the horizon from 1998 to 2005 are comparable in terms of accuracy with those of Consensus, IMF and OECD for variables like inflation rate, unemployment rate, GDP, total investment, general government balance and current account balance (Melander, Sismanidis & Grenouilleau, 2007) stated.

The forecasts accuracy of the predictions provided by European Commission before and during the recent economic crisis was assessed (González Cabanillas &Terzi, 2012). They compared these forecasts with those provided by Consensus Economics, IMF and OECD. The Commission's forecasts errors have increased because of the low accuracy from 2009 for variables as GDP, inflation rate, government budget balance, and investment.

The strategic behavior of the private forecasters that placed their expectations away from OECD's and IMF's ones, was assessed by experts, this duration of this event being 3 months (Frenkel, Rülke & Zimmermann, 2013).

Greenbook inflation forecasts are more accurate than those of the private forecasts, making comparisons between the predictions provided by Survey of Professional Forecasters, Greenbook and other private forecasters (Liu & Smith, 2014).

The common approach to evaluate the predictions' usefulness consists in the measurement of the error's magnitude, using accuracy measures like mean square error (MSE) (Diebold and Mariano, 2002), or log of the mean squared error ratio (log MSER). However, these measures do not have an economic interpretation and they neglect the presence of outliers. The directional forecasts technique was used for assessing the macroeconomic forecasts by many other authors ((Pesaran & Timmermann, 1994), Artis, 1996), (Őller & Barot, 2000), (Pons, 2001) and (Ashiya, 2006).

3. Methodological Framework

There are different methods used in literature to assess the forecasts accuracy. In practice, there are many cases when some indicators suggest the superiority of certain forecasts while other ones indicate that other predictions are more accurate. Therefore, it is proposed a new methodology to solve this contradiction given by the results of accuracy assessment. The method is based on different types of accuracy measures: statistics based on size errors, coefficients for comparisons and directional accuracy measures. These types of indicators were also used in literature without any aggregation (Melander, Sismanidis & Grenouilleau, 2007).

The prediction error at time *t* is the simplest indicator based on the comparison of the registered value with the forecasted one and it is denoted by e_t. There are two ways of computing the forecast error if $\hat{y}_t$ is the prediction at time t: $e_t = y_t - \hat{y}_t$ or $e_t = \hat{y}_t - y_t$. Seven out of eleven members from International Institute of Forecasters recommended in a survey the use of the first variant ($e_t = y_t - \hat{y}_t$). This is the most utilized version in literature and it will also be used in this study (Green & Tashman, 2008).

The following summary statistics have been used: root mean squared error, mean squared error, mean error, mean absolute error, mean absolute percentage error. If the horizon length is h and the length of actual data series is n, the indicators are computed as in the following table:

Table 1. Summary statistics for forecasts accuracy

Indicator	Formula
Mean error- ME	$$ME = \frac{1}{h}\sum_{t=n+1}^{n+h}(y_t - \hat{y}_t)$$
Mean absolute error- MAE	$$ME = \frac{1}{h}\sum_{t=n+1}^{n+h}|y_t - \hat{y}_t|$$
Root mean squared error- RMSE	$$RMSE = \sqrt{\frac{1}{h}\sum_{t=n+1}^{n+h}(y_t - \hat{y}_t)^2}$$
Mean squared error- MSE	$$MSE = \frac{1}{h}\sum_{t=n+1}^{n+h}(y_t - \hat{y}_t)^2$$
Mean absolute percentage error- MAPE	$$MAPE = 100\cdot\frac{1}{h}\sum_{t=n+1}^{n+h}\left|\frac{y_t - \hat{y}_t}{y_t}\right|$$

The aggregate statistic for comparisons is based on U1Theil's statistic, mean relative absolute error, relative RMSE and mean absolute scaled error. $RMSE_b$ is the RMSE for the benchmark. e_t^* is the benchmark error. In our case the benchmark is represented by the naïve projection.

Table 2. Statistics for comparing the forecasts accuracy

Indicator	Formula
U1 Theil's statistic	$$U_1 = \frac{\sqrt{\sum_{t=n+1}^{n+h}(y_t - \hat{y}_t)^2}}{\sqrt{y_t^2} + \sqrt{\hat{y}_t^2}}$$
Mean relative absolute error- MRAE	$$MRAE = average\left(\left|\frac{e_t}{e_t^*}\right|\right)$$
Relative Root mean squared error- RRMSE	$$RRMSE = \frac{RMSE}{RMSE_b}$$
Mean absolute scaled error-MASE	$$MASE = average\left(\frac{e_t}{\frac{1}{n-1}\sum_{t=n+1}^{n+h}|y_t - y_{t-1}|}\right)$$

If ME takes a positive value on the mentioned horizon with the proposed definition of the forecast error, the predictions are underestimated. For negative value of ME

the forecasts are overestimated. For optimal predictions ME is zero, but this value is also met when the errors offset each other perfectly.

MSE penalizes the predictions with high errors. It considers that the high errors are more harmful than the small errors. The positive and the negative errors cannot compensate each other like in the case of ME, which is an advantage for MSE. There is not a superior limit for MSE and it has a different unit of measurement compared to actual data. The null value is the lowest value of the indicator and it is achieved for perfect precision of the forecasts. RMSE is equal or larger then MAE. A higher difference between these two indicators implies a higher errors variance. The errors have the same magnitude if RMSE equals MAE. The minimum value of those measures is 0, but there is not a superior limit for them. A null value for the MAPE expressed as percentage shows a perfect forecast. If MAPE is smaller than 100% the prediction is better than the naïve one. MAPE has no superior limit.

The percentage of sign correct forecasts (PSC) shows how many percent of time is sign of prediction forecasted correctly. Percentage of directional accuracy correct forecasts (PDA) shows if the expert correctly anticipates the increase or decrease of the variable. It measures the ability to correctly predict the turning points. PDA and PSC are located between 0% and 100%. According to Melander et al. (2007) the success rate of the indicators should be greater than 50%.

Table 3. Measures for directional and sign accuracy

Indicator	Formula	Conditions
Percentage of sign correct forecasts- PSC	$PSC = \dfrac{100}{h} \sum_{t=n+1}^{n+h} z_t$	$z_t = 1, y_t \cdot \hat{y}_t > 0$ $z_t = 0, otherwise$
Percentage of directional accuracy correct forecasts- PDA	$PDA = \dfrac{100}{h} \sum_{t=n+1}^{n+h} z_t$	$z_t = 1, (y_t - y_{t-1})(\hat{y}_t - y_{t-1}) > 0$ $z_t = 0, otherwise$

The proposed methodology consists in the following steps:

- The computation of sums of summary statistics after the division to each standard deviation (S1);
- The computation of sum of relative accuracy measures (S2);
- The computation of sum of percentage for directional and sign accuracy (S3).

For the first indicator S1, the MSE has been excluded, because it has the same significance as RMSE. S1 and S2 should be as lower as possible, while S3 should be as high as possible. After these measures assessment, the best forecaster is chosen.

$$S_1 = \frac{|ME_t|}{SD_t^{ME_t}} + \frac{MAE_t}{SD_t^{MAE_t}} + \frac{RMSE_t}{SD_t^{RMSE_t}} + \frac{MAPE_t}{SD_t^{MAPE_t}} \qquad (1)$$

$$S_2 = U_1 + MRAE + RRMSE + MASE \qquad (2)$$

$$S_3 = PSC_t + PDA_t \qquad (3)$$

Let us consider the actual values of a variable $\{y_t\}, t = 1,2, \ldots, T$ and two predictions for it $\{\hat{y}_{t1}\}, t = 1,2, \ldots, T$ and $\{\hat{y}_{t2}\}, t = 1,2, \ldots, T$. The prediction errors are computed as: $e_{it} = \hat{y}_{it} - y_t$, i=1,2. The loss function in this case is calculated as:

$$g(y_t, \hat{y}_{it}) = g(\hat{y}_{it} - y_t) = g(e_{it}) \qquad (4)$$

In most cases this function is a square-error loss or an absolute error loss function.

Two predictions being given, the loss differential is:

$$d_t = g(e_{1t}) - g(e_{2t}) \qquad (5)$$

The two predictions have the same degree of accuracy if the expected value of loss differential is 0.

For Diebold-Mariano (2002) test, the null assumption of equal accuracy checks if the expected value of differential loss is zero: $E(d_t) = 0$. The covariance stationary been given, the distribution of differential average follows a normal distribution. The DM statistic, according to Diebold and Mariano (2012), under null hypothesis is:

$$S_1 = \frac{\bar{d}}{\sqrt{\hat{V}(\bar{d})}} \to N(0,1)$$

$$\bar{d} = \frac{\sum_{t=1}^n d_t}{n} \qquad (6)$$

$$\hat{V}(\bar{d}) = \frac{\hat{\gamma}_0 + 2\sum_{k=1}^{n-1} \hat{\gamma}_k}{n}$$

$$\hat{\gamma}_k = \frac{\sum_{t=k+1}^n (d_t - \bar{d})(d_{t-k} - \bar{d})}{n}$$

Instead of estimating the variance we can study the prediction error auto-covariances. This test does not suppose restrictions like forecast errors with normal distribution, independent and contemporaneously uncorrelated predictions errors.

4. The Assessment of Unemployment Rate Forecasts

For the unemployment rate during the economic crisis 2009-2013, we used the predictions provided by the following forecasters: F1, F2 and F3. One-step-ahead forecasts were provided, these predictions being made at the same time. With red and blue line are drawn the predictions at time h and respectively h+1.

F1
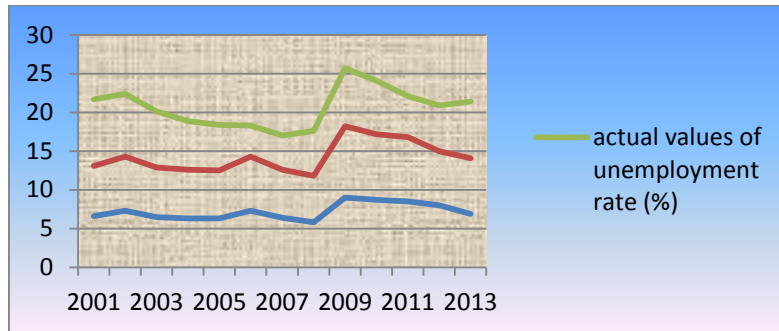
F2
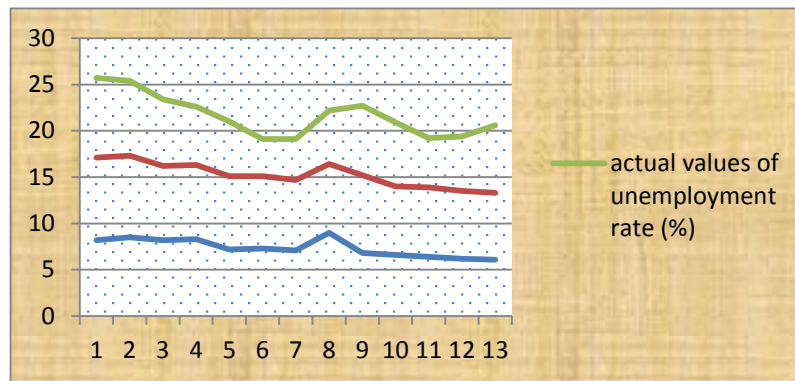
F3
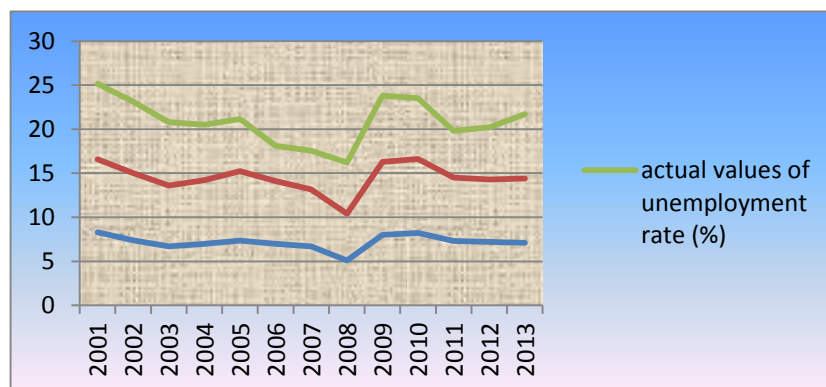
Figure 1. Scenarios for unemployment rate forecasts in Romania

For all the forecasters the spring versions provided higher forecasts errors than the autumn/winter scenarios. This is well explained by the fact that the horizon is smaller

in the second scenario compared to the spring version. The spring versions of the current year made by the F1 and F2 were used for the next year forecasts.

Table 4. The evaluation of accuracy measures for unemployment rate forecasts (2006-2013)

Indicator	F1	F2	F3
Mean error- ME	-1,4813	0,1563	-0,8313
Mean absolute error- MAE	1,5563	1,3188	1,2438
Root mean squared error- RMSE	1,6986	1,5084	1,3921
Mean squared error- MSE	2,8853	2,2753	1,9378
Mean absolute percentage error- MAPE	14,6959%	11,0105%	11,8670%
U1 Theil's statistic	0,1232	0,1237	0,1058
Mean relative absolute error- MRAE	2,2142	3,2134	7,1259
Relative Root mean squared error- RRMSE	1,0708	0,9509	0,8775
Mean absolute scaled error-MASE	1,1940	1,0290	0,8503
Percentage of sign correct forecasts- PSC	100%	100%	100%
Percentage of directional accuracy correct forecasts- PDA	62,5%	62,5%	75%

According to U1 Theil's statistic, F3 provided the most accurate forecasts. MASE value confirms the superiority of these forecasts that outperformed the naïve predictions. The lowest values for ME, MAE, RMSE and MSE are also registered by these appreciations of unemployment rate evolution. The value for MRAE is very large compared to the other forecasts.

Table 5. The values of S1, S2 and S3 indicators for assessing the accuracy of unemployment rate forecasts (2006-2013)

| Indicator	F1	F2	F3
S1	29,93157	23,72887	23,78
S2	4,6022	5,3170	8,9595
S3	162,5%	162,5%	175%

The lowest value of S1 was registered by F2, while F1 had the smallest value for S2. F3 provided the best forecasts of unemployment rate in terms of directional and sign accuracy. As we can observe each aggregated indicator shows a different expert as the best forecasts provider. Therefore, the multi-criteria ranking is applied to determine the most accurate forecasts. Actually, the MRAE value is the indicator that defaced the good accuracy of F3 predictions.

The method of relative distance with respect to the maximal performance is employed in this study. It is calculated the distance between each prediction and the one with the highest degree of accuracy. The closer the prediction is to the best one, the higher the accuracy is. The method is applied for S1 and S2 for which the performance is judged according to the minimum value. A distance of each forecaster with respect to the one with the best performance is computed for each accuracy indicator. The distance is calculated as a relative indicator of coordination:

$$d_{i\,ind_j} = \frac{ind_i^j}{\{\min abs(ind_i^j)\}_i}, \text{ i=1,2,3 and j=1, 2.} \tag{7}$$

The relative distance computed for each forecaster is presented as a ratio, where the best value for the accuracy indicator for all experts is the denominator.

A geometric mean for the distances of each institution is calculated, its significance being an average relative distance for institution *i*.

$$\overline{d_i} = \sqrt{\prod_{j=1}^{2} d_{i\,ind_j}}, \text{ i=1,2,3} \tag{8}$$

According to values of average relative distances, the final ranks are assigned. The institution with the lowest average relative distance will take the rank of 1. The position (location) of each forecaster with respect to the one with the best performance is computed as an average relative distance over the lowest average relative distance.

$$loc_i^\% = \frac{\overline{d_i}}{\min(d_i)_{i=\overline{1,3}}} \cdot 100 \tag{9}$$

Table 6. Ranks of Institutions According to the values of S1 and S2 (Method of Relative Distance with Respect to the Best Forecaster)

ACCURACY MEASURE	F1	F2	F3
S1	1,2614	1,0000	1,0022
S2	1,0000	1,1553	1,9468
Average relative distance	1,1231	1,0749	1,3968
Ranks	2	1	3
Location (%)	104.4902	100	129,9499

The results of multi-criteria ranking application show that F2 provided the most accurate forecasts and F3 the less accurate. However, according to S3, F3 is the best forecaster in terms of directional and sign accuracy. The Diebold-Mariano test was employed to check the differences in accuracy between the unemployment rate forecasts of the three experts. The maximum lag is 6 chosen by Schwartz criterion and the Kernel is uniform.

Table 7. The forecasts accuracy comparisons based on Diebold-Mariano test

Comparison	DM statistic value	MSE		Expert with the more accurate forecasts
F1-F2	S(1) = 5.571 p-value = 0.0000	F1 F2	2.885 2.275	F2
F1-F3	S(1) = 12.56 p-value = 0.0000	F1 F3	2.885 1.938	F3
F2-F3	S(1) = .348 p-value = 0.7279	F1 F3	2.275 1.938	No differences between F2 and F3 forecasts

According to Diebold-Mariano test F2 and F3 forecasts are more accurate than F1 predictions, but there are not significant differences in terms of accuracy between F2 and F3 predictions. These results are also presented in Appendix 1. The actual economic crisis explains the decrease in accuracy of the F3 predictions. The econometric models did not take into account all the shocks in the labour market.

5. Conclusions

It is clearly that F3 provided the best forecasts in terms of directional and signed accuracy, but the errors' magnitude is higher than that of the other experts. Our methodology based on aggregated indicators S1 and S2 that were ranked using the method of relative distance with respect to the best expert indicated that F2 forecasts for unemployment rate forecasts in Romania on 2006-2013 were the most accurate. The Diebold-Mariano test identified F1 predictions as the less accurate, but significant accuracy differences were not found between F3 and F2 predictions. A further research may consider another aggregated indicator based on the sum of S1 and S2, taking into account that a lower value will show a better accuracy.

6. Acknowledgement

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APPENDIX 1

Diebold-Mariano test results

Series	MSE
F1	2.883
F2	2.275
Difference	0.61
S1	5.571 (p-value=0.000)

Series	MSE
F1	2.885
F3	1.938
Difference	0.9475
S1	12.56 (p-value=0.000)

Series	MSE
F2	2.275
F3	1.838
Difference	0.61
S1	0.348 (p-value=0.7279)

Determinants of Health Spending Efficiency: a Tobit Panel Data Approach Based on DEA Efficiency Scores

Douanla Tayo Lionel[1]

Abstract: This study aims at identifying the determinants of health expenditure efficiency over the period 2005-2011 using a Tobit Panel Data Approach based on DEA Efficiency Scores. The study was made on 150 countries, where we had 45 high income countries, 40 upper middle income countries, 36 lower middle income countries and 29 low income countries. The estimated results show that Carbon dioxide emission, gross domestic product per capita, improvement in corruption, the age composition of the population, population density and government effectiveness are significant determinants of health expenditure efficiency. Thus, low income countries should promote green growth and all the income groups should intensively fight against poverty.

Keywords: Tobit panel data; DEA; health expenditure efficiency

JEL Classification: D61

1 Introduction

A key policy challenge in developed and developing countries is to improve the performance of education and health systems while containing their cost. Education and health outcomes are critically important for social welfare and economic growth and thus, spending in these areas constitutes a large share of public spending. Douanla and al, (2015), show that government spending on education has a positive effect on economic growth both in short and in long run. But there is concern about the efficiency of such spending. In health for instance, there is concern about the rapid rise of the cost of health care and the impact on competitiveness, as well as trade-offs between the efficiency and equity of health systems.

Across the globe there are great variations on the amount countries spend on health. In high income countries[2], total expenditure on health as a percentage of gross domestic product was 11.9% in 2011, while it was 5.8% in upper middle income countries[3], 4.4% in lower middle income countries[4] and 5.2% in low income

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[2] High income countries are those with a GNI per capita of $12,746 or more.

[3] Upper middle income economies are those with a GNI per capita located between $4,126-$12,745.

[4] Lower middle income economies are those with a GNI per capita between $1.046-$4,125.

countries[1]. There are also differences on Out-of-pocket expenditure as percentage of private expenditure on health in the various income groups. In 2011, it was 37.6% in high income countries, 74.2% in upper middle income countries, 87.1% in lower middle income countries and 76.2% in low income countries (WHO 2014).

There are also great variations in health outcomes across the globe. The average life expectancy at birth in high income countries in 2012 was seventy-nine years, while it was seventy-four years in upper middle income countries, sixty-six in lower middle economies and sixty-two in low income economies. The main objective of this study is therefore to determine the efficiency scores and compare the determinants of health expenditure efficiency in high income countries, upper middle income countries, lower middle income countries and low income countries.

The structure of the article is as follows: section 2 briefly reviews the existing literature; section 3 discusses the methodological issues; section 4 presents the results and discussion of results and finally section 5 emphasizes on conclusion and recommendations.

2. Literature Review

A consensus exists that rising income levels and technological development are among the key drivers of total health spending. However, determinants of public sector health expenditure efficiency are less well understood. A few number of studies have focused on the public sector health expenditure efficiency in developed and developing countries like Cameroon. The results and the methodology vary from one study to the other. Li-Lin Liang and al; (2014), examine a complex relationship across government health expenditure, sociopolitical risks, and international aid, while taking into account the impact of national income and fiscal capacity on health spending. They apply a two-way fixed effects and two-stage least squares regression method to a panel dataset comprising 120 countries for the years 1995 through 2010. Their results show that democratic accountability has a diminishing positive correlation with government health expenditure, and that levels of spending are higher when the government is more stable. Corruption is associated with less spending in developing countries, but with more spending in high-income countries. Furthermore, they find that development assistance for health substitutes for domestically financed government health expenditure. For an average country, a 1 percent increase in total development assistance for health to government is associated with a 0.02 percent decrease in domestically financed government health expenditure. Li-Lin Liang and al; (2014), do not take into consideration the efficiency of government health expenditure in their study.

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[1] Low income countries are defined as those with a GNI per capita of $1.045 or less, calculated using the World Bank Atlas method.

Francesco and al; (2013), found that Public health spending is low in emerging and developing economies relative to advanced economies and health outputs and outcomes need to be substantially improved. According to them, simply increasing public expenditure in the health sector, however, may not significantly affect health outcomes if the efficiency of this spending is low. Their paper quantifies the inefficiency of public health expenditure and the associated potential gains for emerging and developing economies using a stochastic frontier model that controls for the socioeconomic determinants of health, and provides country-specific estimates. Their results suggest that African economies have the lowest efficiency. At current spending levels, they could boost life expectancy up to about five years if they followed best practices.

Etibar and al; (2008), analyzed not only Government Spending on Health Care efficiency in Croatia, but also Government Spending on education efficiency. Using the so-called Data Envelopment Analysis, Their analysis finds evidence of significant inefficiencies in Croatia's spending on health care and education, related to inadequate cost recovery, weaknesses in the financing mechanisms and institutional arrangements, weak competition in the provision of these services, and weaknesses in targeting public subsidies on health care and education. These inefficiencies suggest that government spending on health and education could be reduced without undue sacrifices in the quality of these services.

Gupta and al; (2007) adopt another popular non-parametric technique, DEA, to assess the efficiency of health and education spending for a sample of 50 low-income countries. The inputs for the model are per capita health expenditure in PPP dollars, while the outcomes are indicators that are used to monitor progress toward the Millennium Development Goals (infant mortality, child mortality, and maternal mortality). Their results suggest that countries with the lowest income per capita have the lowest efficiency scores and that there is significant room for increasing spending efficiency. A correlation analysis between the efficiency scores and other variables is performed, along with multivariate truncated regression analysis. The authors argue that countries with better governance and fiscal institutions, better outcomes in the education sector, and lower prevalence of HIV/AIDS tend to achieve greater efficiency in health spending.

Evans and al; (2000), perform an analysis on a panel dataset of 191 countries (including advanced economies) for the 1993–97 period by using a fixed-effects panel data estimator and corrected ordinary least squares. Two dependent variables are employed: disability adjusted life expectancy and a composite index of disability adjusted life expectancy including dispersion of the child survival rate, responsiveness of the health care system, and inequities in responsiveness, and fairness of financial contribution. The input variables are health expenditure and years of schooling, with the addition of country fixed effects. The authors propose a ranking of countries and check its robustness by changing the functional form of the

translog regressions. They argue that income per capita should not directly affect health outcomes, but rather should impact the ability to purchase better care or better education, which are proxies by the other independent variables.

Jacob (2015), using the two-stage Data Envelopment Analysis (DEA) to compute efficiency scores and a Tobit model to examine the determinants of efficiency of health expenditure for 45 countries in Sub-Saharan Africa during the period 2005 to 2011. The results show that health expenditure efficiency was low with average scores of approximately 0.5. The results also show that high corruption and poor public sector institutions reduced health expenditure efficiency. The findings also emphasize the fact that, while increased health spending is necessary, it is also important to ensure efficiency in resource use across Sub-Saharan Africa countries.

Xu Ke and al; (2011), study the determinants of health expenditure using panel data from 143 countries over 14 years, from 1995 to 2008. Their results suggest that health expenditure in general does not grow faster than GDP after taking other factors into consideration. Income elasticity is between 0.75 and 0.95 in their fixed effect model while, it is much smaller in their dynamic model. They found no difference in health expenditure between tax-based and insurance based health financing mechanisms. Their study also confirms the existence of fungibility, where external aid for health reduces government health spending from domestic sources. However, the decrease is much small than a dollar to dollar substitution. Their study also finds that government health expenditure and out-of-pocket payments follow different paths and that the pace of health expenditure growth is different for countries at different levels of economic development.

3. Methodology

3.1. The Data Envelopment Analysis Model

The empirical methods employed in this study to determine the efficiency scores follow Fare et al. (1994) and Alexander et al. (2003) using non-parametric linear programming techniques. The empirical analysis starts by finding out the achievable health outcome of a particular country, given its expenditure on health. This optimization problem is solved by constructing a 'best practice' frontier, which is a piece-wise linear envelopment of the health expenditure-health outcome data for the sample countries. The estimated frontier describes the most efficient performance conditions within the countries and therefore forms a benchmark for comparison. The health systems of countries that are operating on (and determine) the frontier are termed efficient while countries with health systems operating off the frontier are considered to be relatively inefficient. Inefficiency in this case should be understood to mean that better health outcomes could be attained from the observed health

expenditure, were performance similar to that of 'best-practice' countries (Alexander et al., 2003).

DEA allows the calculation of technical efficiency measures that can be either input or output oriented. The purpose of an input-oriented study is to evaluate by how much input quantity can be proportionally reduced without changing the output quantities. Alternatively, and by computing output-oriented measures, one could also try to assess how much output quantities can be proportionally increased without changing the input quantities used. The two measures provide the same results under constant returns to scale but give different values under variable returns to scale. Nevertheless, and since the computation uses linear programming, not subject to statistical problems such as simultaneous equation bias and specification errors, both output and input-oriented models will identify the same set of efficient/inefficient producers or Decision Making Units (DMUs).

To illustrate the procedures described above, let S^t be the technology that transforms health expenditure into health outcomes. This technology can be modelled by the output possibility set:

$$p^t\left(x^t\right) = \left\{ y^t : \left(x^t, y^t\right) \in s^t \right\} \quad t = 1,....,T \tag{1}$$

Where $p^t\left(x^t\right)$ denotes the collection of health output vectors that consume no more that the bundle of resources indicated by the resource vector x^t, during period t. The best practice frontier can be empirically estimated as the upper bound of the output possibility set, $p^t\left(x^t\right)$. The output possibility set, $p^t\left(x^t\right)$, can be estimated empirically by assuming that the sample set is made up of observations on j=1,...J countries' health systems, each using n=1,...N resources, x^t_{jn}, during period t, to generate m=1,..., M population health outcomes, y^t_{jm}, in period t. Accordingly, $p^t\left(x^t\right)$ is estimated from the observed set of health expenditures, and health outcomes for all the countries of the sample.

The empirical construction of the piece-wise linear envelopment of the input possibility set is given by:

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$$p^t\left(x^t\right) = \left\{ y^t : x_n^t \leq \sum_{j=1}^{j} z_j\, x_{jn}{}^t, \; n = 1....N \right.$$

$$\sum_{j=1}^{j} z_j \, y_{jm}{}^t \geq y_m{}^t, \ m = 1,....,M$$

$$\sum_{j=1}^{j} z_j = 1 \tag{2}$$

$$z_j \geq 0, \ j = 1,.....,j\}$$

Where z_j is a variable indicating the weighting of each of the health systems. The output-based efficiency score for each country's health system for period t can be derived as

$$F^t{}_0(x_j{}^t, \ y_i{}^t) = \max\{\theta \text{ such that } \theta y^t \in p^t\left(x^t\right)\} \text{ where } F^t{}_0(x_j{}^t, \ y_i{}^t) \geq 1 \tag{3}$$

This suggests that a county's health outcomes vector, y^t, will be located on the efficiency frontier when equation (3) has a value of one. However, if equation (3) produces a value less than one, the health system must be classified as inefficient relative to best-observed practice. This measure can be computed for country j as the solution to the linear programming problem

$$F^t{}_0(x_j{}^t, \ y_i{}^t) = \max \theta \tag{4}$$

With θ, z such that

$$\sum_{j=1}^{j} z_j \, y_{jm}{}^t \geq \theta y_{jm}{}^t, \ m = 1,...,M,$$

$$\sum_{j=1}^{j} z_j \, x_{jn}{}^t \leq x_{jn}{}^t, \ n = 1,..., N, \tag{5}$$

$$\sum_{j=1}^{j} z_j = 1,$$

$$z_j \geq 0,$$

Where the restrictions on the weighting variables, zj, imply a variable returns to scale assumption in regard to the underlying technology of health production.

3.2. Choice of Inputs and Outputs

In what concerns this study, our source of data is the world development indicators CD-ROM 2013. Instead of using quantity explanatory variables such as the number of doctors, of nurses and of in-patient beds per thousand habitants as inputs, this

study uses a financial variable which is per capita health expenditure in purchasing power parities. Life expectancy at birth and infant mortality rate were used as health outputs. However, as noted by Afonso and Aubyn (2005), efficiency measurement techniques suggest that outputs are measured in such a way that "more is better". Therefore consistent with practice in the literature, various transformations were performed on the mortality variable so that it is measured in survival rates. For instance, infant mortality rate (IMR) is measured as [(number of children who died before 12 months)/ (number of children born)] X 1000. This implies that an infant survival rate (ISR) can be computed as follows;

$$\text{ISR} = \frac{(1000\text{-IMR})}{\text{IMR}} \tag{6}$$

This shows the ratio of children that survived the first year to the number of children that died and this increases with better health status. Similar transformations were performed for the under-five mortality rate.

3.3. Econometric Model

Following Mc Donald (2009) and Jacob (2015), a tobit model was used to estimate the relationship between dependent variable y_i (efficiency scores) and a vector of explanatory variables x_i (Determinants of health expenditure efficiency). For the ith Decision Making Unit (DMU), the Tobit model for panel data can be defined as follows:

$$y_{it}* = x_{it}\beta + \varepsilon_{it} \tag{7}$$

$$y_{it} = \begin{cases} 0 \text{ if } y^*_{it} \leq 0 \\ 1 \text{ if } y^*_{it} \geq 1 \\ y^*_{it} \text{ if } 0 < y^*_{it} < 1 \end{cases} \tag{8}$$

Where $y_{it}*$ is an unobservable latent variable, ε_{it} is normally, identically and independently distributed with zero mean and variance σ^2. x_{it} is a vector of explanatory variables and β, a vector of unknown coefficients.

The following equation is specified for the purposes of estimation in high, upper middle, lower middle and low income countries.

$\text{Effi}_{it} = \upsilon_i + \beta_1\text{Cod}_{it} + \beta_2\text{Gdp}_{it} + \beta_3\text{Polista}_{it} + \beta_4\text{Corrup}_{it} + \beta_5\text{Agepop}_{it} + \beta_6 \text{Popden}_{it} + \beta_7\text{Gov}_{it} + \varepsilon_{it}$ (9)

Where i and t represent country and time, respectively, while υ_i is the individual fixed effect and ε_{it} is the error term.

3.4. Definition of Variable and Data

The dependent variable in equation (9) above is the efficiency scores ($Effi_{it}$), obtained using Data Envelopment Analysis (DEA). This variable was also used by Gupta and al; (2007) as dependent variable in their study. The independents variables, include the following:

- *CO2 emissions* (in metric tons per capita): in equation (9) it is noted Cod_{it}. Carbon dioxide makes up the largest share of the greenhouse gases contributing to global warming and climate change. This variable capture the incidence of air pollution. Data concerning this variable are extracted from the World Development Indicator2013 (WDI).

- Real gross domestic product per capita measured in constant 2005 international dollars (Gdp_{it}): this variable is often use to capture monetary poverty. This variable was also used by Jacob (2015), when assessing the determinants of health spending efficiency in Africa. The data are extracted from the World Development Indicator2013 (WDI).

- *Political stability* ($Polista_{it}$): this variable reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Estimate of this variable ranges from approximately -2.5 (weak) to 2.5 (strong). The Worldwide Governance Indicators 2013 (WGI) is the data source for this variable.

- *Corruption* ($Corrup_{it}$): this variable reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate of this variable ranges from approximately -2.5 (weak) to 2.5 (strong). The Worldwide Governance Indicators 2013 (WGI) is also the data source for this variable.

- *Population ages 65 and above expressed as percentage of the total population* (Agepop): this variable captures the effect of an ageing population. This study do not take into consideration Population age group between 15 and 64 years because of correlations problems. Data concerning this variable are extracted from World Development Indicator2013 (WDI).

- *Population density (people per sq. km of land area)*: in equation (9) it is noted $Popden_{it}$. This variable captures the effect of the intensity of land use in a country. Data concerning this variable are extracted from World Development Indicator2013 (WDI).

- *Government Effectiveness (Gov)*: this variable captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. This variable ranges from approximately -2.5 (weak) to 2.5 (strong). The Worldwide Governance Indicators 2013 (WGI) is also the data source for this variable.

4. Presentation and Discussion of Results

4.1. Efficiency Scores

From the results in appendix1, it is possible to conclude that four countries are located on the possibility production frontier of high income countries: Chile, Japan, Oman and Singapore. Their average health expenditure per capita for the period 2005-2011 are respectively: 1052.777593\$; 2857.290061\$; 684.4467923\$ and 2296.917869\$. The country which has the highest health expenditure per capita is United States, but occupy the thirty eighth position with an average efficiency score of 0.93642857. In the upper middle income countries sample, also four countries are located on the possibility production frontier: Albania, Costa Rica, Fiji and Malaysia. The worst performing country in upper middle income which is Botswana is having a greater average health expenditure per capita than Albania, Fiji and Malaysia.

Based on appendix2 table, it is possible to conclude that three countries are located on the production possibility frontier of lower middle income countries: Pakistan, Sri Lanka and Vietnam. Their average health expenditure per capita for the period 2005-2011 are respectively: 71.43463846\$; 164.1679493\$ and 178.9865303\$. In low income countries sample, also three countries are located on the possibility production frontier: Bangladesh, Eritrea and Nepal. These countries are not the ones having the highest health outcomes, but they are having good health outcomes without wasting resources.

4.2. Random Effect Tobit Estimation Results

Table 1. Estimation results

Variables	High income Countries	Upper-middle income Countries	Lower-middle income Countries	Low income Countries
co2	.00267485*	.00312813**	-.0013624	-.20009864**
	(.0013676)	(.0013402)	(.0157482)	(.0943132)
Gdp	-1.095e-06	3.385e-06***	.00001461**	.00011518***
	(1.25e-06)	(1.10e-06)	(7.23e-06)	(.0000433)
Polista	-.02749578	.00153229	.01544694	-.01707905
	(.0163592)	(.0057245)	(.0104075)	(.0115952)
Corrupt	.05432484**	.01279156	-.02332062	-.02176885
	(.0237756)	(.0078151)	(.0182786)	(.0239838)
Agepop	.04922602****	.01559285****	.06564341****	.20819491****
	(.0039391)	(.0017565)	(.0118163)	(.0184193)
Popden	.00018817****	.00069158****	.00168786****	.00071899***
	(.0000283)	(.0000116)	(.0004076)	(.0002578)
Gov	.04265536	-.02468261**	-.0001572	.01461595
	(.0259444)	(.0102615)	(.0191707)	(.0283099)
/sigma_u	.37204131****	.78910992****	.45279518****	.18601323****
	(.0471619)	(.0975021)	(.0635221)	(.0294639)
/sigma_e	.03693587****	.01383743****	.02761296****	.03056744****
	(.0019605)	(.000808)	(.0016424)	(.002022)
rho	0.99	0.9997	0.996	0.974
Wald chi2(7)	504.79	8224.32	223.99	560.15
Prop>chi2	**0.0000**	**0.0000**	**0.0000**	**0.0000**

SOURCE: Author using Stata11.0

Legend: *p<.1; ** p<.05; *** p<.01; **** p<.001; ( ) is standard error

From the table above, we can observed that the independent variables together are significant determinants of the level of efficiency of health expenditure in all the income groups. This can be seen from the highly significant chi-square test statistic at 0.1% significance level. The sigma's represent the variances of the two error terms μ_i and ε_{it}. Their relationship is described by the variable rho, which informs us about the relevance of the panel data nature. If this variable is zero, the panel-level variance component is irrelevant, but as can be seen from the results in Table 1, the panel data structure of the model has to be taken into account

It is also possible to notice that Carbon dioxide emission has a positive and significant effect on health expenditure efficiency in high and upper middle income countries while the effect in low income countries is negative and significant. More precisely, a unitary increase in Carbon dioxide emission per capita will lead to 0.0027 unit increase of efficiency scores, 0.003 unit increase of efficiency scores and 0.2 decrease of efficiency scores in high, upper middle and low income countries respectively.

The gross domestic product per capita has a positive and significant effect on health expenditure efficiency in upper middle, lower middle and low income countries. But this effect is more important in low income countries since the marginal effect is the highest.

The table above also shows that the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism do not have a significant effect on health expenditure efficiency in high, upper middle, lower middle and low income countries.

The results show a positive and significant relationship between improved corruption and efficiency in high income countries. This implies that corruption plays a critical role in determining health expenditure efficiency and countries with relatively improved corruption levels are likely to have better efficiency performance.

The results also show that elderly population has a positive and significant effect on health expenditure efficiency in high, upper middle, lower middle and low income countries. This result is similar to that of David and al; (2008), who argued that in the health sector, the share of the younger population does not seem to matter much and that an older population obviously correlates with higher life expectancy.

The table above shows that the increase in population density has a positive and significant effect on health expenditure efficiency in high, upper middle, lower middle and low income countries. This effect is more important lower and low income countries. This result is also similar to that of David and al; (2008), who argued that higher population density can be expected to improve public sector performance and efficiency by reducing the cost of service provision through economies of scale and lower transportation and heating costs.

The results above show that improvement in government effectiveness has a negative and significant effect on health expenditure efficiency in upper middle income countries. This variable has no effect in high, lower middle and low income countries. This result can be explained by the fact that the quality of policy formulation and implementation during the period of study was not improving health outcomes in upper middle income countries.

5. Conclusion and Recommendations

The study sought to identify the determinants of health expenditure efficiency in high income countries, upper middle income countries, lower middle income counties and low income countries. Before estimation, the efficiency scores were determined using DEA method where health expenditure per capita was considered as input and infant survival rate and life expectancy at birth were considered as outputs. The

results provided evidence that Carbon dioxide emission, gross domestic product per capita, improvement in corruption, the age composition of the population, population density and government effectiveness are significant determinants of health expenditure efficiency. The results also showed that effect of these determinants varied according to the various income groups.

The findings imply that, low income countries should promote green growth since Carbone dioxide is harmful for health expenditure efficiency. The findings also imply that upper middle income countries, lower middle income countries and low income countries should also fight against poverty in order to improve health expenditure efficiency. High income countries should put more effort in fighting corruption.

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7. Appendices

Appendix 1. Average efficiency scores in high and upper middle income countries (rank in descending order)

High income countries			Upper middle income countries		
Countries	Average Scores	Average per capita health expenditures	Countries	Average Scores	Average per capita health expenditures
Chile	1	1052.777593	Albania	1	474.7569606
Japan	1	2857.290061	Costa Rica	1	1028.557977
Oman	1	684.4467923	Fiji	1	177.7571511
Singapore	1	2296.917869	Malaysia	1	538.0865288
Israel	0.99957143	1958.054793	China	0.99971429	297.7303605
Estonia	0.998	1179.156201	Bosnia and Herzegovina	0.99814286	759.640796
Luxembourg	0.98857143	6252.401202	Hungary	0.998	1536.058331
Korea, Rep.	0.98557143	1743.609824	Belarus	0.99414286	707.7511922
Switzerland	0.984	4797.517123	Thailand	0.99228571	298.8029556
Sweden	0.98271429	3512.148128	Tonga	0.99228571	250.6871462
Italy	0.98014286	2892.599073	Maldives	0.98857143	538.7967765
Uruguay	0.97742857	993.0889379	Ecuador	0.97657143	563.9560419
Australia	0.97714286	3400.763429	Panama	0.97457143	949.9683564
Bahrain	0.97642857	932.8872429	Mexico	0.97271429	866.3828431
Spain	0.97614286	2817.823001	Tunisia	0.96828571	498.3676545
Saudi Arabia	0.97571429	817.6429442	Macedonia, FYR	0.96785714	709.1374504
Norway	0.97457143	5066.011761	Iraq	0.96785714	228.1628905
France	0.97428571	3749.518218	Belize	0.96657143	368.821274
Cyprus	0.97357143	1972.025427	Montenegro	0.966	1033.350103
Poland	0.97228571	1179.915149	Peru	0.96557143	417.2835642

Malta	0.96928571	2158.104923	Jordan	0.95685714	458.2552377
Canada	0.968	4036.010479	Venezuela, RB	0.953	661.5853382
New Zealand	0.96785714	2654.946252	Dominican Republic	0.94942857	436.4271786
Netherlands	0.96428571	4494.891414	Colombia	0.94628571	573.4963816
Finland	0.96242857	3040.098208	Algeria	0.94228571	305.21105
United Arab Emirates	0.96128571	1312.260736	Mauritius	0.941	666.4701476
Greece	0.96071429	2882.265464	Romania	0.93842857	739.7021964
Slovenia	0.96014286	2297.612891	Turkey	0.93771429	899.1584446
Belgium	0.96	3665.649143	Seychelles	0.93728571	777.9415148
Germany	0.95942857	3936.934084	Grenada	0.93242857	656.5029151
United Kingdom	0.95814286	3138.435448	Iran, Islamic Rep.	0.93171429	736.9741852
Croatia	0.95728571	1400.838639	Bulgaria	0.93142857	915.4469926
Ireland	0.95628571	3531.149469	Brazil	0.92557143	873.1567538
Portugal	0.95542857	2504.911147	Azerbaijan	0.91714286	438.0943445
Czech Republic	0.95471429	1758.883202	Kazakhstan	0.88214286	447.2184009
Qatar	0.95085714	1899.520115	Gabon	0.80514286	439.4355712
Denmark	0.94585714	4008.95967	Namibia	0.79314286	398.2068213
Kuwait	0.938	1139.077976	Angola	0.69914286	204.7722241
United States	0.93642857	7701.217035	South Africa	0.67757143	837.7305182
Slovak Republic	0.91928571	1746.046036	Botswana	0.59642857	747.4372014
Lithuania	0.91771429	1167.483901			
Latvia	0.91657143	1094.934768			
Russian Federation	0.88485714	1011.262742			
Trinidad and Tobago	0.869	1338.054181			
Equatorial Guinea	0.79671429	1029.527524			

Source: The author

Appendix 2. Average efficiency scores in lower middle and low income countries (rank in descending order)

Lower middle income countries			Low income countries		
Countries	Scores	Average per capita health expenditures	Countries	Scores	Average per capita health expenditures
Pakistan	1	71.43463846	Bangladesh	1	52.26712751
Sri Lanka	1	164.1679493	Eritrea	1	17.79493066
Vietnam	1	178.9865303	Nepal	1	60.50815058
Indonesia	0.99942857	110.7499333	Cambodia	0.999	113.4182851
Armenia	0.98814286	225.3602414	Tajikistan	0.95942857	102.08108
Cabo Verde	0.98485714	160.0450621	Madagascar	0.95928571	36.54874778
Georgia	0.97914286	433.4280127	Afghanistan	0.92157143	34.33783282
Nicaragua	0.97357143	245.4866003	Ethiopia	0.91214286	39.46707744
Honduras	0.96342857	313.1243336	Haiti	0.883	67.59899916
Samoa	0.96328571	243.7762628	Comoros	0.87871429	52.73544609
Paraguay	0.95742857	356.0850705	Congo, Dem. Rep.	0.87128571	23.21614346
El Salvador	0.954	427.7718177	Rwanda	0.86	100.5433084
Guatemala	0.93842857	318.7601056	Tanzania	0.85628571	76.11170005
Philippines	0.93785714	140.5187908	Niger	0.855	37.08806875
Ghana	0.93571429	81.59437932	Liberia	0.84942857	65.35270416
Egypt, Arab Rep.	0.93428571	273.8238826	Benin	0.84471429	67.91394037
Ukraine	0.93428571	463.1522306	Kenya	0.83714286	68.54080893
Uzbekistan	0.93114286	144.6787303	Uganda	0.80142857	106.4333756
Morocco	0.92928571	241.0359102	Togo	0.79771429	65.71700487
India	0.92814286	114.3598893	Guinea	0.78985714	63.10427244
Moldova	0.914	318.6998087	Burkina Faso	0.784	79.53259314
Sao Tome and Principe	0.90071429	144.0426457	Guinea-Bissau	0.77114286	67.72659673
Senegal	0.89428571	105.5649178	Mali	0.76814286	67.24086071
Guyana	0.88557143	174.2170387	Burundi	0.75857143	53.75087933

Mauritania	0.88428571	102.7604134	Malawi	0.75085714	66.13517904
Mongolia	0.88342857	200.7115027	Central African Republic	0.73742857	30.10858485
Bhutan	0.87785714	210.8347804	Chad	0.71371429	58.75573106
Bolivia	0.87528571	229.7491844	Mozambique	0.713	51.43158027
Sudan	0.87	130.9295711	Sierra Leone	0.63214286	141.4067704
Yemen, Rep.	0.864	130.8958909			
Congo, Rep.	0.84742857	90.02770977			
Zambia	0.774	87.85087374			
Cameroon	0.75871429	110.1461054			
Cote d'Ivoire	0.71	100.2674909			
Nigeria	0.69957143	131.4965423			
Swaziland	**0.63028571**	**383.9439756**			

Source: The author

Financial, Public and Regional Economics

The Projected Utilization of Initial Public Offer (IPO) Proceeds in Nigeria

Bamidele M. Ilo[1]

Abstract: Most young private firms use the Initial Public Offer (IPO) method to raise additional external equity fund to finance their growth and later create a secondary market for stocks. This study analysed the projected utilisation of IPO cash proceeds by Nigerian firms with a view to providing investors with information on the most critical areas that firms intend to channel those funds. The study used the cross-sectional data collected by Ilo (2012) on firms that issued IPOs from 1999 to 2009 on the Nigerian Stock Exchange (NSE). The data were analyzed using descriptive statistics such as, the means and percentage and analysis of variance. The results show that the average of IPO price is ₦19.09 per share. About 51% of the net proceeds is projected to be expended on business growth/ expansion and facility acquisition while 20 % is reserved for working capital needs to support the expansion. The initial investors are to enjoy a promoters' cash-out of about 24% of the net cash raised. These projections are laudable investors should interpret the findings with caution since actual deployment of such funds may not necessarily conform with the projections except they are able to ensure adequate monitoring of the managers.

Keywords: business expansion; IPOs; Market timing; net proceeds; projected utilization

JEL Classification: G1; G2

1. Introduction

The Nigeria capital market is still at its infancy given the available indices relative to is age. The Nigeria Stock Exchange (NSE) was established in 1960 as the Lagos Stock Exchange and commenced operations in 1961 with 19 stocks. The market as at December 31, 2012 had only 198 quoted companies with a total market capitalization of N8.9trillion ($57billion). Usman (1998) observed that thirty five years after the existence of the NSE, only 184 equities were quoted, a number he considered relatively small compared with other emerging markets in Asia and Latin

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America of comparable age. He attributed the smallness of the market to the reluctance of indigenous companies to seek quotations of their companies on the exchange for fear of diluting ownership and loss of control. Oteh (2010) advocates the need to increase the depth, breadth and sophistication of the market by introducing other products like fixed income securities, derivatives, promoting securities lending and investment schemes as the market is currently dominated by equity securities.

An Initial Public Offer (IPO) is the first effort by private firms to raise capital in a public equity market (Carter & Manaster, 1990). Practically, the startup capital of most young firms is often contributed by a limited number of initial owners perhaps having no hope of trading on the stocks if they wish to do so in the future. However, as a firm's operations advance with increasing profitable business opportunities it soon reaches a stage where the fund that could be provided by the existing owners and/or internally generated becomes a limiting factor to growth (Ilo, 2012).

When a company is growing, the biggest hurdle is often raising enough money to expand, but only two options are generally available which is either to borrow money from a bank or a venture capitalist or sell part of the business to investors and use the money to fund growth, but too much borrowing often destroy the balance sheet (Ule, 2007). IPO allows the firm to access the public equity markets for additional capital necessary to fund future growth, while simultaneously providing a venue for the initial shareholders to sell their ownership stake (Kim & Weisbach, 2005). The firm can therefore, be brought to the capital market by a reputable underwriter through a well packaged prospectus while their shares are also offered to the public at an appropriate price to raise the required amount of funds for its developmental needs.

Even though there are usually many reasons why a firm may choose to go public, however, the need to raise enough funds for business growth and expansion has been very predominant. Kim and Weisbach (2005) found that capital -raising is the most important reason for going public. Surprisingly, most studies on IPO have concentrated on the United States of America, Europe, Japan, China. Even, such earlier works have been very limited in scope with most studies concentrating on underpricing of IPO[1]. Other authors have concentrated on why firms go public with little or no empirical evidence on how firms propose to use the proceeds of the IPO.

This study therefore, analyses projected the utilization of IPO proceeds by Nigerian firms with a view to identifying and explaining the most critical areas where such funds are to be channeled. Information on utilization of funds to be raised enables

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[1] See (Carter & Manaster, 1990; Michaely & Shaw 1994; Beatty, Riffe & Thompson, 2000; Ikoku, 2008).

investors to assess the ability of the firm on delivering on its promises and the potential for the realization of their investment objectives by investing in such IPOs.

The paper is divided into five sections. Section 2 contains the review of literature while the methodology is presented in section 3. Section 4 contains the presentation of the results and summary and conclusion presented in section 5

2. Theoretical and Empirical Review

2.1 Theoretical Issues

An IPO is a special method of raising external finance by a young private firm. Most of the popular theories explaining IPOs are basically extensions of the capital structure theories especially the market timing hypothesis, capital pressure or demand for capital theory and asymmetric information theory. They become suitable since IPOs represent a model of raising funds for firms financing.

The market timing hypothesis posits that the timing of when an IPO is brought to the market has a major role to play on its success or otherwise. The volume of IPOs increases during "hot market" (Ibbotson, Sinderlar, & Ritter, 1994), the total number and value of offers increase over time (Kim & Ritter, 1999; Beatty, Riffe & Thompson, 2000; Alti, 2003). Cogliati *et al* (2008) submitted that about 66% of the IPOs issued between 1995 and 2001 on the Continental Europe were issued in the bubble period of 1999 to 2001 with a higher level of IPO overvaluation during the bubble period than the pre- bubble period of 1995 to 1998. The SEC (2005) in Nigeria also emphasizes submits that if floating is done when there are several issues in the market, the competing demand could adversely affect investors participation as such it has a responsibility of preventing clustering of issues in the market.

The winner's curse hypothesis developed by Rock (1986) is an extension of the asymmetric information theory and argues that firms offering IPOs face the challenge of information asymmetry. One the one hand is the information asymmetry between investors, some of whom are informed and others who are not about the true value of the shares on offer. The outside informed investors are more knowledgeable about the firm's future prospects than the uninformed investor and therefore, bid for more shares of the successful firms while dumping the shares of unsuccessful firms IPOs on the uninformed investors in collaboration with the underwriters.

On the other hand is information asymmetry between original firm owners and potential investors in IPOs. Bachmann (2004) argue that the original shareholders have inside information with respect to the quality of their firm's investment opportunities and many other issues about their firms which are unknown to the outside investor both the informed and uniformed with its attendant consequences. Ariyo (2008) warns that it is risky for investors to rely completely on pre-issue

accounting data projections of Nigerian firms issuing SEOs *(and possibly IPOs)* as the overall predictive accuracy of accounting projections of corporate performance contained in the prospectus is not better than a game of chance hovering around 54 percent.

The proponents of demand for capital theory argue that more generally the demand for external capital usually arise majorly out of the need for capital. For instance, firms with high financial slack (cash and cash equivalent divided by total asset) have lower need for external capital while firms with high asset tangibility are more likely to issue debt (Rajan & Zinagales, 1995). DeAngelo, DeAngelo and Stulz (2010) Lowry (2003) find that fluctuations in IPO volume, demand for capital and investors sentiment are important factors contributing to the number of IPOS. The volume of IPOs rises with increase in demand for capital and firms tend to go public when investor's sentiment is high. According to Alti (2003) leverage reduced considerably during the IPO year but most of the effect is reversed in the first year following the IPO and by the second year after the IPO the hot market effect is completely gone.

In summary, these theories thus argue that in order for an IPOs to be successful such that the projected proceeds are realized and perhaps oversubscribed, the issue must be properly timed, and efforts made to minimize information asymmetry between the existing owners and potential investors. Adequate justifications on the need for the fund and more importantly how the funds will be used should be provided in order to motivate investors to subscribe to the issue.

2.2 Empirical Review

The strategies that firms adopt in financing of their operations play a significant role in the success or otherwise of the firm. Such matters like capital structure or debt-equity mix, internal and external financing strategy and when to make a debt or equity issue and its consequences cost are particularly important in explaining the utilization of IPO proceeds.

The account of Rajan and Zingales (1998) shows that industries that require more external finance grow faster in more developed markets from the intuition that financial development affects growth by reducing the differential cost of external finance. Wurgler (2000) finds that financial development improves capital allocation among across industry groups. Love (2001) stressed that financing constraints are generally attributed to capital market imperfections, stemming from such factors as asymmetric information, and incentive problems which result in differences between the cost of internal and external financing. He finds that small firms are disproportionately more disadvantaged in less financially developed countries than are large firms, suggesting that they have relatively larger sensitivity of investment to internal funds. This will allow for easier access to external funds for firms with

good investment opportunities and this improvement in capital allocation will in turn enhance growth.

The corporate financing patterns in developed economies are similar and that generally internal finance is by far the most important source of financing in all the countries sampled while they also have a common financing pattern Mayer (1988, 1990) and Corbett and Jenkinson (1997). Singh and Hamid (1992) find that firms in developing countries use more external finance than the firms in the developed economies. The top corporations in their sample use more equity rather than debt, to finance growth in the 1980s contrary to the patterns found in advanced economies like France, Japan, and Italy where companies traditionally have a relatively greater recourse to external sources of finance. Yartey (2006) finds that quoted firms in Ghana rely more on external sources of fund to finance firm growth than internal sources. External average sources comprise equity 40.68 per cent and debt 47.86 per cent totaling 88.5% suggesting a very limited (11.5%) reliance on internal finance sources..

A firm may go public for many reasons. Brau and Fawcett(2004) find that US firm go public for the following reasons: (i) the single most important reason why firms go public is to create a market so that the firm has a currency of its shares for acquisition.(ii) the need to establish a market price/ value for firm (iii) it is a tool for insiders to cash-out (Black and Gilson, 1998) (iv) to increase publicity /reputation of the company and (v) to allow more dispersion of ownership These findings are said to be in line with the submission of earlier authors like (Zingales,1995; Mello & Parsons, 200, Maksimovic & Pichler, 2001; Chmmanur & Fulghieri, 1999). While Derrien and Kecskes (2006) found that liquidity, anticipation of financing needs, and the desire to raise firm's profile are the most important reasons why U.K firms go public with such reasons ranging between 61 and 71 per cent.

Floatation cost is also an important factor for IPO firms. Ritter (1998) indicates that there are a number of direct and indirect costs of going public. In the case of the USA, the average total direct cost of issuing IPOs from 1990-1994, is 11.00 per cent, of the gross proceeds. Kooli and Suret (2002) find that Canadian firm have access to equity capital on a cheaper and competitive scale than the U.S firms especially when the cost of underpricing is included on IPOs issued during 1997- 1999 period. The average direct costs (underwriters' compensation and other expenses) are 11.78 per cent and 10.3 per cent in Canada and the U.S respectively.

Okereke-Onyiuke (1994) finds that the average floatation cost of firm of issues between 1982 and 1988 was about 9.2 % of the amount raised. And Oteh (2010) recently advocates the improvement of cost efficiency and competitiveness of all aspects the Nigerian capital market as high transaction deter companies wishing to enter the market while it is also essential to review the primary and secondary market issues cost.

3. Methodology

In order to provide empirical evidence on the utilization of IPO proceeds in Nigeria, the cross sectional data obtained by Ilo (2012) from the IPO prospectus of 22 out of the estimated 58 successful IPOs issued between 1999 and 2009 on the Nigerian Stock Exchange were analysed. Though the author in the unpublished study acknowledged that it was relatively difficult to establish precisely how many IPOs have been floated in the market during the period, records from the NSE however, indicated that about 208 equity issues were made by way of offer for subscription and offer for sale from 1999 to 2009.

The sample size of twenty-two (22) is considered statistically adequate for the study. In Nigeria for instance Ariyo (2008) used 50 firms out of the 215 quoted firms on the NSE in his study on accounting information and corporate performance in Nigeria. Deloof, Maeseneire and Inghelbrecht (2009) used 49 firms in their valuation of IPOs in Belgium, while Williams and Shutt (2000) used 49 IPOs on the Toronto Stock Exchange (TSE), Canada and 16 IPOs on the TSE were used by Higgins (1994) in the determination of cost effectiveness of Canadian IPOs.

The firms were classified into three groups based on the IPO offer size, viz: small : < N5billion, medium :.> N5- N10billion and large: > N10billion. The analytical technique follows the demand for capital theory which argues that issuers need to provide investors with adequate justifications for the amount of funds to be raised and how they intend to use the funds. The analysis of data in this study therefore, focuses on the projected utilization of IPO proceeds based on means and simple percentages while the analysis of variance (ANOVA) test technique was used to test for possible significant differences in the projected IPO proceeds utilization among the firms.

4. Results and Discussion

4.1 IPO Offer Summary

Table 1 presents the IPO offer summary. The total value of the IPOs issued by all the firms in the sample was ₦347.329 billion at an average offer size of ₦15.788billion per IPO.

Table 1. IPO Offer Summary

Descriptive Statistics	Total Sum	Mean	Minimum	Maximum	Coefficient of Variation
Offer Size (₦' billions)	347.329	15.788	1.000	85.000	1.3978
Offer Cost (₦' billions)	16.940	0.770	0.0475	03.496	1.2912
Net Proceeds (₦' billions)	330.389	15.018	0.930	81.504	1.4040
Cost/Offer Size (%)		4.84	0.15	7.20	0.3884
Offer Price (₦. k)		19.09	0.70	100.00	1.74
Firm Age		11.59	0.00	43.00	0.9107

Source: Ilo (2012)

The minimum IPO size was ₦1.0billion and a maximum of ₦85.00 billion. The distribution of the offer size indicates a high level of variability among the firms with a coefficient of variation of 1.40

The total offer cost was ₦16.94billion with a mean of ₦0.770billion. The minimum offer cost was ₦0.0475billion and a maximum cost f ₦496billion per offer. There is a high level of dispersion in the IPO issuing cost given its high coefficient of variation of 1.2912. Cost of offer represents an average of 4.84 per cent of the offer size. The minimum offer cost was 0.15 per cent of offer size with a maximum of 7.2 per cent. The variability of offer cost relative to offer size is very low among the firms with a 0.3884 coefficient of variation.

The net proceed is the balance of funds left after deducting the offer cost from the IPO gross proceeds. The total net proceed is ₦330.389billion. This represents about 95.16 per cent of the offer size. The mean net proceed is ₦15.018 billion with a minimum of ₦0.930billion and a maximum of ₦81.504billion. The dispersion of the individual firm's net proceed value from the mean is rather high with a 1.4040 coefficient of variation.

The average offer price is ₦19.09 with a minimum of ₦0.70 and maximum of ₦100.00 per share. The coefficient of variation of the offer price is 1.74 thus indicating a high level of variation in the IPO prices among the firms.

4.2 Distribution of Offer Size

Table 2 presents the distribution of the offer size classified into three groups, namely, small (less than or equal to ₦5.0billion), medium (₦5.00 – ₦10.00 billion) and large (above ₦10.0billion) offers. Eight firms (36.36 per cent) had offer size of at least ₦5.0 billion with a total offer size of ₦18.50 billion. An average of ₦2.313billion was raised by a typical firm in the small offer size category.

The medium offer size category comprises firms that raised between ₦5.0 and ₦10.0 billion. Six firms are in this category representing 27.28 per cent of the sample. A total sum of ₦42.164billion was raised by firms in this group while each firm offered an average IPO value of ₦7.027 billion. The firms in the large offer size category (above ₦10.00billion) jointly raised IPOs valued at ₦ 286.665billion at an average of ₦35.833billion per firm. There are eight firms in this group representing about 36.36 per cent of the sample.

Table 2. The Distribution of IPO Offer Size

Offer Size (Naira)	Number of Firms(%)	Total Offer Size (₦' billion)	Average (₦' billion)	Standard Deviation	Coefficient of Variation
Small <=₦5.0billion	8 (36.36%)	18.500	2.313	1.468	0.6347
Medium >₦5.0- ₦10.0billion	6 (27.28%)	42.164	7.027	1.717	0.2428
Large >₦10.0billion	8 (36.36%)	286.665	35.833	26.907	0.7509
Total	**22(100)**	**347.329**	**15.788**	**22.066**	**1.4426**

Source: Ilo(2012)

The offer size has been fairly distributed across the groups. However, variations in offer sizes within each group appear too high given the high coefficient of variations of 0.64 and 0.75 in the small and large offer size groups respectively. This disparity becomes more pronounced across the entire sample having a coefficient of variation as high as 1.44.

4.3 Distribution of IPO Offers across Industries

Table 4 shows the distribution of the IPO size and the distribution across industries. The table shows that a total of seven industries appeared in the sample namely: banking, insurance, conglomerate, manufacturing, investment/unit trust, broadcasting and oil and gas. A total of six banks and six investment/unit trust firms are in the sample with each industry representing 27.27 per cent of the sample. The sample contains four manufacturing firms (18.18 per cent) and three insurance companies (13.63 per cent).

Table 3. IPO Offer Size and Industry Distribution

Industry	Small <=₦5.0billion	Medium >₦5.0- N10.0billion	Large >₦10.0billion	Number of firms/ (%)
Banking		2	4	6 (27.27)
Insurance	2	1		3 (13.63)
Conglomerate			1	1 (4.55)
Manufacturing		1	3	4 (18.18)
Investment/ Unit Trust	6			6 (27.27)
Broadcasting		1		1 (4.55)
Oil & Gas		1		**1** (4.55)
Total	**8 (36.36%)**	**6 (27.28%)**	**8 (36.36%)**	**22 (100)**

Source: Ilo (2012)

The conglomerate, broadcasting and oil and gas industries have one firm (4.55 per cent) each in the sample. Thus, more firms in the banking and the investment/unit trust industries issued IPOs during the period compared with other industries.

The distribution of the firms across the offer size shows that only the firms in the investment/unit trust and insurance industry issued IPOs below ₦5.0billion. Only two banks issued IPOs between above ₦5.00 and ₦10.0 billion while majority (4 out of 6) of the banks IPOs were above ₦10.00billion. Majority of the firms in the manufacturing industry issued IPO sizes above ₦10billion while the only one firm in the conglomerate industry had offer size of above ₦10.00billion. The firms in the broadcasting and oil and gas industries in the sample are within the minimum IPO size of above ₦5.01 and ₦10.00 billion bracket.

In conclusion, firms in the banking, manufacturing, conglomerate, broadcasting and oil and gas require huge amount of fund for their proposed post IPO operations and asset requirements hence the need for their IPOs not being less than ₦5.0 billion. However, firms in the insurance and investment/unit trust industries require a relatively smaller equity capital hence majority of them issued IPOs ₦5.00billion and below.

4.5 The Utilisation of IPO Net Proceeds

Table 5 presents the utilisations of net proceeds. The table shows that the firms have a wide range of proposed usage of their IPO proceeds. The proposed usage has been classified into six broad groups for ease of analysis namely: business expansion, facilities acquisition, augmentation of working capital, promoters cash out, business expansion, loan repayment, investment and unit trust business and others.

The most important usage of IPO net proceed is the funding of business growth. This includes the cumulative amount proposed for business expansion, facilities

acquisition and augmentation of working capital requirements accounting for about 71% of the funds raised. The analysis shows the firms proposed to spend ₦106.299billion on business expansion (32.17 %).

Facilities acquisition was meant to take ₦61.141billion (18.51%). The firms also proposed to boost their working capital by ₦66.378billion amounting to a 20.09 per cent of the proceeds. Cumulatively a total of ₦ 171.440billion (50.86 %) was proposed for business expansion and facilities acquisitions to be supported with ₦ 66.378billion working capital (20.09%). By implication the need to finance business growth required them committing a total of ₦ 243.818billion amounting to 70.77% of the IPO net proceeds. This confirms the finding of Kim and Weisbachi (2005) that 79% of all capital raised through IPO in their sample drawn across 38 countries between 1990 and 2003 are from sale of primary shares and concluded that capital raising is an important motive in the going –public decision.

This is followed by the need to create opportunities for promoters to cash out and make opportunistic gain. Insiders cashed out a sum of ₦79.724billion representing 24.13% of the net proceeds involving only three firms. This is in line with the summary of literature by Brau and Fawcett (2004) who confirmed the conclusions of Zingales (1995), Parsons (2000), Andy and Braw(2003) that the need to allow insiders to cash- out and create opportunistic sale for personal gain are part of the important reasons why firms go public. Other proposed means of utilization include investment/unit trust fund establishment (2.87%), loan repayment (1.89%) and other sundry uses including research and development and meeting preliminary expenses (0.34%).

Table 4. Utilisation of IPO Net Proceeds

Proceeds Usage Category	Details	Number of firms	Sub-total Amount ₦'billion	Total Amount (₦'billion)	Net Proceeds Usage (%)
Business Expansion	Business Diversification	1	0.753		
	Branch Expansion	5	7.460		
	Financing Business Acquisition	2	26.502		
	Consolidation/Integration	1	1.669		
	Project Backed Transaction(Pan African Strategy)	1	14.826		
	Equity Investment in Subsidiary	1	4.942		
	Regional Expansion(Pan African Strategy)	2	8.682		

	SBU Expansion	4	39.194		
	Establish New Business	1	2.271	106.299	32.17
Facilities Acquisition	IT Infrastructure	9	27.368		
	Equipment Fabrication	1	4.500		
	Plant Acquisition	1	3.579		
	Facility/Plant Upgrade	1	0.608		
	Building	1	17.704		
	Digital Satellite System	1	1.702		
	Multichannel/Mobile TV	1	4.700		
	Building of Broadcast Station	1	0.980	61.141	18.51
Working Capital		15		66.378	20.09
Sub-total				**243.818**	**70.77**
Promoters' Cash Out		3		79.724	24.13
Loan Repayment		1		6.258	1.89
Investment Trust	Real Estate Investment Trust	1	1.911	9.476	2.87
	Securities Investment	4	7.565		
Others	Research & Development	1	1.000	1.133	0.34
Total				**330.389**	**100**

Source: Ilo (2012)

The evidence from this study is in line with the theory that most young fast growing firms tend to go public basically to meet the increased capital requirement for business expansion and perhaps provide opportunity for promoters to cash- out. Similarly, an expanding business will require additional investment in fixed assets and working capital to back up the expansion hence the need to commit reasonable part of the funds raised to facility acquisition and working capital.

In order to derive additional insight into the variabilities or otherwise in the proposed utilization of IPO proceeds among the firms the study employed the ANOVA test to establish if there is any significance difference in the proposed utilization of IPO net proceeds. The ANOVA test result indicates that the calculated F-value is 2.544 while the critical value is 2.323 at 5 per cent level of significance. It is therefore concluded that there is a significant difference in the broad distribution of proposed utilization of the net IPO proceeds among the firms, although a convergence when that funds are aggregated into the general usage of business expansion, promoters' cash-out and other sundry purposes.

5. Conclusion

A young private firm after attaining certain growth level often requires huge amount of external capital to finance further growth, an amount that the initial shareholders may not be able to provide. At this stage, the firm may need to approach the capital market to issue an IPO in order to raise the required fresh funds from the public for the first time. There may be other reasons why a firm may issue an IPO like the need to provide opportunity for initial shareholders to cash out, make the stock tradable, strengthen the company's balance sheet for an anticipated future merger and acquisition deal, however, the need for additional huge amount of external capital to finance future growth has been most outstanding.

This study examined the proposed utilization of net IPO proceeds in Nigeria using the cross-sectional data derived from a sample size of 22 IPO issuing firms from 1999 to 2009 extracted from Ilo (2012). In order to achieve the basic research objective, the study adopted simple descriptive analytical technique like means and percentages and analysis of variance for hypothesis testing.

The results show that the average offer price is ₦19.09 with a total proceed of ₦347.34 billon issued at a total cost of ₦16.94billion with a net proceed of ₦330.39billion. This indicates an average offer size of ₦15.79billion and a mean net proceed of ₦15.02billion. The cost of issue relative to offer size is 4.84%.

The analysis of proposed utilization of net IPO proceed shows that the firms intend to allocate about 71% of the proceeds to for the financing of their growth distributed as about 51% for business expansion/facilities acquisition and 20% for the necessary working capital needs. About 24% of the funds is to finance promoters' cash-out.

Conclusively, Nigerian IPO issuing firms varied widely in terms of offer size and proposed utilisation of the net proceeds, however, the strong desire to obtain the huge amount of capital for financing of firms' growth is the major motive for issuing IPOs in Nigeria. It is expected that future studies would compare the projected and actual IPO fund utilization with a view to providing additional insight into this very crucial issue. This becomes expedient, given the finding of Ariyo (2008) that the average actual performance of Nigerian firms is only about 54% of their projected performance indices as contained in their prospectus while attempting to raise external finance.

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Testing the Relationship between Public Expenditure and Economic Growth in Romania

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Abstract: In this paper we analyze whether the Romanian economic context confirms the Armey model, and present the relationship between public spending and economic growth that may offer a suitable basis for decision makers. The analysis is based on both annual and quarterly data regarding public spending and economic growth in Romania. After investigating the correlation validity, the analytic results did not confirm the premises related to the Armey Curve for the Romanian context during 1990-2011. However the time interval is marked by unpredictable phenomena such as the transition from the state economy to the market economy and the world financial crisis, both is altering the results. The fact determines us to search the coordinates for developing a new model that describes better the connections and the period characteristics.

Keywords: Armey Curve; public spending; fiscal policy; economic growth; Romania

JEL Classification: E62; H50; O40

1 Introduction

Many studies on the determinants of economic growth, present results that demonstrate that a high level of public expenditure affects economic growth. Between the level of public expenditure and the economic growth develops a relation of nonlinear regression (explained by Armey Curve, defined below). This relationship is possible due to the fact that a high level of public expenditure over the optimal threshold, (the economic literature distinguishes several levels, as being

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optimal, according to the countries that has been analyzed), depends on the assessment interval (result even different levels for the same country, for analysis that took into account different periods of time), or on what indicators were calculated to determine the optimum point.

For example, Barro has identified an optimal level for the public sector, namely when the product of the marginal is 1 (the so-called rule of Barro) and, based on the empirical data is a U-shaped curve: this shows the relationship between the rate of growth and the level of public expenditure as a percentage of GDP.

The aim of our paper is to assess if the Romanian economic conditions during the transition period and then the crisis years can be described using the Armey model conditionality (relation of nonlinear regression between the public expenditure and the economic growth). Moreover if the model does not fully explain the evaluated variables evolution we design a model that explains better the period figures and fully reveals the specific connection, the evolution and the characteristics of the assessed variables.

Our work, building on previous empirical studies published by other authors (Arpaia & Turrini, 2008, Bagdigen &Cetintas, 2003, Dalamagas, 2000, Facchini, Melki, 2013) has a new scientific path, analyzing Armey model, Armey D (1995) compatibility or incompatibility with the Romanian economy. The Romanian economy followed the transition from a centralist economy to a free market economy, and, after that, endeavored to adapt to common (EU) market competitive conditions. The specific conditions of the economic crisis are also important, because they can influence the results of the study. These transforming steps imposed structural and value changes in terms of fiscal-budgetary indicators taken into account in this study. These changes can, however, result in interpretations counter to, and uncertainty with, our analysis and the results obtained. Another new element besides the economic assessment and data-series analysis, is the Romanian economy dual evaluation (quarterly and annual), that includes the use of econometric techniques that accommodate the objectives of our research.

The paper is structured as follows. Section 2 presents the literature review that presents the main concepts relevant to the Armey model simulation, and argues important matters related to all possible influences of the public expenditure on economic growth. Section 3 presents the methodology, the data, the model to be tested and the results of empirical analysis that was carried out quarterly.

Section 4 presents the methodology, the data, the model to be tested and the results of the empirical analysis that was carried out yearly. Section 5 concludes.

2. General Organization of the Paper

The idea about the validity of a linear relationship between public expenditure and economic growth was reshaped and popularized in several studies MCDonald BD, Miller, 2010, Roy, 2009, Sheehey, 1993, Tridimas, Winer, 2005, Yuk, 2005, Sineviciene, Vasiliauskaite, 2012; Bobinaite, Juozapavicien & Konstantinaviciute, 2011). For example, Heitger, 2001 assessed and demonstrated that if the level of public expenditure increases due to consumer spending, the effect on GDP is negative while an increase in government spending based on the public investment growth has positive effects on economic growth. He shows that at the level 0 for the public sector, the level of GDP is very low, because public goods are not satisfactorily provided.

As the public sector level increases (spending and/or taxes as the GDP share) and public services are provided, the economic activity of the country is also growing. A new increase in the public sector would mean that the government is providing both public goods and private goods, and, if this trend continues, there will be a reduction in the level of GDP while the public sector will increase because of the lessening motivation to work, invest and innovate in the context of increasing taxation.

The notion of an "optimal level of public expenditure" has been popularized by Armey, who designed the curve named after him Armey D (1995). The author argued that the absence of government, causing a state of anarchy and low levels of GDP per capita, since there is no rule and the right of property is not protected. Accordingly, there is no incentive to save and invest, because of the risk of expropriation. Similarly, when all decisions are made by the government, the GDP per capita is also reduced. When there is a mix between public and private decisions on capital allocation, GDP should be higher. Thus, the expansion of public expenditure (from low levels) should also be associated with the output expansion. However, as the public expenditure increases, additional projects funded by the government become increasingly less productive and the taxes and loans for financing the government activities are becoming increasingly larger. At a certain point, the marginal benefit of increased public spending drops to zero.

Generally, according to other studies (Chen, 2006, Lee, Lavoie, 2013), there are two groups of economists who have shown the two types of relationships between public expenditure and economic growth. The first group has found a negative relationship (Engen, Skinner, 1992; Hansson, Henrekson, 1994; Romero, Strauch, 2003; Slemrod, 1995; Schaltegger, Benno, 2006) between the level of public expenditure and economic growth. These authors believe that increasing the level of public expenditure will lead to the decline of economic growth and the crowding-out effect on private investments, in the context that, when the government increases its spending it needs extra taxation to pay for additional growth of public expenditure, a condition that has negative effects upon the economy. The second group of

economists has established a positive relationship (Tanzi, Schuknecht, 2000, Chen, Lee, 2005) between the size of public expenditure and economic growth, claiming that the increase of public expenditure will encourage private investment by improving the investment climate (Magazzino, 2012; Mavrov 2007).

Armey has implemented the Laffer Curve to show the relationship between the size of the public sector and economic growth, after which (Vedder & Gallaway, 1998) have shown in 1998 on the basis of empirical analysis that the public sector and economic growth are asymmetrical. They showed that this asymmetrical relationship is an Armey Curve, indicating that a reduced public sector aims to protect private property and to provide public goods. When the public sector increases, the result is excessive public investment that will create an effect of crowding out private investment, and will increase taxes and interest payments, all of which will affect the economy.

A low level of public sector will have an effect of promoting economic growth. The authors Vedder and Gallaway have plotted the relationship between the public sector and growth in the form of an inverted U curve.

Due to the shape of the inverted U, the optimal level of the public sector can be found, that will ensure the highest rates of economic growth. The above mentioned authors have found this maximum point Vedder, Gallaway, 1998 to be at a 17.45% level for the U.S. economy for 1947-1997. In addition, the optimal level of the public sector, calculated as the ratio of total public expenditure and economic growth, was calculated for Canada, between the years 1854-1988 (21.37%), Denmark between the years 1854-1988 (26.14%), Italy between the years 1862-1988 (22.23%) and the United Kingdom between the years 1830-1988 (20.97%).

Another analysis (Pevcin, 2005), developed to test the existence of the Armey Curve in 12 of the 27 countries of the European Union for the period 1950-1996, has shown that an individual Armey Curve can be designed for countries such as Italy, France, Finland, Sweden, Germany, Ireland, the Netherlands and Belgium, while for countries such as the United Kingdom, Austria, Denmark, and Norway, the curve could not be obtained, the coefficients of the regression curve not being significant in statistical terms. For countries for which the curve was designed, the optimum level of public expenditure as percentage of GDP, can be viewed in works like Pevcin, 2005.

Other studies (Davies, 2009) have analyzed the Armey Curve by expanding the economic-growth representation to the human-development index (HDI), thus endeavoring to highlight the relationship in the reverse U-shape between the level of public expenditure as percentage of GDP and the human-development index. This is so because, while the GDP measure productivity in aggregate form, HDI ("the generally accepted index, measuring the comparative international welfare") Wallace 2004), reflects the types of goods and services composing the GDP.

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3. Specification of the Variables and Econometric Results for Quarterly Analysis

3.1. Data, Sources and Model Validation

Methodology: In general, most of the economists can accept the validity of the inverse U curve as a realistic description of the relationship between the evolution of public expenditure and economic growth. In essence, an empirical analysis is needed to validate this curve.

To test the validity of the Armey Curve (the relationship between the level of government spending and economic growth, designed as an inverse U curve) on the Romanian economy we initially used quarterly data from the 2000 1st quarter-through 2011 1st quarter(Chirila& Chirila, 2011). The analysis was carried out in the econometric program EWiews. The first stage of the review was to determine the actual values of the variables analyzed (the first variable: the rate of GDP growth, calculating quarterly growth values as differences compared with the same quarter of the previous year; the second variable: the total public expenditure as a percentage of GDP, calculated quarterly values again by comparison with the same quarter of the previous year) by taking the HCPI (available in Eurostat's database with fixed base in 2006) as a comparison base for transforming the nominal value into real value. Since quarterly data are affected by seasonality, they were subject to seasonal adjustment procedures. For the seasonally-adjusted time series, we have used the ARIMA (Autoregressive Integrated Moving Average) x 12 method (see Figure 1 and Figure 2).
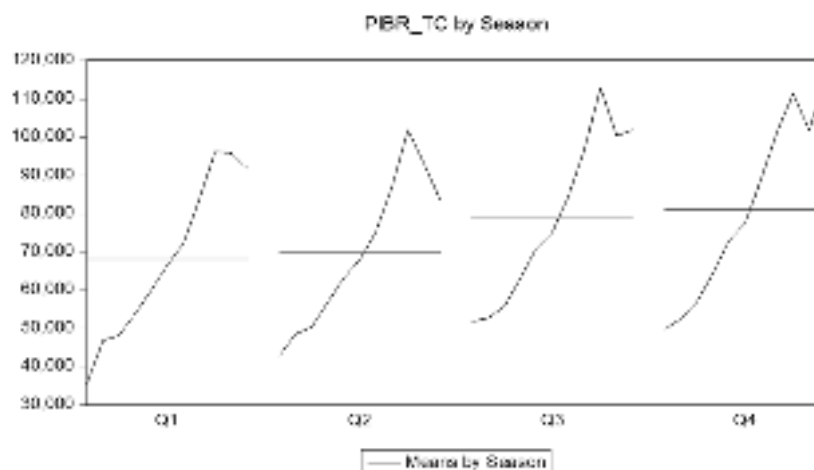

Figure 1. Economic growth evolution (seasonally)

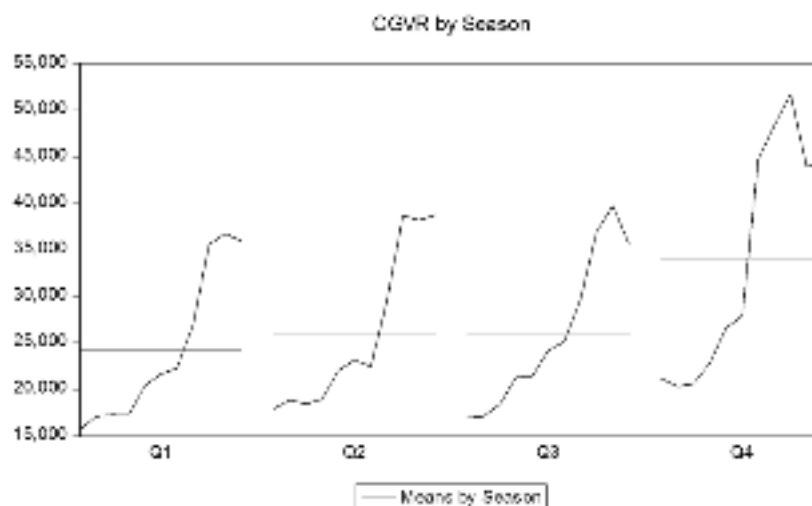Note: PIBR = Gross domestic product in real terms

Figure 2. Public spending evolution (seasonally)

Note: CGVR = Public spending in real terms

Since neither of the two time series was stationary (procedure verified by the Augmented Dickey-Fuller test), we proceeded to make them stationary. Thus, the seasonally adjusted time series were transformed by calculating the first difference (see Table 1 and Table 2).

Table 1. Stationary testing of the public spending, in real terms, seasonally adjusted

Null Hypothesis: DCHPR_SA has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=9)		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.463847	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	
Note: *MacKinnon (1996) one-sided p-values, DCHPR_SA = Public spending in real terms, seasonally adjusted			

Table 2. Stationary testing of the GDP, in real terms, seasonally adjusted

Null Hypothesis: DPIBR_SA has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.024291	0.0002
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

Note: *MacKinnon (1996) one-sided p-values, DPIBR_SA = Gross
domestic product in real terms, seasonally adjusted

The evolution graph of the two seasonally adjusted and stationary variables quarterly is shown in the Figure 3:
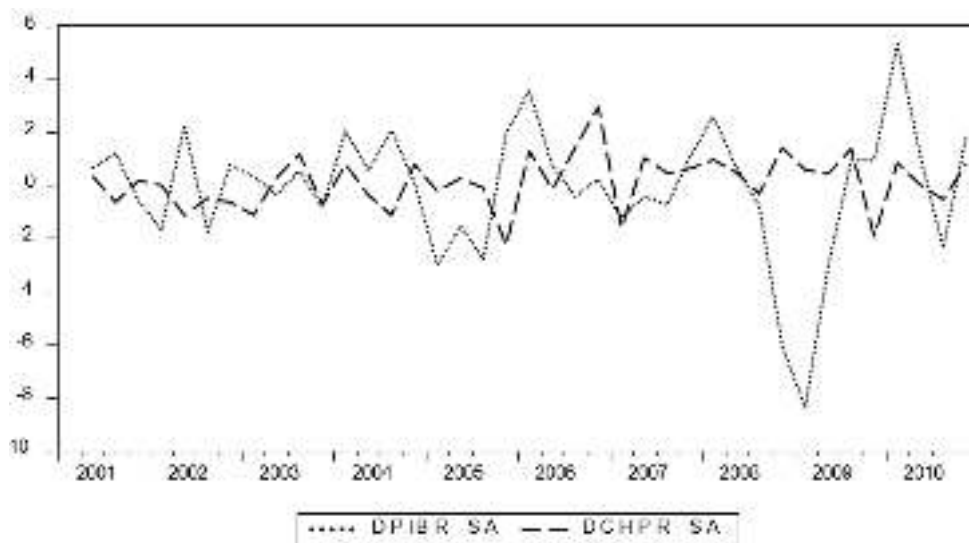

**Figure 3. The evolution of economic growth and public spending in Romania, 2001-
2010 (quarterly values)**

Notes: DCHPR_SA = Public spending in real terms, seasonally adjusted, DPIBR_SA = Gross domestic
product in real terms, seasonally adjusted

4.2. Econometric Results

Estimation of the hyperbolic regression model: The next stages of the analysis are the estimation of the hyperbolic regression model and model testing. Table 3 in the Annex present the estimation of the regression model for quarterly analysis.

Table 3. Estimation of the regression model for quarterly analysis

Dependent Variable: DPIB
Method: Least Squares
Sample (adjusted): 2000Q2 2009Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.500924	0.632001	-0.792600	0.4332
DChP	-0.095390	0.071722	-1.329997	0.1919
DChP^2	0.008123	0.010801	0.752118	0.4569

R-squared	0.046835	Mean dependent var		-0.121538
Adjusted R-squared	-0.006119	S.D. dependent var		2.469228
S.E. of regression	2.476771	Akaike info criterion		4.725592
Sum squared resid	220.8382	Schwarz criterion		4.853558
Log likelihood	-89.14904	Hannan-Quinn criter.		4.771505
F-statistic	0.884446	Durbin-Watson stat		1.210796
Prob(F-statistic)	0.421724			

Notes: DChP = Public spending in real terms, DPIB = Gross domestic product in real terms

The regression-model parameters are not significantly different from zero and the errors do not comply with the lack of autocorrelation hypothesis. The important conclusion is that we cannot write a relation described as an inverse U (Armey Curve) between economic growth and the share of public expenditure in GDP on the quarterly data. Therefore we try to create the residual variable of this model estimated earlier by the Box & Jenkins methodology to achieve a regression model that satisfies all the assumptions.

Table 4. Re-estimation of the regression model for quarterly analysis

Dependent Variable: DPIB				
Method: Least Squares				
Sample (adjusted): 2001Q2 2009Q4				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DChP	-0.080767	0.034964	-2.309973	0.0273
AR(4)	-0.644531	0.154090	-4.182829	0.0002

Notes: DChP = Public spending in real terms, DPIB = Gross domestic product in real terms

The general pattern is of the form:

$$Y = \alpha + \beta X + \varepsilon \tag{1}$$

where: Y is the dependent variable; α = term; β = the independent variable; X = the independent variable; and ε=residual variable.

The model that results is of the form:

$$GDP = -0.080767 *ChP + \varepsilon t – 0.0644531*\varepsilon t\text{-}1 \tag{2}$$

where: GDP = real growth, in first difference and seasonal adjusted, DChP = actual total public expenditure level, after seasonal adjusted and calculation of first difference.

In conclusion, the regression model complies with the specific assumptions of a general regression model. Thus the link between economic growth and increased government expenditures (quarterly data) is linear and indirect. According to econometric interpretations that can be made for this case, when the government spending is increased, growth decreases. According to the above model (2), on average, real economic growth drops by 0.080767%, when there is an increase of one unit of the actual total public expenditure level. So, according to Romania quarterly data, we discover that increasing the level of public spending determine a diminished economic growth rate. The phenomena occurs because when the government increases its spending it needs extra taxation to pay for additional growth of public expenditures, a condition that has negative effects upon the Romanian economy as a whole.

5. Specification of the Variables and Econometric Results for Yearly Analysis

5.1. Data, Sources and Model Validation

For testing the existence of the Armey Curve for the specifics of the Romanian economy, we proceeded to analyze the data regarding the evolution of annual economic growth and the level of public expenditure, calculated as percentage of GDP in the period 1990-2010. The data were taken from the Romanian National Institute of Statistics (Statistical Yearbook) and from the Eurostat website (online database) and were calculated and processed with EWiews7.
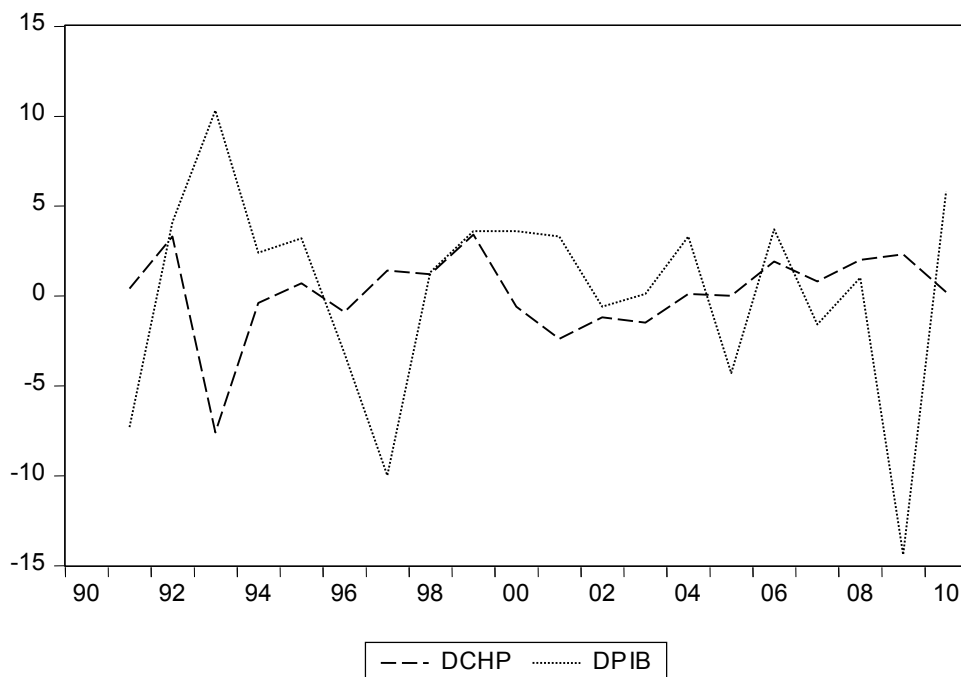
**Figure 4. The evolution of the economic growth and public spending in Romania,
1990-2010 (stationary times series)**

Notes: DChP = Public spending in real terms, DPIB = Gross domestic product in real terms

According to the Figure 4 (Annex) the evolution of the growth rate of GDP indeed indicates sustainable growth only after 1999, up to and including 2008, with two points up, one in 2004, by 8.5%, and the second by 7.9% in 2006, a period during which the overall level of public spending as a percentage of GDP fell from 39.2% in 1999, to 33.6% in 2005, followed by an increase in public spending of up to 38.3% in the pre-crisis, 2008. The international financial and economic crisis affected Romania (2009-2010) and brought an economic downturn of about 7% that had to be corrected by increasing public expenditures that exceeded 40% of GDP. The initial period analyzed allows interpretations of growth between 1993 and 1996, and here the maximum growth was 7.1% in 1995. If we analyze the relationship between the two variables in the medium term for the two growth periods, we can conclude as follows:

- Average growth in the 1993-1996 period was 4.1%, that corresponds to an average level of total public spending of 33.63% of GDP;
- Average growth in 2000-2008 was 5.84%, that corresponds to an average level of total public spending of 35.62% of GDP;

- The average result of the public expenditure and economic growth assessment, evidenced by the average difference in growth and average difference of public spending can be characterized as follows: an additional 1.99% of public expenditure according to an extra 1.74% growth. Thus, co-evolution of these two indicators reveals that this growth is likely caused, to some extent, by the increase in public expenditure as a percentage of GDP, but it requires calculation including a budget multiplier for the periods analyzed in order to determine whether public expenditure affects economic growth.

Continuing the analysis from the same perspective, we can say the following:

- An average of 39.07% of total public expenditure in GDP corresponds to an average economic decline of -9.1% in the period 1990-1992;
- An average of 36.53% of total public expenditure in GDP corresponds to an average economic decline of -4.03% in 1997-1999;
- An average of 40.7% of total public expenditure in GDP corresponds to an average economic decline of -4.2% in 2009-2010.

Selected annual data series are first tested in terms of stationarity and the results are as expected (seldom macroeconomic variable is stationary), so to work with these stationary series we proceed to transform them by calculating first difference. Since the variables are stationary, we can use them in regression. The regression model was estimated with Scatter plot.

5.2. Data, Sources and Model Validation

Estimation of the regression model was based on three polynomial forms.

The first model has the following general form (Armey model):

$$Y = \alpha - \beta X + \gamma X2 + \varepsilon \ (3),$$

where Y = the previous year's economic growth, expressed by the variance of gross domestic product, is considered by 100; X = rate of public expenditure, expressed as a percentage of GDP; α = free term (constant); β, γ = independent variable parameters; and ε = residual.

Table 2. Estimation of the regression model 1 (yearly analysis)

Dependent Variable: DPIB				
Method: Least Squares				
Sample (adjusted): 1991 2010				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.500363	1.430954	-0.349671	0.0509
DCCGV	-0.833841	0.676337	-0.614178	0.0432
DCCGV^2	0.014356	0.126262	1.137002	0.0415

Notes: DCCGV = rate of public expenditure, expressed as a percentage of GDP, DPIB = Gross domestic product in real terms

Following the procedure of estimation the model by the method of least squares generated the following result:

GDP =-0.50 – 0.83 ChP+ 0.014ChP^2+ε   (4)

Model hypothesis testing (checking errors, autocorrelation and heteroscedasticity) led to the conclusion that the hypothesis is supported. Even if all 3 probabilities calculated are greater than 0.05, we must specify that the model is less statistically significant, given that we need to consider risk acceptance of more than 10%. From Table 4 (Annex), the results show, with regard to economic growth, the influence of variable B (public expenditures) upon the changes in variable A (growth) is 30.14%.

The second model has the following general form:

$Y = -\beta X + \gamma X^2 + \varepsilon$ (5)

where Y = economic growth, expressed by the variance of gross domestic product; the previous year is considered by 100; X = rate of public expenditure, expressed as a percentage of GDP; and β, γ = independent variable parameters; and ε = residual. Table 4 present the Estimation of the regression model 2 (yearly analysis)

Table 4. Estimation of the regression model 2

Dependent Variable: DCPIB
Method: Least Squares
Sample (adjusted): 1991 2010
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCCGV	-0.504732	0.610761	-0.826398	0.0594
DCCGV^2	0.120346	0.104748	1.148909	0.0556

R-squared	0.195714	Mean dependent var	0.215000
Adjusted R-squared	0.151031	S.D. dependent var	5.749167
S.E. of regression	5.297253	Akaike info criterion	6.266893
Sum squared resid	505.0961	Schwarz criterion	6.366467
Log likelihood	-60.66893	Hannan-Quinn criter.	6.286331
Durbin-Watson stat	2.400052		

Notes: DCCGV = rate of public expenditure, expressed as a percentage of GDP, DPIB = Gross domestic product in real terms

Following the procedure for estimation the model, based on the method of least squares, generated the following result:

GDP = -0.51 ChP + 0.12 ChP2 + ε (6).

Model hypothesis testing (checking errors, autocorrelation and heteroscedasticity) led to the conclusion that the hypothesis is supported, but, because both probabilities calculated are greater than 0.05, we must specify that the model is less statistically significant, given that we need to consider risk acceptance of more than 10%. Table 4 (Annex) also shows that, with regard to economic growth, the influence of variable B (public expenditures) upon the changes in variable A (growth) is 15.10%.

The third model has the following general form:

$Y = \gamma X^2 + \varepsilon$ (7),

where Y = economic growth, expressed by the variance of gross domestic product, the previous year is considered by 100; X = rate of public expenditure, expressed as a percentage of GDP; γ = independent variable parameter; and ε = residual. Table 5 present the Estimation of the regression model 3 (yearly analysis)

Table 5. Estimation of the regression model 3

Dependent Variable: DCPIB

Method: Least Squares

Sample (adjusted): 1991 2010

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DCCGV^2	0.168349	0.086436	1.947669	0.0564
R-squared	0.165199	Mean dependent var		0.215000
Adjusted R-squared	0.165199	S.D. dependent var		5.749167

S.E. of regression	5.252868	Akaike info criterion	6.204132
Sum squared resid	524.2598	Schwarz criterion	6.253919
Log likelihood	-61.04132	Hannan-Quinn criter.	6.213851
Durbin-Watson stat	2.242118		

Notes: DCCGV = rate of public expenditure, expressed as a percentage of GDP, DPIB = Gross domestic product in real terms

Following the procedure for estimation, the model based on the method of least squares, generated the following result:

GDP = 0.17 ChP2 + ε (8).

Model hypothesis testing (checking errors, autocorrelation and heteroscedasticity) led to the conclusion that the hypothesis is supported, as t-Stat test probability calculated is around 0.05, and we must specify that the model is significant, given that we consider risk acceptance of 10%. From Table 5, the results show the fact that, with regard to economic growth change, the influence of variable B (public expenditures) upon the changes in variable A (growth) is 16.52%.

In conclusion, after testing those three models, we can mention that this Armey Curve cannot be verified for specific economic conditions in Romania, given the specific transformation and its development. Thus, we can accept, but with great reserve, that the first model is relevant with an acceptance risk of 10%. The other two models are correct mathematically speaking, but have flaws for economic interpretation. For us, this perspective is the most important, and while arousing interpretation or rethinking, it best explains the integrated development of the two variables analyzed.

6. Concluding Remarks

As specified above, the link between economic growth and the level of public expenditure as a percentage of GDP can be positive (if we are talking in particular about public investments) or negative (if we consider especially consumption public expenditure – but not all of them). The financing option for this kind of expenditure calls for another assessment. In this case, we need to respect the main rule applied at the enterprise level of covering the long-run needs of funding from long-run available resources, and short-run expenditures covered based on short-run revenues. We note that an increase in taxes reduces the rate of economic growth that, in turn, inhibits the desire for establishing and conducting business.

Regarding the Armey Curve assessment result for the Romanian economy, we must also clarify the relevance of this beyond the theory and the statistical explanations. The study results did not permit us to plot the Armey Curve and explain the connection between the economic growth and the public spending for the Romanian economy during the chosen time interval. This fact is due to some factors such as the macroeconomic mutations (the transition from centralist to market economy) and world financial crisis, elements that alter the assessment, or is due to the exclusion of other important variables.

In particular assessing the two macroeconomic variables connection revealed a linear regression model that describes the dependence the GDP and the public spending (after a complex data analysis). Thus according to the quarterly model (2), on average, real economic growth drops by 0.080767%, when there is an increase of one unit of the actual total public expenditure level. The result is valid using the quarterly adjusted data and can be accepted as relevant if we admit that the Romanian public sector is over sized and its growth rate is too fast related to the GDP growth rate.

It also must be stated that the Romanian economic profile during the evaluated period fall in with massive structural transformation, fact that influence the assessment negative results.

Final remark: the paper is a development of the "research-in-progress" presented at EIRP 2014

7. Acknowledgement

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How Do Board Characteristics Influence Business Performance? Evidence from Non-life Insurance Firms in Zimbabwe

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Abstract: The purpose of this study was to contribute to the corporate governance literature by establishing the relationship between board characteristics and corporate performance within the non-life insurance firms in Zimbabwe. The study sought to provide some insights on corporate governance since the phenomenon is relatively an emerging discipline in Zimbabwe. The paper sought to complement other corporate governance studies that were conducted in other environments by producing evidence on the phenomenon from a developing country context. A quantitative research approach was adopted and respondents were selected through a stratified random sampling. The results of the study confirm that board characteristics (board composition, diversity, and size) exhibit a statistically significant positive predictive relationship with the performance of non-life insurance firms measured by gross premium written and customer retention. However, CEO/Chairman duality showed a negative relationship with business performance. Non-life insurance companies need to be cognizant of board characteristics in order to improve their performance. Moreover , the findings in this research has practical relevance for the selection process of directors as it highlights the importance of having a sizeable number of board members as well as an appropriate mix of competences and qualifications on the board. Although corporate governance is has been extensively researched, there is limited study in this area from a developing country like Zimbabwe with relatively less developed capital markets. It would be wrong to assume that the findings found in other countries can apply here because the conditions are different.

Keywords: ethics; business success; board of directors; Harare

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1. Introduction

Enough evidence exists to prove that corporate governance in the Zimbabwean insurance industry is one of the worst in Africa. For instance, ZIMRE Holdings Limited's non-life insurer SFG Insurance collapsed in 2013 and investigations by IPEC revealed that the company had a huge negative solvency and its capital base was falling short of the minimum capital threshold. Much evidence also pointed to substandard corporate governance structures. Another case worthy noting is that of Champions Insurance Company, which has been fingered in the Air Zimbabwe insurance scandal where tender procedures were not being followed. Another insurance giant, SFG insurance company collapsed and totally went under in 2013. Further, the Insurance and Pensions Commission (IPEC) of Zimbabwe recently deregistered Global Insurance Company, Jupiter Insurance Company and Excellence Insurance Company as a result of poor corporate governance, in spite of booming insurance business in Zimbabwe (IPEC, 2013).

The scandals highlight how board members can abuse positions to influence certain transactions in their favour, thereby undermining the performance of the firms. Navistar insurance brokers has been, since 2009, siphoning money from Air Zimbabwe through purported insurance programmes which are now emerging to be fraudulent. The company's four directors have since been arrested and await sentencing together with their accomplices from Air Zimbabwe (Matambanadzo, 2014).

Given the apparent central and integral role of the boards of directors in the day-to-day running and management of contemporary corporations, this paper seeks to analyse the impact of board characteristics on performance of non-life insurance companies in Zimbabwe. Particular reference is made to the insurance sector because the majority of corporate governance pronouncements, which are sector wide, do not address the specific concerns of the insurance sector. Furthermore, majority of these corporate governance pronouncements and codes are concerned primarily with the single agency relationship between company directors and shareholders, rather than accounting for the broad range of principals that are features of the insurance companies. Thus, the distinctive characteristics of insurance companies imply the need for distinctive corporate governance arrangements for this sector.

Although corporate governance is has been extensively researched, there is limited study in this area from a developing country like Zimbabwe with relatively less developed capital markets. Most of studies have been conducted in western and Asian countries. For example, in the USA (Bauer, Eichholtz and Kok, 2009, Erkens, Hung and Matos, 2012), in Malaysia (Yasser et al., 2011), in the Netherlands (Rovers, 2011) and in Australia (Christensen et al., 2010). It would be wrong to assume that the findings found in these countries can apply here because the conditions are different. It is against this identified research gap that this study

therefore seeks to examine the relationship between key board characteristics and the performance of Zimbabwean non-life insurance companies.

Following this discussion, the main purpose of this study therefore is to establish the relationship between board characteristics and corporate performance in non-life insurance firms.

This study contributes to existing knowledge base and understandability on the impact of board characteristics on firm performance, since corporate governance by its nature is relatively an emerging discipline in Zimbabwe. It is hoped that the recommendations from this research will help directors and owners within the insurance sector to recognize the significance of corporate governance in enhancing performance of their firms. The rest of the article is presented as follows: a review of literature and a conceptual framework as well as the hypotheses development are presented. Thereafter, the research methodology, the results and the discussion of results are provided. The discussion on the managerial implications, limitations and avenues for future research studies, are to form the last sections of the study.

2. Literature Review

2.1. Corporate Governance

Corporate governance, as a concept is difficult to define, as what constitutes it varies from country to country due to differences in culture, legal systems and historical developments (Wong, 2011). However, there can be no dispute that effective accountability to all shareholders, including the diverse interests of other stakeholders like lenders, employees and government is the essence of corporate governance (Lawal, 2012). Shah, Butt and Saeed (2011) describe it as the way in which an organization is administered, directed or controlled. The authors proceed to state that corporate governance provides the set of rules and regulations that affect how corporations are run and managed, through specifying the distribution of responsibilities and rights among stakeholders. Relatedly, Lawal (2012) asserts that corporate governance involves a set of relationships between a company's management, its board of directors and stakeholders that provides the structure through which the objectives of the company are set and the means of attaining those objectives.

This study is informed mostly by the agency theory and a discussion of the theory follows below.

2.2 The Agency Theory

The agency theory, premised on the contractual relationship between principals (shareholders) and agents (management), suggests that the separation of corporate ownership and control potentially leads to self-interested actions by managers.

According to Jensen and Meckling (1976), a critical notion about the agency theory is that managers, who are contracted to perform services on behalf of the shareholders, are self-interested and unwilling to sacrifice their personal interests for the interests of the shareholders. These self-interests result in an in-born conflict of interest amongst the shareholders and management, as managers in general act for their own interests and they do not take the best probable action for both the public and shareholders (Agrawal and Chadha, 2005; Daily, Dalton and Canella, 2003). This study submits that management may actively maximize their self-interest at the expense of organizational profitability.

2.3 Board Characteristics

A corporate board is delegated with the task of monitoring the performance, and activities of the top management to ensure that latter acts in the best interests of all the shareholders. The relationship between various board characteristics such as the board size, composition and firm performance has been of enormous interest to some researchers for the past decades (Adams *et al*., 2010). Evidence points much to the thinking that the failure of financial services entities to meet stakeholders' expectations is due to poor governance. This has been observed in incidences of inadequate internal controls and dominance of individuals resulting in inefficiencies and inflated costs of operations. Such was the case at Navistar Insurance Brokers, Altfin Insurance, Jupiter Insurance, Standard Fire and General Insurance and Global Insurance Company (Insurance and Pensions Commission, 2014). The subsequent sections will examine the key variables of the study namely the independent variables (board size, board composition, CEO duality and board diversity) and the dependent variable (corporate performance). The board composition characteristics considered in this research are board size; CEO duality; board diversity and board composition.

2.4 Board Size

Board size refers to the total number of directors on a firm's board. Determining the ideal board size for organisations is very important because the number and quality of quality of directors determines the corporate performance of such firms. The underlying economics of this is that as the board size increases, it will reach a point of diminishing returns at which there will be negative impacts on the functioning of the board, for example when communication and coordination become an arduous and time consuming process for the many directors on a large board (Liu and Fong, 2010).

To date, there is no universally accepted standard to guide the number of directors a firm can have. According to Chinese corporate law, the number of directors on the board may be between five to nineteen people (Liu and Fong, 2010). However, Lawal (2012) recommended a minimum of seven and a maximum of nine board members. Yuanto, (2003) also suggested board size of five board members. This was

also supported by Yammeesri and Herath (2010) who suggest that the board of directors can do their tasks effectively when the board size is not more than seven or eight members. Some practitioners and academics strongly believe that board size is a function of factors which include age of the firm, its size and the industry to which it belongs (Lawal, 2012).

2.5 Board Composition

Board composition is the proportion of non-executive directors on the board compared to executive directors. Executive directors are inside directors who participate directly in the day to day management of the company. Independent outside directors, on the other hand are directors who provide the desired outside eye in ensuring that the shareholders' interests are safeguarded (Lawal, 2012). Generally a director who is a full time employee of a company is deemed to be an inside director, while a director whose primary employment is not with the firm is deemed to be an outside director (Tricker, 2009).

This distinction is derived from the extent of their participation in firm management. Inside directors are those directors that are also managers and or current offices in the firm while outside directors (also known as external or non-executive directors); there are directors who are affiliated, and others who are independent. Affiliated directors are non-employee diretors with personal or business relationship with the company while independent directors are those that have neither personal nor business relationship with the company (Bhakat and Black, 2002). In order to effectively fulfill their monitoring role, boards of directors must have some degree of independence from management (Dahya and McConnell, 2007).

Board independence is by and large influenced by how it is composed. A board is said to be independent if made up of more non-execute directors than executive directors. The independent outside director brings to fruition the desired neutrality and minimise bias in the board processes (Bhakat and Black, 2002). The global economy appears to have become caught up in what might be described as 'outside director's euphoria' (Dahya and McConnell, (2007). The authors contend that in large measure, this presumption rests on faith rather than evidence. Whilst most of the codes for best practices have emphasised the need for mix directorship with greater non-executive representation, empirical evidence remains conflicting with respect to whether such inclusion significantly induces firm performance.

2.6 CEO Duality

A crucial monitoring mechanism based on the agency perspective is the separation of the roles of CEO from chairman. CEO duality exists when a firm's CEO also serves as the Chairperson of the board of directors (Kang, 2010). CEO duality, by definition, is counterintuitive to the tenets of agency theory if the role of the board is to monitor the CEO and other agents (Carty, 2012). This is typical of CEOs with

long tenure and is common in the United States with approximately 80 percent of the Standard and poor's 500 companies employing a single person to serve in both roles (Carty, 2012). The proponents of this duality role believe that allowing just one person to function as the chairperson and CEO will provide a beneficial platform that is not potentially detrimental. For example the greater levels of information and knowledge possessed by a joint CEO/Chairperson will enable him to better manage and direct the board's discussions and agenda. Others have suggested that this duality role is more efficient and therefore more sensible form of governance (Adams, 2009).

2.7 Board Diversity

Board diversity is premised on two main corporate governance theories, namely stakeholders and resource dependency theories (Kang, 2010). Carpenter and Westphal (2010) assert that for a board to be diverse it ought to have individuals not necessarily from different cultural It is argued that demographically diverse directors are more independent, as they are less likely to be part of an 'old boys' network (Carter, Simkins and Simpson, 2003).

2.8 Corporate Performance

How to measure business performance still remains a debatable subject amongst business practitioners, consultants and academics as organizations can generally use objective and subjective measures to assess their success. Objective measures mostly encompass comparing corporate performance with financial measures, while subjective measures refer to personal perceptions about business performance (Reijonen, 2008). Traditionally, business success has been assessed by financial measures like, return on assets employed, return on sales, growth in revenues, Tobin's Q, return on investment, return on assets, sales revenue, return on equity, earnings per share, net profit margin, stock returns and economic embedded value, market share (Chenhall and Smith, 2007; Reijonen, 2008). The use and reliance on financial measures of business performance has been supported by various authors. For instance, Verbeeten and Boons (2009) argue that financial measures are subjected to internal controls which make them reliable; they are also reported externally and hence are subject to public scrutiny.

On the contrary, Chow and Van der Stede (2006) criticise the traditional financial measures of performance for being flawed by the use of historical data, which is not reliable in assessing corporate performance. Traditional financial measures are difficult to obtain and the organisations have a tendency to conceal some financial information that is useful in assessing their performance (Salameh, Abu-Serdaneh and Zurikat (2009; Jusoh, 2008; Tang and Zhang, 2005). Due to these shortcomings of financial measures, many companies are now implementing broader based measures of their performance that include the non-financial measures for example market share, customer satisfaction, employee turnover and new product

development (Verbeeten and Boons, 2009; Wilkes, 2004). Jusoh (2008) argues that the strength of non-financial measures lies in their ability to provide insight into business processes and outcomes to be better predictors of future corporate performance than the historical financial measures.

Amongst the so many non-financial measures of corporate performance; gross premium written, product innovation and quality; customer retention; quality and quick decision making are the measures adopted in this study. Apart from the arguments already put forward in favour of non-financial measures, the chosen measures of corporate performance are more specific to the business processes in the non-life insurance sector and data on these is not sensitive and therefore respondents will be eager to respond and participate. As advised by Chow and Van der Stede (2006) and Atkinson and Brown (2001), the subjective approach was used in this study to measure corporate performance of non-life insurance firms. These include gross premium written and customer retention.

3. Research Methodology

The study adopted a quantitative approach to collect data from the non-life insurance firms in Zimbabwe that were stratified into strata namely: insurers, reinsurers and broking companies operating in Harare as this is where most firms are headquartered. From these strata board 170 members were randomly selected. Self-administered questionnaires were sent through the email or drop-off method.

3.1 Reliability and Validity

The internal consistency reliability of the questionnaire was tested by computing the Cronbach's Alpha coefficient. The reliability of each scale was checked. As indicated in Table 3, all the scales in the study yielded an alpha value greater than 0.7, board size (0.746), board composition (0.733), CEO duality (0.856) and board diversity (0.801), which means that the scales for all the constructs were reliable. Table 1 depicts the internal reliability statistics of the scales used in this study.

Table 1. Reliability statistics

Variables	Number of Items	Cronbach's Alpha value
Board Size	5	0.746
Board Composition	6	0.733
CEO Duality	5	0.856
Board Diversity	7	0.801

A pilot study was undertaken to ensure face and content validity of the questionnaire and check that it was understandable, acceptable and captured the gist of the

research.   The feedback gave an opportunity to modify and improve the questionnaire by making adjustments to some questions that lacked clarity.

4. Results and Discussion

4.1 Sample Demographics

A total of 170 questionnaires were distributed and 140 of them were completed, marking an overall response rate of 82.4%, with the respective response rates for each strata as shown in Table 2. The gender profile of the respondents revealed that male respondents (n=84 constituting 60%), were more than female respondents (n=56 constituting 40%) of the total respondents. In terms of the educational background of the respondents, the results indicates 112 were degree holders, while 12 were holding post graduate degrees and 16 were diploma holders. Responses regarding the current position were as follows: executive directors (n=36; 26%), CEOs (n=32; 23%), non-executive directors (n=24; 17%), independent directors (n=24; 17%), and board chairmen (n=16; 11%), doubling as CEOs and chairmen (n=8; 6%),

4.2 Correlation Analysis

Before testing the effect of corporate board characteristics on the performance of insurance companies, Pearson's correlation analysis was carried out to test the direction and strength of relationships between these variables. The Pearson's correlation coefficient ranges from +1 for a perfect positive correlation to -1 for a perfect negative correlation (Welman, Kruger and Mitchel, 2005). Table 2 depicts the correlation results.

Table 2. Board Characteristics and Business Performance

Factors	BS	BC	CD	BD	BP
Board size (BS)	1				
Board composition (BC)	.452*	1			
CEO duality (CD)	.280*	.090*	1		
Board diversity (BD)	.491*	.377*	.198	1	
Business performance (BP)	.331*	.286	-.379	.473*	1

** Correlation is significant at the 0.05 level.

The results depicted in Table 3 demonstrate significant weak but positive correlations between the three characteristics of corporate performance: board composition (r= 0.286, p<0.01), board diversity (r= 0.473, p<0.01) and board size (r=0.331, 0.01) However, CEO duality (r= -0.379, p<0.01) showed a weak and negative association with business performance.

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Similar findings about the positive correlations between business performance and corporate governance characteristics (board composition, diversity and size) are reported by authors namely Yasser, Enterbang and Mansor (2011), Rovers (2011) and Abidin, Kamal and Jusoff (2009). The result showing a negative association between CEO duality and business performance is consistent with Brown and Robinson (2004) and Bokpin, Kyereboach and Aboagye (2006).

4.3 Regression Analysis

After testing correlations between the variables, the study further carried out a regression analysis because as correlations analysis only measure the magnitude and direction of a correction but do not to establish the predictive relationship between variables. Regression analysis was conducted to ascertain the predictive power of corporate governance characteristics (board diversity, composition, size and CEO duality) on business performance. Table 3 presents the regression results showing the predictive power of each factor on business performance.

Table 3. Regression analysis between corporate governance characteristics and business performance

Dependent variable: corporate performance				
Predictor variables	Std error	Beta	t-value	p-value
Constant	11.43		2.35	0.000
Board size	0.028	-0.15	1.12	0.031
Board composition	0.023	0.21	1.11	0.033
CEO duality	0.010	-0.37	2.76	0.021
Board diversity	0.037	0.17	3.01	0.019

R =63.23; R-squared = 65.05; Adjusted R-squared =60.01; F = 22.05; ** significant at p<0.01

The results depicted in Table 3 indicate that the four characteristics of corporate governance had an adjusted R-squared value of 60.01 which demonstrates that the corporate governance characteristics explained about 60% of the variance in business performance. Table 4 also shows the results of the beta coefficients. The results reveal that board size measured by the number of directors has a statistically significant negative relationship with business performance ($\beta = -0.15$, $p<0.05$), thus confirming the hypothesis 1 that a smaller board has a positive influence on business performance of non-life insurance firms in Zimbabwe. The result is consistent with prior studies (Yasser *et al*., 2011, Abidin *et al*., 2009, Bokpin *et al*., 2006).

The relationship between board composition and business performance is positive and significant ($\beta =0.21$, $p<0.05$). This is a demonstration that from the sampled non-life insurance firms in Zimbabwe, there is a positive relationship between an organisation's performance and the presence of non- executive directors who sit on

the board (Yasser *et al*., 2011). The outcome is in agreement with previous studies (Bhagat and Black, 2002, Sanda *et al*., 2006). Therefore hypothesis 2 stating that board composition positively impacts on business performance of non-life insurance firms in Zimbabwe is supported.

The results also show that CEO/Chairman duality has a negative influence on business performance as the beta coefficient is -0.37. This shows that the sampled non-life insurance companies in Zimbabwe are in favour of having one person being a board chair and the other being the chief executive officer. The implication is that the performance of sampled non-life insurance firms in Zimbabwe improves if two people occupy the positions of the board chair and the chief executive. The result is in agreement with previous studies (Christensen *et al*., 2010, Bokpin *et al*., 2006, Brown *et al*., 2004). Therefore hypothesis 3 that states that CEO/Chairman duality negatively influences business performance of non-life insurance firms in Zimbabwe accepted.

The relationship between board diversity and business performance as shown in Table 4 is positive and statistically significant (β=0. 17, p<0.05). This implies that the sampled short non-life insurance firms in Zimbabwe need a well-diversified board because board members of different gender, education background, and work experiences share their different ideas to improve business performance. The outcome is consistent with a study by Rovers (2011). Hypothesis 4 stating that board diversity positively impacts on the performance of short term insurance firms in Zimbabwe is accepted.

5. Recommendations

The findings that about the influence of board size, board composition, CEO duality and board diversity influence corporate performance have relevance for managers and owners, as well as researchers and academics. Management should be cognizant of how board configurations and leadership structure may impact their corporate performance. Thus, it is of paramount importance that firms should take a serious consideration into the size of their boards as results show that board size affects effectiveness of the board above some desired threshold. Findings of this study reveal an optimal board size of between 7 and 9 members is the most ideal. Furthermore, the study shows that female board members are not just mere figures, but rather contribute significantly to board strategic decision making, gross premium written, customer retention and product innovation. Accordingly, firms should include women as well to be part of their board of directors.

Additionally, the finding that the proportion of outside directors and CEO duality were negatively related to corporate performance has practical implications as well. From the shareholders' standpoint, having greater outsider representation and

avoiding duality is an effective way to monitor management. Moreover, to effectively fulfill their monitoring role, boards of directors must have some degree of independence from management. Indeed outside directors can play a significant role in arbitrating in disagreements between internal managers and help to reduce agency problems. The recommendation is that a board should ideally have more independent outside directors than inside executive directors. The independent outside directors bring to fruition the much desired neutrality and eliminates bias in the board processes. The study, just like the Cadbury Report, recommends having at least three outside directors.

Another crucial monitoring mechanism based on the agency perspective is the separation of the roles of CEO from chairman. The practice of CEO duality is not advisable because it threatens the independence of the board. The study recommends that the roles of the CEO and chairman be taken by two different people. It is also recommended that non-life insurance companies should have boards that are up made of individuals not necessarily from different cultural backgrounds but those from different academic orientations, which then fosters collaboration. Thus diversity of boards should represent both demographic and qualifications of the members.

6. Conclusions

The major objective of this study was to establish the relationship between board characteristics and corporate performance with particular reference to non-life insurance firms. The results of the study confirm that board characteristics (board composition, diversity, and size) exhibit a positive predictive relationship with the performance of non-life insurance firms. However, CEO/Chairman duality showed a negative relationship with business performance. The results lend support to previous streams of research, which demonstrate that board characteristics have a positive relationship with business performance. Therefore, non-life insurance companies need to be cognizant of board characteristics in order to improve their performance. Moreover , the findings in this research has practical relevance for the selection process of directors as it highlights the importance of having an appropriate mix of competences and qualifications on the board.

7. Limitations and Avenues for Future Research

Although this study has provided some useful information about the relationship between board characteristics and corporate performance measured by qualitative indicators, the results of study may be interpreted with caution because of the following limitations. The use of structured questionnaires to collect data limited the depth of information received from the board members. The reliance on the

subjective views of corporate performance is a limitation in the study in terms of generalisation of the results to other companies because they could have different views about board characteristics and corporate performance.

In addition, considering that the sample population was drawn from Harare, and taking into account that there are several non-life insurance companies operating in other provinces whose conditions might be different from those found in Harare, the generalisation of the results therefore needs to be treated with caution. The other limitation of this study is that it focused on only four characteristics of the board of directors. The model could be extended to take board processes, accountability and social responsibility into consideration. The other limitation is that it would have been better if this study had a longitudinal perspective. This study is essentially cross-sectional, looking at board characteristics at a particular point in time. Future research could replicate the study in other provinces in order to test the validity and reliability of the scale. Another prospect for future research is to conduct comparative studies of the relationship between board characteristics and corporate performance, for example between non-life insurance companies in a developed and an emerging country.

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Output Loss Severity across EU Countries.
Evidence for the 2008 Financial Crisis

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Abstract: Financial crises are complex phenomena, in terms of the triggering factors, duration and severity, impact on both financial system and macroeconomic fundamentals and the full range of costs arising from its occurrence. The paper aims at providing an updated picture on the magnitude the 2008 financial crisis had, in terms of economic costs incurred by EU member states. It has been briefly reviewed crises' main monetary and economic effects and costs. Then it has been employed International Monetary Fund's approach for measuring crisis severity, expressed as an output loss indicator. To check the stability of the results, the basic methodology relying on a 3-year GDP trend has been complemented with a 7-year GDP trend. The output losses recorded by each EU country, under both trend assumptions, showed that Baltic states and Greece had been the most affected as they cumulated the highest losses. The lowest output losses have been registered in Western Europe countries (Austria, Belgium, France, Germany and Poland). Most EU economies' growth still hasn't entered on a robust ascending path, as they haven't reached the level of GDP trend computed for the period preceding the onset of the financial crisis.

Keywords: economic costs; financial turmoil; output loss; trend.

JEL Classification: C82; G01

1. Introduction

There is a broad literature devoted to the study of financial crises triggers, frequency, costs, severity and predictive variables. One of the research questions that preoccupy both practitioners and academia relates to the reliable estimation of crises' severity.

Commonly, the severity of financial crises has been measured in terms of the fiscal costs imposed on by crisis resolution frameworks (Demirgüç-Kunt, Detragiache 1997; Frydl, 1999), of the magnitude of output losses, of declines in stock market indexes (Caballero, Candelaria and Hale 2009), of global trade drop measured as export and import price indices (IMF Survey, 2010), of economic slowdown (Tjahjawandita, Pradono, Rinaldi 2009) computed as the difference in GDP growth rates between two successive years. However, none of these indicators reflect comprehensively the overall costs an economy is exposed to.

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In this respect, Claessens, Klingebiel and Laeven (2003) stated that it is not possible to isolate the effect of a banking crisis on GDP level from other shocks or leading factors, therefore none of output loss measures developed by economic literature correctly capture the effect of the banking crisis on GDP and the full economic costs of a banking crisis.

Most empirical studies have attempted to quantify the economic cost associated with a financial crisis by estimating the magnitude of output loss. In this respect, Angkinand (2005) believes that this measure is the most suited as it reflects the short-run adjustment of output. In addition, any policymakers' attempt to contain or tackle financial crises has to take into account the potential output losses accompanying crisis episodes (Kapp & Vega 2014).

In a study focused on empirically measuring the 2008 global financial crisis' severity, Rose and Spiegel (2011) have employed four observable variables meant to quantify crisis' severity, namely: the 2008 real GDP growth, the percentage change in a broad measure of the national stock market over 2008, the 2008 percentage change in the SDR exchange rate and the change in a country's creditworthiness rating. Finally, they chose as a measure for crisis intensity the 2008-2009 GDP growth.

The paper aims at assessing the output loss recorded by each EU member state following the onset of the 2008 financial crisis, by relying on International Monetary Fund's methodology. It is structured as follows: section two reviews briefly the main effects and costs associated to episodes of financial turbulence; section three depicts the methodology employed for computing the output losses recorded by EU member countries and presents the results obtained. The last section concludes.

2. Review of Banking Crises' Effects and Costs

In the economic literature different meanings have emerged regarding the identification and definition of financial turbulence events, while their length and severity, reflected by costs incurred, are still difficult to be accurately quantified. Generally, the effects on affected countries follow a similar pattern and produce, inevitably, a state of economic instability. In the following it has been summarized the main effects of financial crises, namely:

- *effects on monetary policy*. One monetary tool central banks have at their disposal is the lender of last resort function. By exercising it, the full economy would be exposed to the inflation tax. Inflation tax has often been perceived as a disputed, but necessary compromise, to restore the functioning of credit institutions in difficulty. Although the monetary policy primary objective is to maintain price stability, the central bank is also responsible for ensuring the robustness of the banking system, which in crisis situations materializes in the injection of liquidity. The difficulty is

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to distinguish between liquidity requests coming from solvent credit institutions, but facing a temporary shortage of liquid assets, and those from inadequately capitalized institutions.

If central banks and government 's interventions provide liquidity for distressed banks, would induce a state of moral hazard, the short and medium term effects taking the form of lending expansion, interbank interest rate reductions and domestic currency depreciation. In other words, credit institutions with solvency problems will be tempted to continue lending activity, in order to improve profitability (by volume of new loans granted and / or spread of interest rates charged), without necessarily achieving a restructuring of customer selection practices and monitoring of outstanding claims, or using liquidity injections for recapitalization purposes. In this case, the central bank will have to strengthen monetary policy, through open market operations to sterilize the excess liquidity, monetary policy interest rate or reserve ratio increases, foreign currency sales etc.

- *effects on the payment system*. Regardless of the banking system size, the emergence of a generalized crisis contributes, inevitably, to the damage of the smooth functioning of payment systems. This situation has direct and immediate impact on all economic and financial entities, because it means stopping the clearing and settlement mechanisms, processing with difficulty all payments arising from production, distribution and consumption processes.

Reiterating the crucial role of the payment system in a country's economy, one could ask to what extent its functioning could be affected by failures of individual credit institutions or the emergence of a contagion effect across the entire banking system. In a financial stability report published by the Central Bank of Sweden (2003) it is argued that a credit institution is a systemically important one for the payment system functioning if it manages a considerable amount of payment instruments, if intermediates a significant percentage of payments in the economy or if any difficulties affecting it can spread to other financial institutions.

- *effects on economic growth*. In an early study conducted by the IMF (1998) it is shown that GDP growth rate will reach the level previously recorded after three years from crisis end. Honohan, Klingebiel (2000) argued that one of three banking crises that have affected developing countries has generated a cumulative output loss of over 20% of GDP. At a similar result arrived also Hoggarth, Reis, Saporta (2001), which revealed, in addition, that output losses due to a crisis are higher in developed than emerging countries.

In a survey of 18 financial crises that have affected OECD countries since 1970, Reinhart, Rogoff (2008) have established that, in the first year from the onset of the crisis, economic growth compressed on average by 1.25%, and in the next two years it compressed with 2.25% from the year preceding the crisis. In addition, the authors showed that in situations where the economic downturn is preceded by imbalances

in the financial sector (especially in the banking sector), the recession will be more severe and prolonged.

Empirical analyses of Angkinand (2008) showed that countries taking recourse in times of crisis to a broader deposit guarantee recorded, on average, a lower level of economic growth loss, justifying therefore the role of deposit insurance as a safety net and reiterating the function of preventing the phenomena of bank runs and protecting the payment system.

- *effects on lending activity*. During the occurrence of a crisis, credit institutions could adopt two diametrically opposite attitudes. Insolvent institutions, characterized by low profitability and liquidity, might take on excessive risks in order to improve solvency. Creditworthy, relatively stable banks, which experienced a slight deterioration in the asset portfolio, might show a pronounced aversion to risk, refusing to lend even to eligible applicants, so as to not increase the share of risky assets in total assets and to not reduce the minimum solvency ratio. The result will be a severe credit crunch, with negative effects on the real sector, consumption and investment, on production capacity and economic growth. In addition, once the credit channel fails to fulfill its function, it cannot be used anymore as a monetary policy transmission mechanism.

- *effects on consumption*. Empirical tests performed by Barrell, Davis, Pomerantz (2004) have highlighted the fact that open economies, with liberalized financial markets and a high level of household indebtedness, which were exposed to an episode of banking crisis, experienced a collapse in consumption, while reducing lending.

- *loss of public confidence* in the authorities' ability to solve the crisis and restore the status of financial and economic stability. Effects may result in capital outflows, exposing the banking system to liquidity risk (risk amplified by volatile capital flows) and currency risk, but also the discouragement of saving behavior, people preferring to hold, at least in the short term cash, a phenomenon known in economic literature as "flight to quality".

Ultimately, the implications of the financial crises have negative repercussions on financial stability, which may translate into a deterioration of the countries' rating, with prospects of a worsening investment climate.

All these adverse effects will further translate into several categories of costs, such as:

- *fiscal costs,* born by taxpayers, arise from government actions that involve an expenditure of public funds. Examples of such actions, associated to banking system's rehabilitation activities are: the provision of liquidity through the central bank lender of last resort function, recapitalization of distressed banks through capital injections, the total guarantee of deposits, search of private investors.

Studying 42 past episodes of banking crises, during the period 1970-2007, Laeven, Valencia (2008) estimated that fiscal costs, net of recoveries, associated with crisis management measures can be substantial, averaging at about 13.3 percent of GDP, and can be as high as 55.1 percent of GDP.

Analyzing the scope of government actions on the size of fiscal costs, Honohan, Klingebiel (2000) noted that if governments hadn't excessively appealed to a large number of practices to save banks in difficulty, average fiscal costs would have been limited to 1% of GDP. On the opposite, if authorities were to apply simultaneously all bailing out strategies, fiscal costs would have exceeded 60% of GDP.

- *economic costs,* due to gradual and slow government intervention. Frydl and Quintyn (2000) draw attention on the moral hazard induced by the prolonged bailing out process, by the fact that institutions benefiting from government intervention will be tempted to adopt a risk taking attitude, having the potential of an increase in the initial costs. This idea is supported also by Barrell, Davis, Pomerantz (2004), arguing that a quick resolution is more appropriate than a tolerant attitude, that would encourage moral hazard, would increase costs for taxpayers and would help to brake economic growth.

Delays in taking prompt corrective action directly affect the cost and duration of the crisis. On the other hand, studies conducted by Frydl (1999) did not reveal a significant positive correlation between crisis length and its costs. In contrast, between crisis length and the dynamics of economic growth was reported a positive correlation. Thus, for periods up to one year, economic growth is not affected; instead, crisis episodes between 2 and 7 years are correlated with significant reductions in economic growth.

Laeven, Valencia (2008) considered that output losses (measured as deviations from trend GDP) induced by systemic banking crises can be large, with an average of about 20% of GDP during the first four years of the crisis, and ranging from 0 percent to a high of 98 percent of GDP.

-*social costs,* generated by the propagation of macroeconomic and financial turmoil to the real sector. Can be represented by rising unemployment, inflation, declining real income, lower living standards due to erosion of purchasing power, the deterioration of public health and educational climate.

- *political costs*, represented by changes in government strategy, the adoption of unpopular measures, especially relative to fiscal policy and wage level, likely to erode confidence / sympathy of the electorate in the ruling party, the possible deterioration of the country rating with negative effects on capital inflows and external financing.

3. Output Loss Estimation Methodologies

The remaining part of the paper focuses on economic costs, with emphasis on measuring their amplitude by means of an output loss approach. In the economic literature there is no consensus on the most appropriate method for calculating output losses. Some studies employ the real GDP level (Hoggarth, Reis, Saporta, 2001; Mulder & Rocha, 2001; Angkinand, 2005) while others (IMF 1998; Bordo, Eichengreen, Klingebiel, Martinez-Peria, 2001; Honohan & Klingebiel, 2003; Claessens, Klingebiel, Laeven, 2003) use the real GDP growth rate.

Kapp and Vega (2014) argue that output costs generated by financial crises are very heterogeneous; consequently, they dismiss the indicator variable approach in favor of the output gap approach. By employing a broad database of financial crises covering 170 countries from 1970 until present, they uncovered the heterogeneous nature of output losses and the fact that a large number of countries hadn't succeed in recovering their pre-crises growth rates or trends. Their results indicate that average output losses generated by debt crises are 9% higher than those generated by banking crises, while currency crises incurred the smallest losses.

To estimate the current output loss generated by the 2008 financial crisis, it had been applied the methodology described in IMF World Economic Outlook (1998), which computes it as the sum of the differences between the GDP growth rate and trend growth rates, during the period between the crisis starting year and the year in which the economy reaches its pre-crisis trend growth. The GDP growth trend is calculated as an average of GDP growth rates recorded in the three years preceding the starting year of the crisis.

It should be mentioned that the average number of years considered for computing the trend growth rate may differ from three (IMF 1998) to five (Bordo, Eichengreen, Klingebiel, Martinez-Peria 2001) or ten years (Hoggarth, Reis, Saporta 2001). However, Mulder and Rocha (2001) argued that, by emphasizing different pre-crisis periods to calculate the trend growth rate, the estimated magnitude of output loss does not change significantly.

A more recent opinion belongs to Smith (2012), claiming that the level of pre-crisis GDP trend might prove misleading when used for measuring the severity of a crisis. It is the case of crises which have been preceded by a boom and hence the economic growth is unsustainable fast and high, inflated by confidence in economic prospects. Consequently, these GDP levels are not suited for computing trend and use it as benchmark for measuring output loss. This drawback might be removed usually by considering longer time periods as a basis for computing GDP trend or by applying statistical filters such as Hodrick-Prescott.

Data on GDP growth rate has been collected from Eurostat database, covering the 2001 – 2014 years. To check the robustness and stability of the output losses to be

computed, the GDP trend has been calculated for the 3 years respectively the 7 years preceding the onset of the financial crisis. The computation algorithm for the output loss measure mimics the one proposed by IMF and detailed above.

Table 2. EU member states' output loss after the 2008 financial crisis

Country	3 year trend	7 year trend	3 year output loss	7 year output loss
EU(28 countries)	2.83	2.24	-19.13	-15.00
Euro area (19 countries)	2.70	1.97	-19.60	-14.50
Belgium	2.50	2.00	-13.60	-10.10
Bulgaria	6.47	5.76	-38.47	-33.50
Czech Rep.	6.27	4.53	-41.17	-29.00
Denmark	2.33	1.60	-19.53	-14.40
Germany	2.57	1.34	-12.67	-4.10
Estonia	9.27	8.17	-65.67	-58.00
Ireland	5.37	5.13	-39.37	-37.70
Greece	3.40	4.20	-52.60	-58.20
Spain	3.90	3.49	-32.30	-29.40
France	2.13	1.81	-12.53	-10.30
Croatia	4.73	4.64	-43.93	-43.30
Italy	1.47	1.21	-19.37	-17.60
Cyprus	4.43	3.80	-37.83	-33.40
Latvia	10.53	9.09	-77.63	-67.50
Lithuania	8.77	8.21	-55.87	-52.00
Luxembourg	5.17	4.03	-28.27	-20.30
Hungary	2.93	3.61	Trend reached in 2014	Trend reached in 2014
Malta	3.20	1.93	Trend reached in 2014	Trend reached in 2014
Netherlands	3.43	2.07	-23.83	-14.30
Austria	3.03	2.10	-17.13	-10.60
Poland	5.63	4.03	-17.63	-6.40
Portugal	1.63	1.21	-17.93	-15.00
Romania	6.40	6.27	-36.20	-35.30
Slovenia	5.53	4.37	-42.43	-34.30
Slovakia	8.50	6.31	-46.50	-31.20
Finland	4.03	3.16	-33.03	-26.90
Sweden	3.63	3.06	-19.43	-15.40
UK	2.80	2.83	Trend reached in 2014	Trend reached in 2014

As it can be noted from table 1, Hungary, Malta and United Kingdom reached their growth trend in 2014, while most of the sample still records an ongoing output loss.

For the EU 27, the average GDP growth rate in the three years previous the financial crisis onset was of 2.83% and 2.24% in the 7 previous years, while countries in euro zone recorded an average GDP growth of 2.7% and respectively 1.97%.

Although the national authorities have promptly implemented monetary and fiscal measures, to contain crisis propagation across countries and stabilize financial systems, its adverse effects still last and economic growth is still in a recovery process.

The cost of the financial crisis, expressed in terms of output loss, had recorded the highest levels in Baltic countries (Estonia, Latvia and Lithuania) and Greece, ranging between 77.6% in Latvia and 52.6% in Greece (in the assumption of a 3 year trend), respectively between 67.5% and 52% (in the assumption of a 7 year trend). At the opposite are Austria, Belgium, France, Germany and Poland, with the smallest output losses ranging between 13 – 18% (in the assumption of a 3 year trend), respectively 4 – 11% (in the assumption of a 7 year trend).

The results obtained confirm the forecast made by Atoyan, Cerutti, Ramakrishnan (2009), which empirically modeled the probability of crisis exit for a number of emerging countries in Europe, indicating that they are likely to experience a longer period of economic imbalances, until they overcome the crisis. According to their analysis, for emerging countries in Europe the average probability of exit from the crisis at the end of 2010 is of only 30%. Of these countries, those which initially showed a high level of external debt and current account deficit are likely to face a prolonged crisis episode. Kondor and Staehr (2011) too, found out that the Baltic States recorded the widest output contractions, and hence output losses during the global financial crisis. Ball (2014)'s empirical study stated that the global financial crisis triggered national recessions of varying severity, but in most cases losses in potential output are large. The hardest-hit OECD countries were those in the periphery of the euro area, which experienced severe banking and debt crises.

After having investigating the evolution of real per capita GDP for 100 systemic banking crises, Reinhart and Rogoff (2014) have found that on average, it takes around eight years until reach the pre-crisis level of income, while the median is about 6 years and a half.

4. Conclusions

The purpose of this study has been to yield a snapshot of economic costs associated to the global financial crisis, from its onset until present. The indicator chosen had been the output loss, which varied widely across EU countries during this crisis. lthough there is a large number of intrinsic or external factors that contribute to the differences in output losses recorded by the financial crisis-hit countries,

undoubtedly the initial macroeconomic conditions and domestic policy responses of monetary decision makers and government heavily influenced the path of output costs following the crisis onset. This reasoning has also been outlined in a study published as part of the IMF World Economic Outlook 2009. According to the study, while there is a strong relationship between the initial economic conditions and the size of the ultimate output loss, short-run macroeconomic stimulus and sustained structural reform efforts may help reduce output losses over the medium run. As the European Economic Forecast (2011, p.8) stated, differences in the speed of recovery among EU countries are related to the degree to which economies were hit by the shock (regardless of the transmission channel: housing and real-estate bubble burst, financial sector or trade links) and the number of challenges faced. In addition, it should be taken into account the specificity of EU, which is built on the framework of a regional development. As Davidescu and Strat (2014) mentioned, regional development gravitates around the broad desideratum of mitigating economic and financial disparities across countries and regions.

5. Acknowledgement

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The Impact of Foreign Direct Investment on Economic Growth: The Case of Romania

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Abstract: In the context of the current trends there is highlighted the interest in the emerging economies to attract foreign capital in the form of foreign direct investment (FDI) as a source of external financing and economic recovery factor. FDI are objectively necessary for these countries given their role in increasing the competitiveness of emerging economies. Although foreign direct investments in emerging economies are well under the required level, the impact of FDI on emerging economies is different from one country to another, depending on a number of factors, on the actual conditions existing in each country, including the role that there is attributed to FDI within development strategies of the emerging economies. Theoretical and empirical studies have attempted to explain the phenomenon of FDI through their economic and financial implications, considering their resilience, stability and dominant character of all types of foreign investments. The purpose of the paper is to analyze the trends of FDI flows and the impact that FDI inflows exert on the economic growth of Romania. The results show that FDI has a positive effect on the economic growth for the period analyzed 2000 - 2013.

Keywords: FDI impact; FDI inflows; economic growth

JEL Classification: E22; F21; O40

1 Introduction

The Foreign direct investments (FDI) are a major vectors of economic growth in the worldwide economy. The importance of FDI has increased significantly over the past decades, due the economic and financial globalization and financial markets liberalization. FDI inflows have known a strong increase both in developed and developing countries. Developing economies have gained a higher role in the global market, becoming key beneficiaries of FDI inflows.

During the period 2000 – 2007, FDI inflows in emerging and developing economies, including Central and Eastern European countries (CEE) have known a strong

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increase stimulated by the policies and strategies carried out. They managed to attract an important share of the total FDI, providing to investors major opportunities to expand their businesses and enhancing the economic growth.

In the context of the current trends there is highlighted the interest in the emerging economies to attract foreign capital in the form of FDI as a source of external financing and economic recovery factor. Although foreign direct investments in emerging economies are well under the required level, the impact of FDI on emerging economies is different from one country to another, depending on a number of factors, on the actual conditions existing in each country, including the role that there is attributed to FDI within development strategies of the emerging economies.

The paper is structured in the following sections: section two provides the literature review regarding the relationship between FDI and economic growth and also provides a trend analysis regarding FDI inflows and FDI stock in Romania, during the period 2000 - 2013, followed by a description of the model studied in the paper in third section, the results and discussion are presented in fourth section and the main conclusions in fifth section.

The purpose of the paper is to analyze the trends of FDI flows and the impact that FDI inflows exert on the economic growth of Romania.

2. Literature Review

2.1. Theoretical and Empirical Framework

Theoretical and empirical studies have attempted to explain the impact of FDI on economic growth under various aspects. The impact of FDI on economic growth has been the subject of much research which have highlighted the positive effect of FDI on economic growth.

Kida (2014) examined the models of economic growth and the dynamic interaction between models from the Solow Model to New Endogenous Models and the results indicated that FDI affect the economic growth in many developing countries, but there were also many cases as developed countries that showed that economic growth led to a long term increase of FDI flow.

Albu (2013) estimated a model to simulate the impact of FDI on GDP growth in the EU. The the authors' conclusions is that in order to recover economic growth a growth in FDI is needed, taking into account its major impact on the efficiency of foreign trade and its contribution to the general economic growth.

The involvement of a foreign trader in the domestic market structures contribute to the economic growth of host countries and indirectly to external equilibrium through development of infrastructure, diversification of domestic consumption by offering

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a wide variety of products and increasing employment in certain professional groups. These benefits appear and become sustainable according to the dynamic of attracting these investment through the facilities offered by host countries (Juverdeanu, 2013).

An important channel through which FDI enhances economic growth is represented by the financial markets; they must be developed enough in order not to restrict their externalities. The analyses carried out by Alfaro et al. (2010), Chee (2010), Abzari, Zarei and Esfahani (2011). Financial market liberalization, under the significant influence of globalization and economic integration in the worldwide economy, has stimulated the international mobility of the foreign capital flows, increasing their flexibility and their effects on the beneficiary country, reflected in a higher rate of economic growth.

The economic and financial implications of FDI on economic growth during the last wave of globalization, are strongly correlated with the internal market features measured through various variables like: work force, technological development degree, know – how, exports, exchange rate. The results also depends on the type of the investment implemented, stimulating the development of competitive advantages based on specialized production factors (Anghel, 2002, p. 38).

The extent to which FDI influences the economic growth in a certain country is strongly affected by the internal market features and if the investment is in short-term or long-term. Highly developed markets attracts FDI and facilitates, using its instruments, their usage in the economic and industrial sectors where the foreign flows are required, increasing their efficiency and the externalities on economic growth.

Multinationals expansion in foreign markets using FDI, especially Greenfield investments, boosts the national and industrial productivity (in the beneficiary sector) and leads to an improvement of the macroeconomic indicators: unemployment decrease, increasing the incomes, the public and private consumption.

Investments that have reached a maturity stage are less volatile, being able to improve economic performance. As a foreign investment is closer to the mature stage of its life cycle, the more it is stable and the long-term effect on growth is guaranteed (Şerbu, 2007, p. 40).

Unlike other SEECs, Romania has an increasing greenfield investment sector mainly of medium size companies located along the Western border and engaged in processing (Hunya, 2002).

The impact of FDI on economic growth is linked with what kind of sectors receive FDI. According to an empirical study on 12 Asian economies, during the period 1987 to 1997, regarding FDI in different sectors and their impact on economic growth, the evidence shows that FDI in manufacturing sector has a significant and positive effect

on economic growth in the host economies while FDI inflows in other sectors do not play a significant role in enhancing economic growth (Wong, 2009).

The literature which studies the relation between FDI and economic growth is vast, highlighting the main channels through which ISD may exert a major influence on economic growth: gross capital formation, the degree of market development and free access on the markets, the employment level, technological transfers, fiscal income, commercial channel (Hermes & Lensink, 2003).

The impact of FDI on economic growth is linked and with the level of economic development, the link between FDI and subsequent growth varies considerably when host economies are classified according to locational host-country characteristics such as GDP per capita, schooling, institutional development and openness to trade (Nunnenkamp & Spatz, 2003).

Graham and Wada (2001) developed an economic growth model using a Cobb-Douglas specification, where the free factor is interpreted as the total factor productivity. The productivity changes over time because of the technological changes considered exogenous. This model highlights the contribution of FDI to economic growth through the contribution to total factor productivity growth.

Balasubramanyam, Salisu and Sapsford (1996) stress that trade openness is crucial for obtaining the growth effects of FDI. In their paper there is tested the hypothesis advanced by Jagdish Bhagwati, according to which the beneficial effect of FDI, in terms of enhanced economic growth, is stronger in those countries which pursue an outwardly oriented trade policy than it is in those countries adopting an inwardly oriented policy.

In the perspective of capital accumulation channel, relevant papers have highlighted that FDI inflows stimulate the physical and human capitals in the economy, increasing the internal competition by developing their abilities. FDI plays an important role in contributing to economic growth. A better domestic financial conditions not only attract foreign companies but also allow host economy to maximise the benefits of foreign investments (Salman & Feng, 2009). Bengoa and Sanchez – Robles (2003) managed to investigate the implication of FDI on economic growth and have concluded that "the host country requires an adequate level of human capital, economic stability and liberalized markets to benefit from long-term capital flows".

2.2. Trends of GDP, FDI Inflows and FDI Stock in Romania, 2000 - 2013

Since 2003, FDI inflows in the Romanian economy is the subject of an investigation initiated by the National Bank of Romania and the National Institute of Statistics and the data thus obtained are a good source for research. For the period analyzed 2000 - 2013 the source with regard to trends of GDP, FDI inflows and FDI stock in Romania is based on the statistics of The World Bank and of the United Nations Conference on Trade and Development (UNCTAD). The trends of GDP, FDI inflows and FDI stock in Romania, 2000 - 2013 appear in table 1.

The reform initiated in 2000 regarding reduction of public expenditure, acceleration of privatization in Romania and the improvement of the tax system, has generated satisfying perspective, through FDI. However, unfavorable global context is felt in Romania in 2002, so the uptrend is restored in 2003. Of the US Dollars 6 436 million invested in Romania in 2004, 58 percent of net FDI flow is the foreign direct investor's equity stakes in the share capital of direct investment enterprises in Romania, 28 percent of net flow is the reinvested net earnings and 13 percent of the net FDI flow is the net credit received by direct investment enterprises from foreign direct investors – including those within the group   (NBR, 2004, p. 2-3). After 2004, when Romania accession to the European Union became a certainty, there was a real leap of FDI flows, so Romania was the destination of half of FDI oriented South - Eastern Europe, explained mainly by privatization in the energy sector. Although completed in 2005, the privatization of the largest commercial banks BCR by Austrian investor is reflected only in statistics from 2006 when actual payments were made (Șerbu, 2007). FDI stock in 2005 reached US Dollars 25 817 million registering an increase of 26.02 percent as compared to 2004. Tax reforms, Romania accession to the European Union, the improvement of the business environment, the major privatizations have contributed to an increase in FDI inflows. In 2006, FDI inflows running at US Dollars 11 367 million, 75.34 percent larger than at end of 2005, of which a significant increasing share went to reinvested earnings and intra-group loans. FDI stock has continued to grow in 2006 by 76.05 percent compared to 2005. In 2007, foreign direct investment came in a decrease of 12.72 percent as compared to 2006, while the stock of FDI in 2007 came in an increase of 38.52 percent as compared to 2006. As can be seen in Table 1, the value of FDI inflows was US Dollars 13 909 million, in 2008, reaching the highest value after a decline in FDI inflows in 2007. Since 2009, FDI inflows to Romania, has registered a sharp decline of 65.17 percent as compared to 2008, induced by the global financial crisis at end of 2008. FDI stock has continued to rise in 2009 stood at US Dollars 72 008 million, accounted a rise from 18.64 percent of GDP in 2000 to almost 44 percent of GDP in 2009, even though there was a sharp drop in FDI inflows in 2009. In the years 2010, 2011 FDI inflows have continued to decline reaching US Dollars 2 522 million in 2011. FDI stock reached a decrease in 2010 of US Dollars 1 744 million compared to 2009. In the years 2012, 2013 there have been an increase in FDI

inflows, but FDI inflows low level of US Dollars 2 748 million in 2012 and US Dollars 3617 million in 2013 is far below the US Dollars 13 909 million amounted in 2008. As can be seen in Table 1, Romania had the highest stock of FDI in 2013. FDI stock increased from US Dollars 78 010 million in 2012 to US Dollars 84 596 million in 2013, accounted an increase of 8.44 percent compared to 2012 and amounting to 44.61 percent of GDP in 2013.

By economic activity, FDI was channelled primarily to manufacturing (31.1 percent of total), financial intermediation and insurance (14.2 percent of total FDI), trade (11.2 percent), electricity, natural gas and water (11.1 percent). Within manufacturing industry the largest 3 recipients were: oil processing, chemicals, rubber and plastic products (5.9 percent of total FDI), transport means (5.7 percent) and metallurgy with a 4.1 percent of total FDI (NBR, 2014, p. 8). From a territorial point of view, FDI went mainly to development regions benefiting from a development physical infrastructure as Bucharest-Ilfov region (61.4 percent), the following development regions benefiting from a significantly reduced FDI flows were: the Centre region accounted 8.6 percent, the South-Muntenia region (7.7 percent), the West region (7.6 percent), and the North-West region accounted only 4.5 percent of FDI flows.

The top 4 countries by share of FDI stock as of 31 December 2013 were the Netherlands (24.4 percent of the FDI stock at end-2013), Austria (19.1 percent), Germany (11.2 percent) and France (7.6 percent), the same ranking since 2009 (NBR, 2014, p.11).

Table 1. Trends of GDP, FDI Inflows and FDI stock in Romania, 2000 - 2013

	GDP	FDI inflows	FDI stock
2000	37 305	1 057	6 953
2001	40 586	1 158	8 339
2002	45 989	1 141	7 846
2003	59 466	2 196	12 202
2004	75 795	6 436	20 486
2005	99 172	6 483	25 817
2006	122 696	11 367	45 452
2007	170 617	9 921	62 962
2008	204 339	13 909	67 911
2009	164 344	4 844	72 008
2010	164 792	2 940	70 264
2011	182 611	2 522	71 344
2012	169 396	2 748	78 010
2013	189 638	3 617	84 596

Source: based on the data base of The World Bank and of the United Nations Conference on Trade and Development (UNCTADstat),
http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx,
http://data.worldbank.org/indicator/NY.GDP.MKTP.CD/countries?display=default

3. Data and Methodology

The purpose of the paper is to analyze the impact that FDI inflows exert on the economic growth of Romania. In order to achieve the purpose of the paper, there were selected data during the period 2000 - 2013 using World Bank database and UNCTAD database for the variables: FDI inflows and GDP growth rate, used as measure for national economic growth and it is tested the existence of a causal correlation between the selected variables in Romania.

To demonstrate the long – term relationship between FDI inflows and GDP growth rate în Romania, there have been proceeded with the following steps. Firstly, was tested the stationarity of the two selected variables using the Augmented Dickey – Fuller Test. This test provides evidence on whether the variables under investigation has a unit root, based on the model below:
"Equation 1" through ordinary least squares (OLS) technique, where is the independently and identically distributed zero-mean error term

$$y_t = \alpha + \rho y_{t-1} + \delta t + u_t \qquad (1)$$

After testing the stationarity of the FDI inflows and economic growth, there will be investigated the long – run correlation between them, using Johansen Co-integration test. Johansen test approaches the analysis of cointegration by taking into consideration the number of the independent linear combinations (k) for m time series variables which yields a stationary process.

$$X_{1,t} = \alpha + \beta_2 X_{1t} + \beta_3 X_{3,k} + \ldots + \beta_k X_{k,t} + \varepsilon_t \qquad (2)$$

The last step is represented by the test of the relationship using Least Square method. The results of this analysis will confirm or infirm the existence of a causal connection between FDI inflows and GDP growth rates.

4. Results and Discussion

The results of the Augmented Dickey – Fuller test, provided in table 2 and highlight for a significance level of 5 percent, that both FDI inflows and GDP growth rate are stationary at first difference.

Table 2. Augmented Dickey – Fuller Test Results

Variable	Level	Prob.	1st Difference	Prob.
GDP	-2.663466	0.1062	-5.545231	0.0011*
FDI Inflows	-2.516884	0.1375	-3.587189	0.0242*

*Source: Author's calculations (Note: *for a significance level of 5 percent)*

FDI inflows and GDP growth rates are stationary at 1st difference; however, having the same degree of stationarity allows us to investigate the long-run correlation between them. The findings of the Johansen Co-integration test are provided in Table 3.

Table 3. Johansen Co-Integration Test Results

Unrestricted Cointegration Rank Test (Trace)			
Hypothesized		Trace	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.857626	23.83413	15.49471
At most 1	0.195427	2.391879	3.841466
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)			
Hypothesized		Max-Eigen	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.857626	21.44225	14.26460
At most 1	0.195427	2.391879	3.841466
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			

Source: author's calculations

The values from Table 3 confirm the existence of one cointegration equation for a 0.05 level, with an associated probability of 0.0220. The regression equation is then tested through Ordinary Least Square method (Table 4). The findings emphasizing the fact that GDP growth rate is positively and strongly influenced by the value of FDI inflows.

Table 4. Least Square Method Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI_FL OWS	0.001244	0.000323	3.849223	0.0027
C	-0.180680	1.064669	-0.169705	0.8683

Source: author's calculations

In Romania, the economic analysis has shown that FDI inflows exert a strong and positive impact on the GDP growth rate, confirming the previous findings of the relevant papers in the area as Nistor (2014).

The results of Johansen Co-integration test and Least Square method have demonstrated in Romania the existence of a long – run relationship between FDI

inflows and GDP growth rate. The findings have supported us into reaching the conclusion that an increased rate of economic growth in Romania is highly influenced by the volume of the FDI inflows in our country. The development of Romania is strongly determined by the volume of foreign capital inflows, policy makers implemented over time various strategies to attract an increased volume of FDI.

5. Conclusion

The impact of FDI on recipient countries is a topical issue and extensively discussed in the literature, and the potential impact has become recognized to the company authorities, the host - country or to the economists that analyze FDI phenomenon. The contribution of FDI to economic growth generally should be valued separately, in relation to the types of flow. The different forms of FDI flows have an asymmetric impact on growth due to their contrary nature (Şerbu, 2007). FDI is a major source of growth capital inflows, a source of the formation for some modern management systems and organization, a source of job creation, of advanced technologies and "know - how" that led to a more rapidly modernization of the economic sectors. The paper has examined the trends of FDI flows and the impact that FDI inflows exert on the economic growth of Romania for 2000 - 2013. FDI inflows reached a record value of US Dollars 13 909 million in 2008 and the FDI stock reached the highest value of US Dollars 84 596 million in 2013. FDI went mainly to those regions with a higher level development and with the most modern physical infrastructure, to the detriment of the some areas in the North - West and West regions. FDI were channeled mostly to traditional activities in the areas of highly polluting industries, oil processing, chemicals, metallurgy. Regarding the impact that FDI inflows exert on the economic growth of Romania for 2000 – 2013, the results show that FDI has a positive effect on the economic growth for the period analyzed 2000 – 2013 but the analysis undertaken has several limits, which it will be taken into account in further researches. Firstly, the study is limited to only two variables, meanwhile an increased performance on GDP growth rate is influenced by various factors, other than FDI inflows. Secondly, the period is restricted to a period till 2013, the data for 2014 being unavailable at the time of the current study. Further, we intend to expand the current analysis, including into the panel many emerging economies, showing the impact of FDI inflows in different countries, from various regions.

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7. References

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Integration between the Romanian and the Euro Area Financial Markets and its Impact on the Growth Rate of Romanian Listed Companies

Maricica Moscalu[1]

Abstract: The paper aims at investigating the impact of integration between the Romanian and the euro area financial markets, with focus on the banking and stock market segments, on the growth rate of Romanian listed firms. Previous research has showed that financial integration accelerates growth especially for firms acting in industries more dependent on external finance. The paper uses quarterly firm-level data and a panel fixed effects model in order to control for firm heterogeneity. The model specification controls for firm-level attributes and the development in the two segments of the domestic financial market. The paper brings evidence on the significant impact of financial integration on firms' growth with regard to both price- and volume-based measures. Integration in banking markets positively impacts on growth while integration in stock markets seems to tighten firm's growth opportunities. Additionally, the Gibrat's law is rejected. The findings have implications on researchers and Romanian policy makers alike. They call for action to deepen the integration in the banking markets. The paper contributes to the debate on the relationship between financial development and financial integration respectively, on growth in an emerging economy.

Keywords: financial integration; banking market; stock market; sales growth; Romanian companies.

JEL Classification: F36; G15; G30

1. Introduction

The increasing financial connections between economies gave rise to new directions for research on the determinants of growth, both on macro and microeconomic level. Such directions of research are especially relevant for contexts where the level of financial integration between domestic economies is quite high as is the case for the euro area countries or even the European Union (EU) countries not belonging to the Economic and Monetary Union (EMU). Both these groups of countries are additionally characterized by a high level of political integration and this was found by Friedrich et al. (2013) to be the key factor in explaining the larger positive impact of financial integration on growth for firms in European transition countries. In this context, the present paper is concerned with the impact of financial integration on

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growth at microeconomic level, using firm-level data – as opposed to industry-level data used in Friedrich et al. (2013), for Romanian listed companies.

Besides the positive impact documented above for the European transition countries group, of which Romania is part of, a few additional arguments can be mentioned as reasons that justify the research question being investigated in this paper. First, it is well known the high presence of foreign-owned banks on the Romanian banking market. According to the National Bank of Romania statistics (BNR, 2014), 60% of the credit institutions acting domestically have a dominant share of the foreign capital ownership and hold 80.2% of the aggregate net balance sheet assets. This argument can be considered relevant to the extent that previous literature agrees that a high presence of foreign banks is indicative of a high degree of international financial integration (Owen & Temesvary, 2014; Popov & Ongena, 2011). The second argument is also related to the banking segment of the financial market and shows that the average quarterly level for 2007-2013 of the share of foreign claims held by banks located in the euro area to foreign claims reported by banks located in the EU countries, on Romanian counterparts, is 79.8% (author's own calculations based on BIS data (2014). Third, given that the research reported in this paper is also concerned with the impact of integration in stock markets between Romania and the euro area on the growth rate of Romanian companies, it is worth mentioning that the proportion of holdings by monetary financial institutions (MFIs) located in the euro area of shares and other equities on Romanian counterparts compared to their total holdings in the EU member states outside the euro area, has an quarterly average value (2007-2013) of 4.15%. This level is understandably far below the level for UK (69.56%), even below that for Poland (11.87%) but comparable to that for the Czech Republic (4.29%) and above those for Bulgaria (2.26%) and even for Denmark (1.06%) (Author's own calculations based on ECB data, 2015). These arguments could be taken as support for the existence of a certain level of integration between the Romanian and the euro area financial (banking and stock) markets and, consequently, this level of integration can be expected to exert a significant influence on the growth rate of the Romanian (listed) companies.

Given the context described above, this paper seeks to investigate whether integration between the Romanian and the euro area banking and stock markets impacts on the growth rate of Romanian listed companies, controlling for the level of development in the domestic banking and stock markets. To investigate this research question, the paper uses a quarterly panel dataset for the period 2007-2013 for a sample of Romanian companies listed on the Bucharest Stock Exchange (BSE) and employs a panel data regression which controls for the firm-specific (unobservable) effects. The empirical results show that financial integration does indeed impacts on the growth in sales for the sampled companies with respect to both banking and stock markets. Specifically, the results show that increased banking markets – as shown by lower interest rate spreads (over the whole euro area) on euro-

denominated loans provided to non-financial corporations (NFCs) and increased level of cross-border lending from the euro area MFIs to the Romanian non-MFI sector – contributes to higher growth in sales for the Romanian listed companies. As regards the stock market, a higher overall excess return of the domestic Romanian market compared to the euro area as a whole, positively correlates with the growth in sales which means that more integrated stock markets does not favour Romanian firms' growth. These significant effects maintain in the presence of controls for the domestic development in the both segments of the financial market. The controls used – the level of non-governmental credit to GDP and the share of market capitalization to GDP, respectively – positively correlates with growth in sales meaning that better developed domestic banking and stock markets lead to better growth opportunities for the Romanian listed companies.

The remainder of the paper is structured as follows: section 2 reviews the previous literature on the relationship between financial integration and growth, section 3 presents the data and the method, and section 4 gives the empirical results and discusses them; section 5 summarizes the paper.

2. Financial Integration and Growth

2.1. Financial Integration and Growth at Macro- and Microeconomic Level

The issue of the determinants of corporate growth in a Romanian context is largely under-researched. During the documentary work conducted for the purpose of this research, the author did not come across with any paper investigating this issue exclusively for Romanian listed companies. However, there were identified several cross-country studies which included Romania among the sampled countries. At international level, one of the determinants of growth whose impact is frequently investigated in the previous literature is access to finance, both access to finance and growth viewed either from a microeconomic (including industry-level) or macroeconomic perspective. These previous attempts laid the ground for studying the impact of financial integration on growth so that the issues of financial development and financial integration, respectively, are not always separately studied in the previous literature. The focus on this paper is on the effects at microeconomic level i.e. at firm level.

The impact of financial development and financial integration, respectively, on growth was often investigated by using industry-level data as this mitigates some of the methodological issues usually involved in cross-country studies, according to Rajan & Zingales (1998). They were among the first authors to explore the causality contained in the finance-growth relationship and show that financial markets development further leads to economic growth in industries that are dependent on external finance and this is explained by the fact that more developed financial

systems lead to lower cost of external finance. These results are consistent with those in Bena & Ondko (2012) who showed, using firm-level data, that financial development ameliorates the allocation of capital by channelling the external financing to firms operating in industries with better growth opportunities and thus in greater need of external finance. Furthermore, Lucey & Zhang (2011) showed that the benefits on leverage stemming from increased credit markets integration are stronger for high growth than for low growth firms, located in emerging countries. Adopting the same methodological approach as in Rajan & Zingales (1998), Friedrich et al. (2013) show that financial integration is responsible for increasing the growth gap between industries dependent on external financing and those less dependent, from European emerging countries including Romania while no effect is documented for other emerging or for developed countries and this is explained by political integration of those countries that preceded their financial integration.

At firm-level, previous studies (Coricelli et al., 2012; Rahaman, 2011; Honjo & Harada, 2006) have proved that firms' access to finance impacts on their growth rate. Using data for both listed and unlisted firms, Rahaman (2011) shows that firm's financial structure has a significant and large effect on its growth rate; this is especially true for more financially constrained firms for which internal funds contribute more to financing their growth. Honjo & Harada (2006) have previously shown that the impact of financial structure on growth varies with the type of measure used to proxy firms' growth; specifically, for growth in sales they document a positive impact. However, by taking a different approach of the finance-growth relationship, Coricelli et al. (2012) have empirically argued that the relationship between leverage and productivity increase at firm-level is non-monotone and identify a point beyond which an increase in leverage becomes counterproductive. The findings of this study were derived from a sample of firms coming from Eastern European countries including Romania.

Based on these previous findings, there are expectations that financial integration between Romania and the euro area could indeed affect Romanian firms' growth especially for those firms more dependent on external finance.

2.2. How Integrated are the Romanian and Euro Area Financial Markets?
In the introductory section there were presented three descriptive arguments which pointed towards a certain general level of integration between the Romanian and the euro area banking and stock markets. However, to provide an empirically documented answer to this question is not an easy task given that previous literature do not count studies aiming at empirically assessing the level of integration between the Romanian and the euro area (European) financial markets. Consequently, the findings presented here are derived from studies carried out on groups of countries which include Romania. Moreover, given that Romania is not yet part of the euro

area it is reasonable to assume that the Romanian financial market is less connected to the euro area financial markets. Among the studies that considered Romania, together with other Central and East European (CEE), for instance, can be mentioned the following: Guidi & Ugur (2014), Pungulescu (2013), Demian (2011). Demian (2011) assessed the integration level in stock markets for six CEE countries including Romania, using cointegration tests, and revealed that the integration level among these countries and with EU developped countries increased over time (2001-2009). Moreover, the study identified cointegration relationships even before those countries joined the EU which means that a EU membership effect on financial integration is not confirmed and the author attributes this non-significant effect to the greater importance of economic ties with developed EU countries. The results in Demian (2011) regarding the lack of significance for the political integration seem to be later contradicted by those in Friedrich et al. (2013) as it was highlighted earlier. Regarding the integration level between the 12NMS (new member states) and the core UE states (UE15), Pungulescu (2013) has showed that integration is incomplete for either group of countries and that patterns previously seen for EU15 during the 1990 were later found in the 12NMS financial markets' evolution. Of great relevance for this paper is that, according to Pungulescu (2013), Romania is among the NMS that exhibit the highest convergence speed in money market interest rates. A recent study by Guidi & Ugur (2014) showed that the degree of integration between five South East European (SEE) countries, including Romania, and the developed financial markets in Germany and UK is low. Specifically, although the static cointegration tests confirmed that these markets are cointegrated, the dynamic cointegration tests revealed that the degree of cointegration varies in time, especially for the financial crisis period.

Although these findings are somewhat mixed, they do not completely preclude the existence of a significant impact of integration between the Romanian and euro area financial markets on the growth rate of Romanian listed companies. The next section presents the methodology used for exploring the existence of such significant effects.

3. Methodology

3.1. Data

The empirical tests conducted in this paper are based on a sample of 41 Romanian listed companies for which quarterly financial statements data was collected for 2007-2013. Data was retrieved from Thomson Reuters Eikon; however, when incomplete data was available, it was manually collected from companies' financial statements and, when even this was not possible and to a limited extent, averages for the two neighbour periods were used. To measure the degree of integration between the Romanian and the euro markets, financial data retrieved from the European Central Bank (ECB), National Bank of Romania (BNR) and Eurostat online

databases was used. Data coming from BNR, BSE and Eurostat was used in order to assess the level of development in the domestic credit and stock markets. The specific variables and the related data are described in the next sub-section.

3.2. Variables

Following recommendations in previous literature, the dependent variable is given by the growth in sales (GRS) between two consecutive periods (quarters), measured as the difference in log levels of sales ($\ln(sales_{(t)}) - \ln(sales_{(t-1)})$). Alternative measures of firm's growth include growth in employment (Rahaman, 2011; Honjo & Harada, 2006) and growth in fixed assets other than land (Rahaman, 2011). The explanatory variables used fall into three categories, namely: firm-level variables, financial markets integration variables and domestic financial markets development. They will be described next.

Although the focus on this paper is on financial integration variables, firm-level variables were used as controls. Four such firm-level variables were used based on the previous literature, namely: size, internal financing, access to external financing and leverage. Size (LNS), measured as ln(sales), was used to investigate the impact of firm's size on its growth rate. Alternative measures of size are related to employment, tangible assets other than land and total assets. The inclusion of a measure of size allows testing if Gibrat's law holds. The expected sign for ln(sales) is negative according to Rahaman (2011). Should a significant impact be confirmed, the Gibrat's law does not hold in the current context. The law states that a firm's growth is independent of its size (Daunfledt & Elert, 2013) thus a non-significant correlation between size and growth is expected. The other three firm-level variables relate to internal financing, external financing and capital structure. Their inclusion, together with their expressions and expected signs were inspired from Rahaman (2011). To proxy for a firm's availability of internal funding, the return on equity (ROE) – net income to shareholders' equity – was used. The expected sign is positive as more profitable firms are more able to support their growth. A measure of a firm's access to external finance (EXF) – total debt to total liabilities – was included in order to capture information about the firm's financial constraints with respect to external finance; however, unlike Rahaman (2011), total debt was used instead of short-term. The expected sign is positive as less constrained firms are expected to be better able to finance their growth using external finance. Lastly, the impact of a firm's financial structure was captured through the financial slack measure (FINS) – (tangible assets / total liabilities – 1) – which provides information on the extent to which a firm makes use of its leverage capacity and is expected to be negatively correlated with growth. The choice of other firm-level variables was limited given that this research is based on quarterly not yearly financial statements data.

Regarding the impact of financial markets integration, two segments were considered: banking market and stock market. To measure financial integration, two types of measures are generally used – price- and quantity-based measures (ECB, 2014; Friedrich et al., 2013; Lucey & Zhang, 2011). To proxy for banking (credit) markets integration, both types of measures were used. As price-based measures, several interest-rate spreads – IRS (over the euro area as a whole) to euro-denominated loans granted by MFIs to NFCs were used, as follows: interest rate-spreads for new loans with a maturity / period of initial rate fixation of up to 1 year and not exceeding EUR 1 million (IRS1); interest rate-spreads for new loans with a maturity / period of initial rate fixation of up to 1 year and exceeding EUR 1 million (IRS2); interest rate-spreads for outstanding loans with a maturity of over 5 years and total amount (IRL). As quantity-based measure, the share of cross-border loans (quarterly flows) granted by MFIs from the euro area to the Romanian non-MFI sector to GDP (coded CRE) was used. Based on previous literature, more integrated banking (credit) markets are expected to expand financing options for firms in need of external finance.

Stock market integration was more difficult to assess. The measure employed in this paper is based on excess returns between the Romanian and the euro area stock markets (BET). The stock market returns are taken as quarterly changes in BETC and EURO STOXX indices for the Romanian and euro area stock markets, respectively. The impact of this variable should be interpreted with caution. One way to interpret it could be derived from Guidi & Ugur (2014) who showed that on less integrated stock markets there are diversification benefits so as with respect to the five SEE countries included in their study. This could suggest that larger excess returns means less integrated markets. Although in a different context, O'Connor (2013) finds, contrary to expectations, that equity market liberalization does not lead to an increase but to a decrease in a firm's externally-financed growth rate. Consistent with the measure used in this study, larger excess returns could also mean larger growth opportunities for the Romanian companies stemming from less integrated Romanian and euro area stock markets.

According to the previous findings, the research design employed in this paper controls for the development in the domestic credit and equity markets. In order to do so, the following two measures were used: the share of quarterly non-governmental loans (flows) to quarterly GDP (CRN); for the credit market, the share of stock market capitalization (quarterly change) to quarterly GDP (MC). More developed credit and equity markets are expected to expand firms' growth opportunities and to foster the impact of financial markets integration variables.

3.3. The Empirical Model

To investigate the effect of financial markets integration variables on Romanian firm's growth rate, a panel data regression model was used. It controls for firm-specific (unobservable) effects. All the three categories of explanatory variables are introduced with one lag in order to help explaining the causality relationship (Honjo & Harada, 2006) and to alleviate endogeneity problems (Lucey & Zhang, 2011).

The model to be estimated can be stated as follows:

$$GRS_{it} = c + LNS_{it(-1)} + ROE_{it(-1)} + EXTF_{it(-1)} + FINS_{it(-1)} + IRS_{it(-1)} \\ + CRE_{it(-1)} + BET_{it(-1)} + CRN_{it(-1)} + MC_{it(-1)} + a_i + \varepsilon_{it}$$

where: GRS, LNS, ROE, EXF, FINS, IRS, CRE, BETC, CRN, MC are as they were defined before; i denotes the firm, t denotes the period (quarter), a_i the firm-fixed effect and ε the disturbance term.

4. Results and Discussion

This section presents and discusses the main results and checks their consistency compared to the previous results in literature.

Table 1. Correlation matrix between the explanatory variables

	LNS	ROE	EXF	FINS	IRS1	CRE	CRN	BETC	MC
LNS	1								
ROE	0.017	1							
EXF	0.050***	0.003	1						
FINS	-0.264*	-0.011	-0.111*	1					
IRS1	0.001	-0.029	-0.060**	0.074**	1				
CRE	0.033	0.026	-0.206*	0.014	-0.116*	1			
CRN	0.091*	-0.050***	-0.245*	0.03	-0.238*	0.383*	1		
BETC	-0.037	0.017	-0.04	-0.026	0.304*	-0.016	-0.259*	1	
MC	-0.046	0.03	-0.002	-0.028	0.067*	-0.009	-0.252*	0.545*	1

*Source: own results; * - significant at 1%, ** - significant at 5%, *** - significant at 10%.*

Before presenting the results of estimating the empirical model, the correlations between the explanatory variables are given in table 1. For reasons of space, variables IRS2 and IRL were eliminated from the results reported in table 1 because their correlations with other variables were high and significant. More specifically, the correlation coefficients between IRS2 and CRE and CRN were -0.515 and -0.605 respectively and significant at 1%. Similarly, the correlation coefficient between IRL and CRN was 0.701 and significant at 1% as well. Consequently, the results reported here refer only to IRS1. The correlations among the remaining variables are at acceptable levels.

The results of estimating the empirical model are given in table 2. From these results it can be noticed that two of the four firm-level variables are statistically significant at 1% and their sign is according to the expectations. Specifically, size and growth are negatively correlated which implies that larger Romanian listed firms grow slower than smaller firms. The significant correlation between size and growth provides support for rejecting Gibrat's law and this is consistent with findings in Honjo & Harada (2006). Moreover, it can be noticed that the coefficient for size is also largest in magnitude among the coefficients for the firm-level variables. A second significant result shows that the availability of internal funds accelerates growth as more profitable firms can devote more funds to support their future growth. Although not significant, the effect of the last two firm-level variables has the hypothesized direction. Therefore, better access to external (debt) finance alleviates firms' financial constraints and thus improves their ability to grow; its statistical significance is, however, close to 10%. Firms that do not fully use their leverage capacity and thus have greater financial slack, grow slower. This is consistent with Honjo & Harada (2006) who showed that debt ratio positively correlates with growth measured as growth in sales.

Table 2. Results of estimating the empirical model

Variable	Coefficient	t-Statistic	p-value
C	3.464	15.010	0.000*
$LNS_{(-1)}$	-0.405	-15.271	0.000*
$ROE_{(-1)}$	0.047	6.212	0.000*
$EXF_{(-1)}$	0.048	1.511	0.131
$FINS_{(-1)}$	-0.003	-1.246	0.213
$IRS1_{(-1)}$	-2.559	-2.899	0.004*
$CRE_{(-1)}$	0.341	2.132	0.033**
$CRN_{(-1)}$	0.734	6.062	0.000*
$BETC_{(-1)}$	0.370	4.851	0.000*
$MC_{(-1)}$	0.319	5.373	0.000*

*Source: own results; R-sq., 0.277, Adjusted R-sq., 0.243; F-stat., 8.246, Probab. of F-stat., 0.000; * significant at 1%, ** significant at 5%, *** significant at 10%; EGLS weights: cross-section weights; White (diagonal) covariance matrix method.*

Regarding the impact of financial integration variables which are of interest in this paper, all of the four variables are highly statistically significant. Concerning banking market integration, the results suggests that as new small short-term euro-denominated loans for Romanian NFCs become more expensive, compared to the euro area average (increase in IRS1), they are less able to expand their sales and this is according to expectations. The reaction of Romanian (money market) interest rates, following shocks on the euro area corresponding rate is modelled in Hudea (Caraman) (2014) where evidence of resulting lower interest rate differential is considered as emerging from Romania's membership to the EU. At the same time, the increase in the level of the cross-border lending between the euro area MFIs and the non-MFI Romanian sector, which is equivalent with the deepening of the

integration between the two markets, makes external finance more available to Romanian firms and thus accelerates their growth. The development of the internal credit market, as measured by the level of the non-governmental credit to GDP, has an intrinsic effect and additionally contributes to the growth in sales of Romanian companies. The impact of integration in stock markets is also significant and shows that the excess return in BETC index over the euro area (measured by the relative increase in the EURO STOXX index) is positively associated with growth in sales for Romanian listed companies. Greater excess return suggests that the Romanian stock market offers better investment and growth opportunities compared to the euro area as a whole. It can be easily seen form figure 1 that the evolution of BETC index over the period 2007-2013 closely resembles the evolution in the EURO STOXX index and, additionally, the returns in BETC are larger, especially on the positive side, than those for the euro area (EURO STOXX). Over the period under analysis, the correlation coefficient between the two stock market return series is 0.88 and significant at 1%.
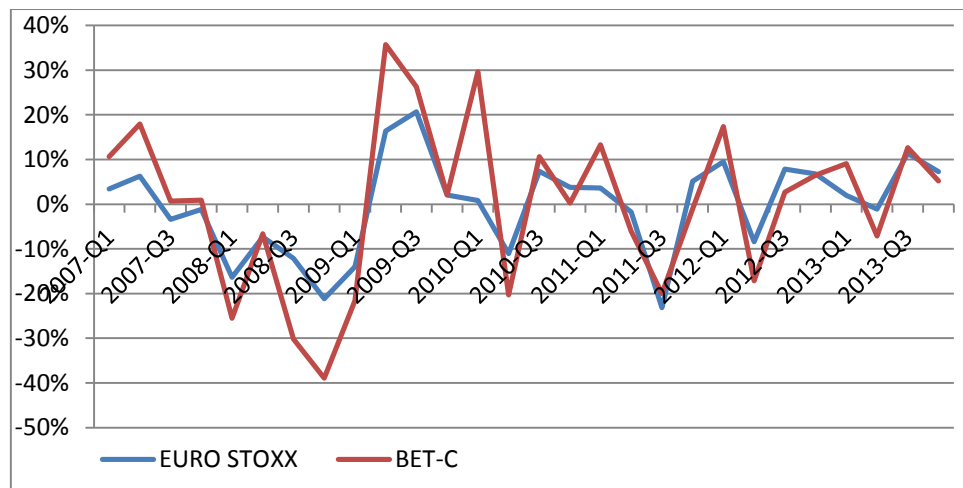

Figure 1. BETC and EURO STOXX quarterly returns (2007-2013)

Source: Author's work using data from Thomson Reuters Eikon and www.stoxx.com

As already mentioned in the variables sub-section, this measure of integration in stock markets should be viewed with caution. However, considering the results in Guidi & Ugur (2014), greater excess returns could be considered as stemming from less integrated markets since less integrated equity markets offer better diversification opportunities according to the above study. Consequently, this variable could be viewed as an inverse proxy for integration in stock markets and the positive correlation could suggest that a more integrated Romanian stock market with the euro area stock market leads to lower growth opportunities for the Romanian listed companies. As in the case of credit market development, stock market

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development, proxied through the (change in) market capitalization to GDP, positively affects Romanian firms' growth in sales suggesting that a more developed stock market offers better growth opportunities.

5. Conclusion

This paper aimed at investigating the impact of integration between the Romanian and the euro area stock markets on the growth in sales for the Romanian quoted firms. The segments whose effects were investigated are banking (credit) and stock markets. Besides confirming the impact of certain firm-level variables, the impact of financial integration is also confirmed. Specifically, more integrated credit markets and less integrated stock markets, respectively, positively impacts on growth in sales. The positive impact on firm-level growth of a more developed financial system – both with respect to the credit and the stock market – is also confirmed. However, the results should be taken cautiously given the short sample period as well as the small cross-sectional dimension of the sample. Further research should consider the improvement of the quality of the data as well as the following directions: alternative ways of assessing the stock market integration; consideration of the interaction effects between domestic financial development and financial integration; the interaction effects between firms' internal funding and external financing constraints; and alternative empirical procedures of estimating the model. The results have implications on policy decisions aiming at deepening the integration between the Romanian and the euro area financial markets, both with respect to the banking and the equity market.

6. Acknowledgement

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Determinants of Dividend Policy in Kosovo Banking Industry

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Abstract: As salary to Managers and employees is dividend to Shareholders. There are several determinants influencing dividend policy on the banking Industry. A stable dividend policy gives positive signal to shareholders and can be seen as positive on the bank performance. In order to distribute dividend several factors are considered. With multivariable linear regression and the data from the "Financial Stability Report" of the Central Bank of Kosovo this paper tends to present the determinants which indicate the decision on following a certain policy. Results received from this paper is tended to inform the reader on understanding the role of determinants on dividend distribution as well as new researchers on having an additional opinion related to their future research.

Keywords: Dividend policy; Payout Ratio; Dividend Distribution; Dividend Declaration

JEL Classification: B26; G32; G35

> *"Do you know the only thing that gives me pleasure?*
> *It's to see my dividends coming in"*
>
> **John D. Rockefeller**

1. Introduction

Dividend policy has been and still is a long issue of interest in Corporate of Finance. A number of authors have argued in their own way by their own empirical model, from the investment to the dividend distribution, forms of dividend distribution, and the amount of distribution as well as the period of dividend distribution. Even since the work of Lintner (1956), followed by two Nobel Miller & Modigliani (1961) dividend policy remains a controversial issue. It has been clearly argued that the

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dividend policy is determined from the level of profit, nature of business, leverage ratio, etc.

After two decades of non-stop research, the dividend policy is still listed as one of the top ten crucial unresolved issues in the world of finance in which no consensus has been reached (Brealey & Myers, 2003).

In the recent period, many researches have been done on dividends, dividend determinants and dividend policy. (Rozeff, 1982) investigated the dividend policies and relation with variables such as growth rate, beta rate, and management ownership ratio in USA. He collected the data from 1000 firms in 64 different industries by using published articles in the field of investment evaluation by value line institution from June 1981. The results showed that dividend payment is a reverse function of future growth in sales, beta rate, and corporations' management ownership ratio. However, dividend payment has a direct relationship with the number of shareholders. Furthermore, the results of this study showed that corporations' investment policies affect the dividend policy. In 1992, Jensen et al studied U.S corporations. They concluded that debt ratio has a reverse relationship with the dividend payment ratio, so that the higher the debt ratio, the higher is the financial risk and lower the dividend distribution.

After 1978, the dividend percentage reduced dramatically in the US corporations. It reduced from 52.8% in 1973 to 20% in 1999. This motivated Fama & French (2001) to examine the reasons for dividend reduction of listed corporations in the New York Stock Exchange. Results revealed that profitability, firm size, and investment opportunities were the main factors influencing dividends.

Kania & Bacon (2005) have used Regression Analysis to measure the effects of determinants on dividend policy by testing: ROE, Sales Growth, Debt/Total Assets, etc. In this paper we will try to point out the determinants which are more accurate in following a certain dividend policy, and the importance of dividend policy. To complete this analysis we have used the annual report data of Banks in Kosovo for the period 2009-2013.

2. Importance of Dividend Policy

Dividend is a payment either in cash or other forms that banks pay to their own shareholders. They are regarded by shareholders as the return on the investment made in the bank. The Board of Directors has primary responsibility for drafting the dividend policy and decides whether to pay dividends or not? We raise a very basic question: Why should banks have a strategic policy for dividend payment? "Players in the market", shareholders and investors do not prefer surprises. If the bank does not have a stable dividend policy, the corporate shareholders will not have any more interest to keep their capital in such banks. Consequently, the stock price will fall.

When shareholders do not receive the expected return (dividend), they express dissatisfaction by selling shares. Therefore, banks should pay special attention on dividend policy.

There are a variety of factors that affect dividend policy, but we will mention some of them, have greater impact. Factors that affect dividend policy can be divided into two groups: (Livoreka, et alli., 2014, pp. 387-396)

• Internal factors;

• External factors.

External factors, which influence the dividend policy, are tabulated as follows:

The overall economy in case of uncertain economic conditions and business, management may decide to retain a significant portion of income in the form of retained earnings, with the aim of creating reserves to absorb future shocks.

In the depression, management can hold a large part of its profits to maintain corporate liquidity position. But in periods of prosperity management may be more liberal and pay more dividends due to greater availability of cash flows.

Situation on Capital Markets when there is a stable capital market and there are frequent movements of prices, i.e. when there are unstable prices, then there is a tendency for management to have a more liberal dividend policy. And vice versa, when we have unstable market situation, when company faces frequent price fluctuations, then the dividend policy would be conservative.

Legal Restrictions legal regulations vary from country to country, regulations governing dividend policy. Some legal rules stipulate that dividends can be paid from the profit of the current year or from the profit of last year which is kept as a reserve (Ciceri & Xhafa, 2006, p. 621). The rate of capital consumption is considered a protector of shareholders and creditors, prohibiting the payment of dividends out of capital.

Contractual restrictions lenders can sometimes put restrictions on dividend payments to protect their interests (especially when the bank is experiencing liquidity problems). Suppose made a loan agreement stating that the bank will not declare any dividends for as long as the liquidity ratio is less than 1:1. Or banks will not pay more than 20% dividends as long as the loan is not repaid, etc.

Entries in capital markets, a large bank with a steady profit, has certainly easier to access the capital markets and thus can borrow money from the markets. But for small banks and start-up ventures is difficult to obtain funds from the capital markets, therefore it is necessary to keep profits as retained earnings due to the need for additional funds for various investments.

Internal factors affecting the dividend policy are numerous, but mention some of them:

Shareholders expectations, though the place dividend rate, it is always in the interest of shareholders. Shareholders expect two types of returns: Capital gains, Dividends:

Cautious investors look for dividends because:

- This reduces the uncertainty (capital gains are uncertain);
- Indications for corporate financial strength;
- The need for income: Some invest in stocks in order to receive a regular income to meet their living expenses.

The fiscal situation of shareholders affects the desire for dividend. Shareholders, whose banks operate in countries where the tax on dividends is high, prefer, to replace dividend with higher income in a payroll list. But on the other hand, shareholders with smaller incomes wish to receive higher dividends, because their taxation is lower. Besides these factors, should be taken into account the situation of retained earnings, corporate liquidity etc. In general there are a number of factors that affect dividend policy, such as legal norms (legislation and court decisions that affect dividend policy), the liquidity situation, the need to pay off the loan, the loan limits on contracts , the stability of retained earnings, access to capital markets, control, shareholder fiscal situation, etc.

Factors affecting low dividend payment are: (Luboteni, 2007, p. 130)

- Taxes – is considered one of the factors that affect the dividend payment. For individual shareholders tax rates on income from dividends are higher than taxes on capital gains. Dividends received are taxed as regular income.

- Costs of Flotation - various banks in some situations decide to sell new shares if order to pay dividends. Sale of new shares can be expensive, especially if are taken into account selling expenses (Flotation), then the value of the new shares will fall.

- The dividend restrictions - In some situations the bank may face restrictions on paying dividends. The law prohibited banks on paying dividends if the dividend amount exceeds the amount of retained earnings.

Factors affecting the high dividend payments are: (Luboteni, 2007, p. 130)

The desires for the following income - many individuals want higher incomes (i.e. those with fixed incomes, people who are already retired)

Taxes and legal benefits of high dividends - Earlier we saw that dividends are taxed in an unfavourable manner to individual investors. However, a significant number no adverse treatment by keeping productivity high dividend, rather than securities, bringing the dividend yield is low.

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Investors in banks - A deduction of taxes on dividends sensitive occurs when a bank holds shares in another bank.

Exempt investors - These include some of the largest investors in the economy, such as e.g. pension funds, relief funds, funds of various trusts etc.

3. Mechanism of the Dividend Payment in Cash

Payment of Cash Dividend

Cash dividends are the most common and preferred way of shareholders to withdraw their profits from made investments. Cash dividends may be (Ross, et alli., p. 521):

• regular payments, which were sent directly to shareholders and usually repeated in the same period of time;
• additional dividend in cash, represents supplements, which cannot be repeated on a regular basis in the future;
• special cash dividends, in contrast to the high point they do not repeat any way;
• Liquidation dividend - a part or the whole business can be sold.

Payment of cash dividend reduces cash and retained earnings. After the declaration of dividends by the Board of Directors of the Company dividend becomes liability for the company.

Chronology of Dividend Payment

Date of disclosure: Board declares dividend, after that point it becomes an obligation for the company.

The ex-dividend date: Usually it is two days before the date of registration (NYSE). If shares purchased during or after this date, you will not receive a dividend. Share price usually falls to the value of the dividend payment (or the value of the dividend that remains after deduction of tax).

Date of Registration: Holders of dividends are determined and only the registration is done for dividend payment.

Date of Payment: Cheques distributed and paid dividends. In June 1995 the time the ex-dividend was reduced from four days to two days as a result of the change in the date of the agreement.

Fixed Rate Payment of Dividend - Pay-out Ratio

Dividend fixed rate payment known also a pay-out ratio, is a fixed ratio which difference corporate use to determine the amount of the dividend which will be distributed. This ratio is multiplied with the last year profit. With this model at the profit and the dividend are in a linear correlation.

Deficiency of this point appears at moment the company operates with loss and this policy does not allow it to distribute dividends despite the fact that there are certain numbers of retained earnings.

Fixed Amount Payment

The other way of dividend payment practice is to establish a fixed amount for a fixed period, leaving independent from the profit for the year. This method of dividend is more prevalent in the world and on the one hand gives security to managers and to potential investors. Most companies tend to keep constant the amount of dividend until the company managers ensure that the company's profit has increased (www.academic.cengage.com, Dividend Policy).

This method signals to the market:

• Sustainability of the dividend in relation to fluctuations Company

• Dividend rate gives positive market signals

• With decreasing profits held constant dividend payment

4. Research Methodology and Testing Hypothesis

In order to get the more appropriate results for our paper we will raise two hypotheses which will be tested with linear multivariable regression.

The hypotheses are:

H0: The profitability has a positive effect on dividend policy?

H0: Capital of the Bank has a positive effect on dividend policy?

In order to verify the first hypothesis as the index of profitability is used ROE return on equity and ROA return on assets.

In order to verify the impact of bank capital, we have used the Capital/Assets ratio.

Kennedy and Nunnally (1986) studied the dividend payout ratios of 80 large banking firms for 1982–1983 using several regression techniques. The results showed that

prior year's dividend pay-out ratio and the stock's price-earnings (PE) ratio were consistently considered as important determinant variables.

Although the data consists of both cross sectional and time series information, it does not contain equal information of all banks in the sample for the entire period. Therefore, unbalanced panel estimation techniques are used in this study. Panel techniques take into account the heterogeneity present among individual banks, and allow the study of the impact of all factors with less collinearity among variables, more degree of freedom and greater efficiency. We have decided to you the linear multivariable regression due to the fact that this model is considered to be more relevant for this topic.

Similarly to previous studies, a linear regression is used to capture the effect of various factors on banks' dividend pay-out ratio, as follows:

DPO = Dividend pay-out ratio is measured as a dividend distributed divided by net income of the dividend year;

CA = Capital to assets ratio is measured as a Total Capital divided by Total Assets;

ROE = Return on equity is measured as a Net Profit divided by Average of Equity;

ROA = Return on assets is measured as a Net Profit divided by Average of Assets;

$\beta 0$ - is the intercept.

From the above figures we can create a multivariable linear regression:

DPO i,t = $\beta 0$ + $\beta 1$(CA)i,t + $\beta 2$(ROE)i,t + $\beta 3$ (ROA)i,t

The data of the dividend distribution were collected from banks annual report of the last five years. The table below is built based on the data collected.

Table 1. Dividend distribution from Banks operating in Kosovo

Banks/Years	2011	2012	2013
PCB	15,000,000.00	20,000,000.00	25,000,000.00
RBKO	5,000,000.00	12,000,000.00	7,500,000.00
Other Banks	-	-	-

Source: Annual Reports of the respective banks

The banks are listed based on the banks market share profit of the year 2010/2011. On these years PCB had 50% of the market share profit, RBKO around 38%, the other part is divided between 5 other banks.

Based on the hypothesis above we will prepare a model for testing the hypothesis.

(Payout ratio)i,t = β0 + β1(Capital-to-asset)i,t + β2(ROE)i,t + β3 (ROA)i,t

Table2. Regression Input Data:

Years	Payout Ratio	Capital/Assets	ROA	ROE
2009	66.5%	10.1%	2.0%	18.1%
2010	63.1%	10.1%	1.8%	17.6%
2011	62.5%	10.2%	1.4%	14.9%
2012	45.9%	10.3%	0.7%	7.1%
2013	148.6%	12.1%	0.5%	9.4%

Source: Central Bank of Republic of Kosovo

Table 3. Variables definition

Variables	Definition
Payout Ratio	Dividend payout ratio=Dividend/Profit of the Year
Capital/Assets	Total Capital/ Total Assets
ROE	Net Profit/ Equity Average
ROA	Net Profit/ Assets Average

5. Results and Data Analysis

Based on the table below we can conclude:

Regression Statistics	
Multiple R	0.999562868
R Square	0.999125926
Adjusted R Square	0.996503705
Standard Error	0.024040238
Observations	5

ANOVA

	Df	SS	MS	F	Significance F
Regression	3	0.660616977	0.220205659	381.022792	0.037637507
Residual	1	0.000577933	0.000577933		
Total	4	0.66119491			

	Coefficients	Standard Error	t Stat	P-value

Intercept	-5.561120317	0.389169794	-14.28970185	0.044478436
Capital/Assets	56.56090591	3.751175272	15.07818265	0.042159513
ROA	13.46206239	14.52444485	0.926855555	0.524154822
ROE	1.452569376	1.565154734	0.928067586	0.523740023
	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-10.50599139	0.616249243	-10.50599139	-0.616249243
Capital/Assets	8.897704897	104.2241069	8.897704897	104.2241069
ROA	-171.0885076	198.0126324	-171.0885076	198.0126324
ROE	-18.43460711	21.33974586	-18.43460711	21.33974586

From the regression analysis we can conduct that Capital/Assets, Return on Equity and Return on Assets have a positive correlation to Dividend Pay-out ratio, therefore the first and the second hypothesis are verified.

The equation now is constructed as follow: Dividend Pay-out = -5.56 + 56.56C/A + 13.46 ROA + 1.45 ROE

Where: C/A is Capital to Assets Ratio; ROE is Return on Equity Ratio and ROA is Return on Assets Ratio.

Taking the results of P value Capital / Assets have a linear impact on Pay-out Ratio, while ROA and ROE are not.

6. Conclusions

As salary to managers and employees, is dividend to the shareholder. Nobody will invest its assets in a company, which would not reciprocating return on investment. The dividend is the main motivating factor to various investors, in making a decision on investment to the certain sectors and certain companies. To create a reputation in society companies should distribute dividends in regular intervals, in certain amounts. This on the one hand gives managers the opportunities keep happy shareholders.

Based on the result from the regression we have a positive relation between dividend pay-out ratio and Return on Assets as well as from Return on Equity. Banks with higher profitability are tending to pay higher dividends. Therefore we can conclude that both of our hypotheses are accepted, and we can conclude that profitability and capital have positive correlation to the dividend distribution.

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Foreign Direct Investment – The Case of Botswana

Patricia Lindelwa Makoni[1]

Abstract: This article sets out to analyse the occurrence of foreign direct investment (FDI) in Botswana. Diamonds contribute more than 50% of Botswana's gross domestic product (GDP), hence economic growth and development focus has been on the mining sector. The country's other sectors of tourism, agriculture, financial services and manufacturing have not received as much support from the Government, private sector and even international investors. This article briefly examines FDI inflow trends and the country's national economic-building policies which the Government has put in place to diversify its economy from the current export-oriented, diamond mining economy. A country-specific case study approach was adopted. The results yielded show that Botswana is overly dependent on export earnings from diamonds. This leaves the country vulnerable to external global economic shocks. Given that diamonds are a natural resource with a limited lifespan, the Government of Botswana needs to draw up investor-friendly policies to attract FDI inflows to expand its economic base. International capital inflows would complement domestic savings and further boost employment and trade opportunities in the country.

Keywords: trends; diversification; FDI; Botswana; Africa

JEL Classification: F21; O10; O55

1. Introduction

Botswana is a small, landlocked country located in Sub-Saharan Africa, with a population of just over two million. It gained its Independence from British rule in 1966, and was at that time considered one of the poorest nations, with a per capita gross domestic product (GDP) of only US$70 (World Bank, 2014). At that time, the country's economy was agro-based, with this sector contributing approximately 43% of the country's GDP, mainly from its cattle rearing and beef production (Malema, 2013). A few years later, diamonds were discovered, thereby also altering the economic structure of the country. Botswana went from being a low income nation to an upper-middle income country, as a result of its record-breaking high economic growth. Between 1994 and 2011, real GDP increased at an average annual rate of 4.6%, according to the World Bank (2014). Mining, specifically diamond mining, became the dominant sector in terms of GDP contribution. Agriculture shrunk from

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39% of the economy in 1966 to 2% of total output by 2003; whereas mining went from 0% to a peak of 47%, before declining to 35% during the same period (Siphambe, 2006). Botswana's total exports rose by 36% in 2013. Contributing to this rise in exports were mainly diamonds, whose exports rose by 46% between 2012 and 2013.

The country's susceptibility to external economic shocks was experienced during the global financial crisis of 2008, whereby the low global demand for minerals resulted in a sharp decline in commodity prices and volumes traded. This then translated into temporary closures of diamond mines, and job losses in some instances. As a lesson learnt, as well as the common knowledge that natural resources do eventually become depleted, the Government of Botswana (GoB) has started putting measures in place to diversify its economy by offering incentives to attract private sector investment as well as international capital flows. The country can no longer depend on diamond exports to sustain the economy.

In order to understand the Botswana case study, this article will seek to examine inflows of FDI to the country in the context of volumes, targeted recipient sectors and sources. The remainder of this article is set out as follows: the first section gives a general overview of determinants of FDI, followed by a trend analysis of FDI in Africa. A case study format has been adopted in which various aspects of Botswana will be dwelt on, ranging from a detailed analysis of the country's economic structure, FDI inflow trends, FDI and economic diversification policies as well as the challenges faced in harnessing FDI to the country. The paper winds down with policy recommendations and a concluding summary to the study.

2. Determinants of FDI

Foreign Direct Investment (FDI) is regarded to be any international investment made by one economy's resident entity, in the business operations of an entity resident in a different economy, with the intention of establishing a lasting interest (International Monetary Fund (IMF), 1993). The World Trade Organisation (1996) adds that FDI occurs when an investor based in one country (the home country) acquires an asset in another country (the host country), with the intent to manage that asset. Alternatively, FDI can be viewed as the ownership of 10 percent or more of the ordinary shares or voting stock of an enterprise which is usually considered to indicate 'significant influence' by an investor (IMF, 2000). This however differs from country to country and can even be determined by their policies, some of which restrict the levels of shareholdings of foreigners in local firms.

Several theories have been put forth to explain patterns and motives of FDI globally, from both macroeconomic and microeconomic perspectives. Lipsey (2004) argued that the macroeconomic view sees FDI as a flow of (foreign) capital across national

borders, from home to host countries, measured in balance-of-payments statistics. He further then identified macro (country)-level determinants that impact on a host country's ability to attract FDI as being market size, economic growth rate, GDP, infrastructure, natural resources, and institutional factors such as the political stability of the country, amongst others.

On the other end of the spectrum is the microeconomic perspective of FDI. Lipsey (2004) contends that the microeconomic view examines FDI motivations from the investor's perspective, which would be similar to taking a firm-level or industry-level perspective in making the investment decision. In this instance, the most appropriate explanatory FDI theory would be Dunning's 1977 Eclectic Paradigm in which he states that FDI occurs under different scenarios of ownership, locational and internalization advantages (OLI). Ownership advantages are firm-specific and exclusive to that firm, in the form of both tangible and intangible assets such as trademarks, patents, information and technology, which would result in production cost reductions for the firm, enabling it to therefore compete with firms in a foreign country. Additionally, it must be more profitable for the firm possessing these ownership advantages to use them for itself (internalisation), rather than to sell or lease them to foreign firms through licensing or management contracts (externalisation). This would then lead to the location-specific aspect of Dunning's eclectic paradigm. Although FDI location is influenced by firm behaviour in terms of whether it is resource-seeking, market-seeking, efficiency-seeking or strategic asset seeking; the bottom-line remains that the investment decision is taken on the basis of economic geography, which has a macroeconomic influence as it takes cognisance of country-level characteristics (Popovici & Calin, 2014). According to them, the theory explained the success of FDI among countries based on the national wealth of a country, such as its natural resources endowment, availability of skilled and/ or cheap labour, local market size, infrastructure and Government policy regarding these national resources.

Perceived benefits of FDI to recipient countries are that the international capital flow serves many needs. In 1999, the UNCTAD argued that FDI is a reliable source of stable funding as it gives recipient countries the confidence to adopt long-term views towards their economic growth plans. Also, FDI plays the role of plugging gaps in funding where there is a mismatch between domestic savings and investment needs (Ndoricimpa, 2009). In the African context, Asiedu (2003) explained why FDI is important to a country, and what influences its attraction to the continent. According to her, countries with a high unemployment rate may place more value on the employment creation aspect of FDI. Since economies in Africa are characterized by high unemployment rates, FDI in search of minerals and access to the abundant, low cost labour, will have to ensure job creation. This scenario is the status quo in Botswana, where the bulk of FDI reaching the country is concentrated in the diamond mining sector of the economy. However, despite this – the investments

have not translated to job creation as the sector only contributes 5% to employment; whereas unemployment remains high at 20%.

3. FDI in Africa

Globally, FDI inflows dropped by 8%, to approximately US$1.26 trillion in 2014. This was attributed to economic fragility, policy uncertainty and political risk. According to the UNCTAD (2014), foreign direct investment inflows to Africa increased by 4% to US$57 billion, on the back of international and regional market-seeking and infrastructure investments (in line with already-discussed motives of FDI). Decomposing the rise in FDI by sub-region, credit is given to the Eastern and Southern African bloc. In Southern Africa, flows doubled from US$6.7 billion in 2012 to $13.2 billion in 2013 as a result of record-high flows to South Africa and Mozambique. In both countries, infrastructure was the main attraction, with investments in the gas sector in Mozambique also making a significant contribution. FDI in East Africa increased by 15% to US$6.2 billion due to rising inflows to Ethiopia and Kenya. Kenya has become a preferred business hub, not only for oil and gas exploration but also for manufacturing and transport. Kenya has also become a global leader in mobile phone banking payments, and is hence attracting technology firms to invest in innovation. On the other hand, Ethiopia's industrial strategy attracts Asian capital to its manufacturing sector. FDI flows to North Africa however decreased by 7% to US$15.5 billion. Although Egypt's FDI dropped by 19% to US$5.6 billion, foreign investors did not abandon the economy as it has a large population which translates into big market size, and availability of cheap labour. Central and West Africa saw inflows decline to $8 billion and $14 billion, respectively, due to political and security uncertainties in most countries in the region.

Intra-African foreign direct investments are increasing, led by South African (e.g. Bidvest, AngloGold, MTN, Shoprite, PicknPay, Aspen and Naspers), Kenyan, and Nigerian corporations involved in agriculture, manufacturing, financial services, distribution, transport and construction. Between 2009 and 2013, the share of cross-border greenfield investment projects originating from within Africa increased to 18%, from less than 10% in the preceding period. For many smaller, landlocked or non-oil-exporting countries in Africa, intraregional FDI is a significant source of foreign capital (UNCTAD, 2014).

Table 1. Average FDI net inflows (current US$) to selected African economies (1975-2013)

Country Name	1975-1984	1985-1994	1995-2004	2010	2011	2012	2013
Algeria	53,462,472	1,163,671	395,044,444	2,300,041,293	2,571,277,572	1,396,743,495	1,592,286,253
Angola	4,591,393	425,215,940	1,101,115,313	2,025,521,1805	2,906,171,986	6,409,653,595	7,213,917,425
Botswana	14,091,361	10,171,751	261,154,207	126,063,035	1,092,002,291	147,665,312	136,663,296
DRC	49,331,300	12,318,379	112,420,203	2,726,905,853	1,859,804,934	2,891,047,823	1,947,389,281
Egypt	555,989,111	547,780,400	811,825,023	6,385,996,201	492,731,900	2,797,076,201	5,553,986,201
Ghana	16,126,943	44,553,790	150,947,303	2,527,355,853	3,222,247,529	3,294,427,529	3,227,365,853
Kenya	33,671,395	36,561,255	56,415,806	175,904,1527	335,244,680	259,137,590	514,357,425
Mauritius	2,267,841	19,554,770	51,371,962	428,968,051	-23,253,850	506,015,300	256,267,556
Mozambique	718,981	13,556,790	380,956,205	1,288,160,277	3,043,844,842	5,502,163,634	5,977,423,442
Nigeria	355,783,736	685,175,133	1,115,567,23	6,108,544,265	8,841,062,775	7,100,094,584	5,590,944,201
South Africa	24,646,912	(17,029,976)	1,915,256,021	3,693,271,715	4,126,289,123	4,626,909,122	8,110,163,645
Tanzania	2,665,790	1,075,290	299,093,302	1,844,983,212	1,223,415,255	1,754,046,257	1,872,353,113
Uganda	3,114,264	17,478,790	343,855,328	543,872,727	804,283,858	1,290,788,888	1,194,765,345
SSA (region)	545,165,741	1,645,495,414	9,305,424,068	31,452,303,189	42,461,445,494	40,012,430,051	40,594,183,234
World	41,254,908,662	356,854,545,148	874,864,322,590	1,773,944,647,358	1,855,607,498,580	1,590,284,295,990	1,747,364,243,934

Source: Author's own calculations using 2014 World Bank Data

Table 1 above indicates 10-year averages of net FDI inflows to various African countries, from 1975 to 2013. The general pattern of FDI inflows has been encouraging with a notable upward trend in going to most countries. Small economies such as Mozambique and Egypt have emerged and taken over traditional recipients of foreign direct investment such as Nigeria. The oil-producing countries of Angola and Nigeria have been losing foreign investment in recent years up to 2013, mainly due to fluctuating global oil prices, as well as their own political instability, which has shaken investor confidence. The DRC has also been a victim of its own poor institutional framework. Regionally, Sub-Saharan African FDI has been increasing. There was a US$10 billion increase in net inflows between 2010 and 2011. This was a positive sign that the effects of the recent financial crisis had passed and investors were willing to diversify their portfolios again to include investments in Africa. Since then, FDI has stabilized around US$40 billion per annum. However, despite efforts and interventions put in place by African governments to attract FDI inflows to their economies, a very small proportion of the world's total FDI reaches Africa. For instance, of the US$1.7 trillion FDI inflows in the world in 2013, only US$40.6 billion of this was destined for Sub-Saharan Africa, loosely translating to only 2.3% of the global total. This is a clear indication that despite the several FDI theories advocating for the ease with which locational advantages (for example, the presence of natural resources and an abundance of skilled and cheap labour), foreign investors actually demand more in terms of security of, and returns on their investments. A high return on investments yields nothing, if the country does not practice good governance nor adhere to investor protection principles.

4. Botswana: A Case Study

4.1. General Structure of the Economy of Botswana

The name Botswana is synonymous with diamonds. The country has been involved in the mining and trade of diamonds since the early 1970s, in partnership with De Beers of South Africa. At Independence in 1966, Botswana's economy leaned towards agriculture, namely cattle rearing and beef production. However, the situation quickly changed when the valuable minerals were discovered. Since then, diamonds have been the prime GDP contributor. According to Mahembe & Odhiambo (2013), diamond revenue accounts for at least 55% of Government income. Although the mining sector as a whole is dominant in the economy in terms of output and exports, this does not translate to much as far as employment is concerned because the sector only contributed employment of 5% (Siphambe, 2006).

Table 2 below depicts the changes which have occurred every ten years in the economy from 1966 (year of independence from British rule) until 2014. Siphambe (2006) argued that as a result of Government's participation and growth in the economy, private sector investment has been crowded out, resulting in minimal economic contribution from non-mining sectors.

Table 2. Changes in the structure of Botswana's economy, 1966-2014; (% of GDP)

	1966	1976	1986	1996	2006	2010	2014*
Agriculture	39	24	4	4	2	2.5	2.1
Mining	0	12	47	33	32.2	19.2	22.9
Manufacturing	8	8	6	4.8	5.3	6.4	5.5
Construction	6	7	3	6.2	4.8	5.8	6.1
Trade, hotels & restaurants	18	16	18	18	11.9	15.1	14.8
Government	13	14	13	15.4	13.2	15.4	14.1

*Source: Siphambe (2006); Bank of Botswana (2015); *projected data*

As can be deduced from Table 2 above the economy of Botswana today is vastly different from what it was just over fifty years ago. Mining has completely dominated GDP, peaking in 1986. After the 2008 financial crisis, the mining sector was hard hit, as reflected by the decline from 32.2% in 2006 to just over 19% in 2010. The sector has however shown periods of recovery, albeit at a slower pace than when diamonds were first discovered. Government's constant presence towards economic growth is somewhat concerning as it leaves very little room for private sector and foreign investment participation. Activity in manufacturing, construction and trade, hotels and restaurants has also been stagnated over the period. Due to the geographic location of Botswana with vast tracts of desert and semi-arid conditions, innovations in agriculture may be the only way to ensure that the sector grows from its current non-existent GDP value addition of only 2%. There is however an urgent need for the economy of Botswana to become more diversified.

An overview of key macroeconomic variables in Botswana confirms the dependency of the country on earnings from exports (see Table 3 below). The GoB needs to invest in alternative economic activities, and move away from export-led growth. The country has untapped income-generating sectors (e.g. manufacturing and tourism) which merely require adequate long-term financial commitments, and supporting policies.

Table 3. Key macroeconomic indicators in Botswana

Indicator	Measure	1995	2005	2009	2010	2011	2012	2013
GDP	US$ billions	4.730	9.931	10.107	13.747	15.365	14.537	14.785
GDP per capita	Current US$	2,988	5,294	5,178	6,980	7,734	7,255	7,315
GDP growth rate	%	7.03	4.56	(7.84)	8.59	6.18	4.31	5.83
Real interest rate	%	6.78	0.23	9.98	(6.28)	4.76	9.84	4.00
Exports of goods and services	% of GDP	50.84	52.92	35.35	35.84	45.32	43.48	55.12
Imports of goods and service	% of GDP	43.76	35.58	52.71	46.24	52.40	59.43	59.90
Net FDI inflows	% of GDP	1.49	2.81	1.27	0.99	7.11	1.01	1.28
Population	Millions	1.583	1.876	1.952	1.969	1.987	2.004	2.021

Source: World Bank (2014)

4.2. Analysis of FDI in Botswana

Figure 1 below depicts the trend in FDI inflows to Botswana between 1990 and 2013. FDI levels in Botswana can generally be perceived to be very low. This is so when comparing the inflows received by the economy, vis-à-vis the level of exports (see Figure 1 below), and even in comparison to other economies in Sub-Saharan Africa (see Table 1 above). At present, FDI is not considered as a stable source of long-term funding for infrastructural or other permanent future projects in Botswana. The highest level of FDI received by Botswana was 13.46% of GDP in 2002. Thereafter, the trend of FDI inflows actually declined to almost zero. When measured in actual monetary terms using current values, Botswana received its highest FDI inflows of approximately US$1.1 million in 2011, post-global financial crisis due to improved demand and prices of diamonds, resulting in further investment in mining by De Beers.
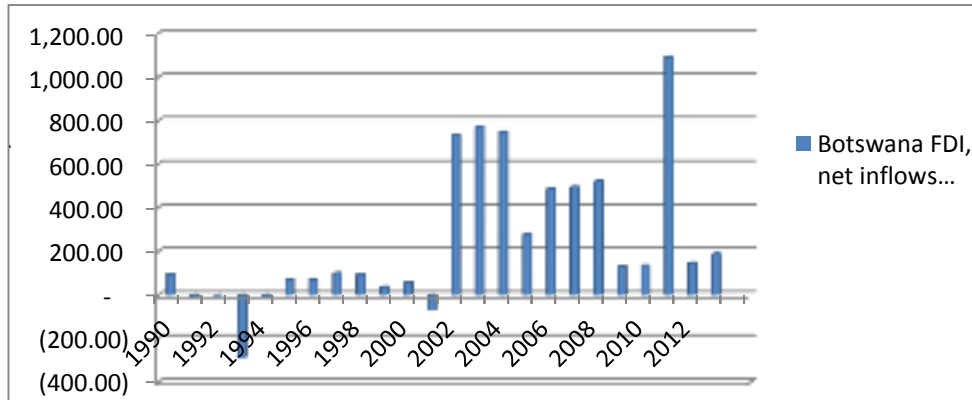
Figure 1. FDI inflows to Botswana, 1990-2013

Source: World Bank data (2014)

An examination of export levels from Botswana and FDI inflows to the country between 1990 and 2013 (see Figure 2 below) reveal that the economy is still very export-oriented and reliant on a single commodity which contributes a significant portion to the local GDP. Unfortunately the income from diamond export activities cannot be used to invest in long-term projects of the country, as it contributes a significant amount of Government's own income. Hence, much effort needs to be diverted to harnessing FDI inflows to establish sectors such as manufacturing, tourism and the financial sector, which have the potential to grow and sustain the economy by tapping into the foreign currency earning potential of these sectors. Botswana has a small market, and its manufactured products would hence be destined for larger markets outside the country. This was previously the case even with beef exports which were destined for the European Union (EU) until outbreaks of foot and mouth disease shook the industry. The country has been trying to rebuild its national herd again so as to resuscitate these trade options with bigger, foreign markets. The local market cannot consume all the domestic produce hence taking advantage of Southern African Customs Union (SACU) and Southern African Development Community (SADC) regional agreements would benefit Botswana.
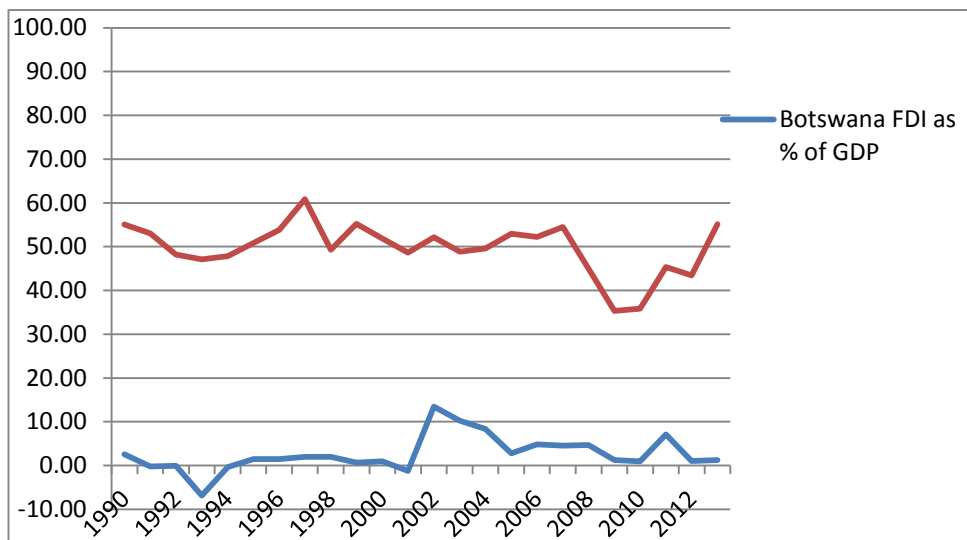
Figure 2. Botswana Exports and FDI inflows, 1990-2013

Source: Author's calculations derived from World Bank data (2014)

Most FDI in Botswana is concentrated in the capital-intensive mining sector (see Figure 3 below); the largest share being the investment by Debswana Diamond Mining Company, as a result of the 50/50 joint venture between the GoB and De Beers of South Africa (WTO, 2009). Mining FDI is closely followed by the financial services and retail sectors. This is due to the presence of foreign ownership in the top banks in Botswana. These are Barclays Bank (UK), Standard Chartered Bank (UK), FNB (South Africa), Investec (South Africa), Stanbic (UK) and Bank of Baroda (India), of which the first four have no less than 75% foreign ownership; while the latter two are 100% foreign-owned (country of domicile indicated in parentheses). The retail sector is boosted by prominent clothing, FMCG and technology chain stores from South Africa.
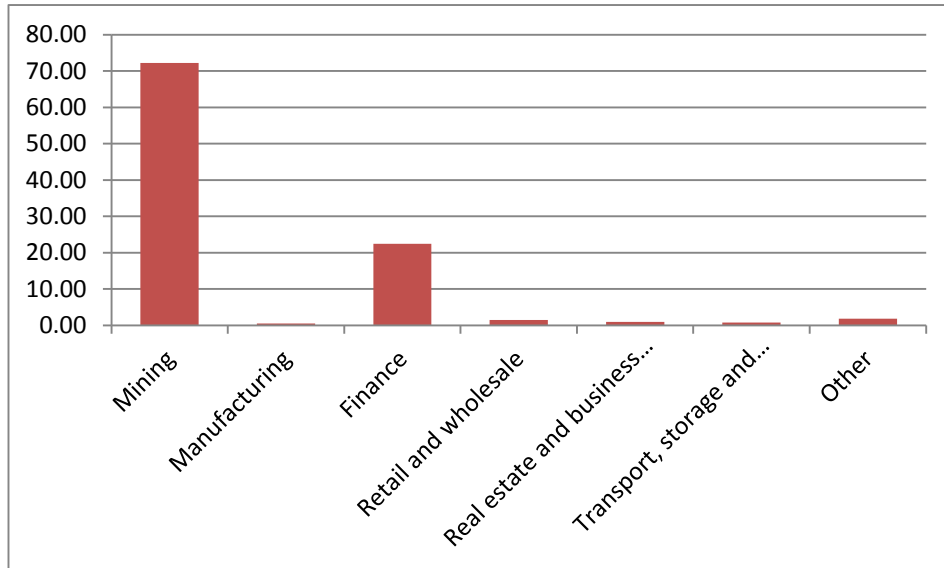
Figure 3. Sector distribution of FDI in Botswana, 2012
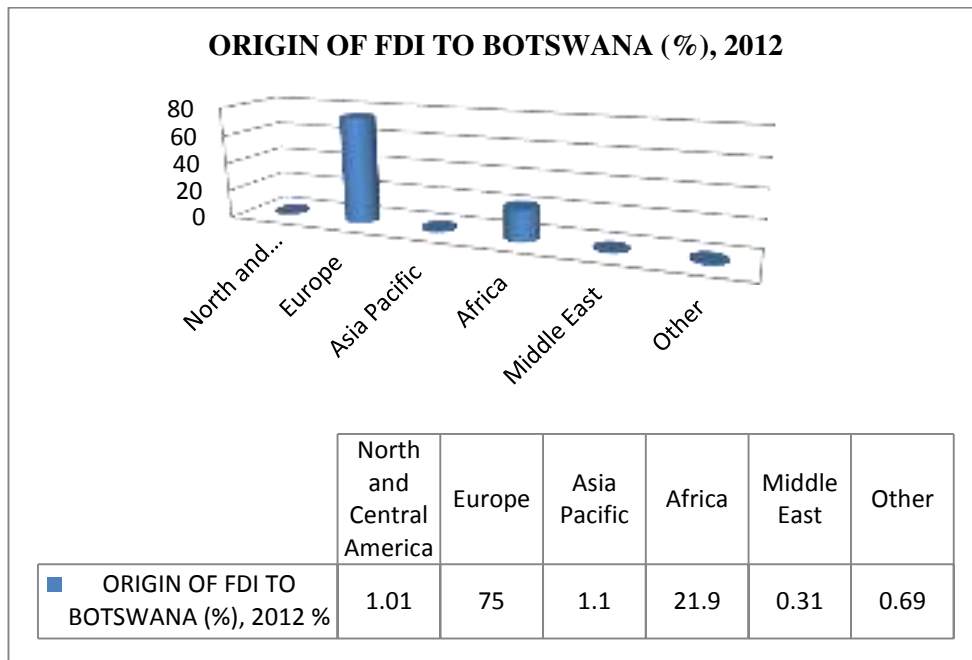*Source: Bank of Botswana (2013); Siphambe (2006)*

	North and Central America	Europe	Asia Pacific	Africa	Middle East	Other
■ ORIGIN OF FDI TO BOTSWANA (%), 2012 %	1.01	75	1.1	21.9	0.31	0.69

Figure 4. Source of Botswana's FDI (%), 2012
Source: Author's own calculations from Bank of Botswana (2013) data

Error! Reference source not found. above illustrates the major home country sources of FDI inflows to Botswana in 2012. The lion's share of FDI came from Europe and Africa. Europe's 75% FDI contribution comprised of 91.6% from Luxembourg, 7.3% from the UK, 0.1% from the Netherlands and the balance of 1% from other European countries. Of Africa's net investment of 21.9%; South Africa invested 66.2% of this amount. Luxembourg alone accounted for 68.7% of the total FDI inflows, confirming the home country of the leading mining investors in Botswana.

4.3. FDI, Diversification and other Economic Policies

Since independence, Botswana has had an open policy insofar as foreign investment is concerned, and pursued market-based systems. It is for this reason that the country welcomed investment in its diamond sector by De Beers of South Africa. Upon realization of how profitable and lucrative the diamond mining business was, the GoB upped its stake in Debswana, the local joint venture between itself and De Beers to a 50/50 arrangement. Botswana has had many national development plans (NDPs) over the years; and all of them have emphasized the need for a diversified economy as the economy has to move away from being export-led and overly-dependent on diamond mining. According to Zizhou (2009), an NDP is proposed by the ruling political party, tabled in Parliament, where it is approved and signed into law. This effectively therefore makes it felonious for any public-funded project to disregard the NDP principles. Since the early 1970s, the Government has also initiated various national incentive programmes to attract investment to the country. McCaig, McMillan, Verduzco-Gallo & Jefferis (2015) mentioned the more recent Local Procurement Programme (1997), the Economic Diversification Drive (EDD) (2010), as well as the Citizen Economic Empowerment Policy (2012) as examples of the GoB's efforts to promote economic diversification and growth in other industrial sectors, as well as ensure local participation in economic growth. Other than the successful relocation of the Diamond Trading Centre from London in UK to Gaborone in Botswana, as part of beneficiation – the other investment incentive programmes have not been as successful.

4.4. Botswana's Location-Specific Factors and Attraction of FDI

Besides the already well-known profitable diamond mining deposits, there are other attractions for investors to the Botswana economy. Botswana's 2015 economic freedom score of 69.8 earned it 36th place in world rankings, and 2nd in the Sub-Saharan African (SSA) region (Heritage Foundation, 2015). The country has consistently scored highly across the ten measures of economic freedoms in the region, thereby making it an attractive investment destination. In terms of the Global

Competitiveness Index, Botswana's rankings have been improving from 80 to 74 (out of 144 economies) between the 2011/ 2012 and 2014/ 2015 periods (WEF, 2014). Considering specific indicators which may impact on FDI inflows, Botswana's 2014/ 2015 ranking out of 144 countries were as follows: Macroeconomic environment: 13; Labour market efficiency: 36; Institutions: 39; Financial market development: 57; Technological readiness: 76. In terms of conducting business in Botswana: tax regulations, Government stability, foreign currency regulations, tax rates and policy stability were considered to be favourable to investors and provided a conducive environment to engage in business in the country (WEF, 2014).

On the downside, the country does encounter investment hurdles. The Government's high contribution to total output has effectively crowded out private sector investments, hence there is essentially no room for domestic investment and even FDI, except in mining. Also, the country is surrounded by countries with very large domestic markets hence the economy struggles to compete at the same level nor can it attract market-seeking FDI. Currently, FDI reaching the country is resource-seeking FDI destined for the mining sector. Botswana's domestic financial markets have not yet been developed enough to facilitate the raising of additional investment capital from the stock and bond markets, thereby restricting inflows of foreign capital. The country has also been affected by the high scourge and prevalence of adult HIV/ AIDS, hence reducing the pool of labour.

5. Conclusion and Policy Recommendations

The primary objective of this paper was to examine the economic structure of Botswana's economy, as the foundation towards analysing FDI dynamics in the country. It was found that the Botswana economy continues to rely heavily on diamond exports. Unfortunately the economic activity of diamond extraction does not translate to job creation hence unemployment remains high at 20%; and the country still experiences the world's second highest incidence of adult HIV/ AIDS prevalence. In terms of infrastructural investment, there is not much to report as the country is relatively small, with at least 70% of its surface being desert; as such – water remains a scarce commodity in Botswana, thereby making agro and industrial processes requiring high volumes of water near-impossible, e.g. agriculture and manufacturing. The country produces a small amount of its own domestic electricity using coal sourced from the local Morupule colliery mines, although most electricity is imported from Eskom in neighbouring South Africa. FDI inflows to the country are concentrated in mining, financial services and retail trade. Various investment incentive policies and strategies have been initiated and implemented by the Government, but these are yet to yield any significant economic benefits. The GoB needs to aggressively support and market its other industrial sectors of tourism,

agriculture, manufacturing and telecommunications, as well as secure international markets and investors alike, in order to diversify the current export-oriented, diamond mining economy. Less economic participation by the Government would give room to domestic private sector investment. International capital inflows would then complement domestic savings, and further boost employment and trade opportunities. The current strategies in place are adequate but require Government commit to ensure their successful adoption.

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