

Reversed triads

“The upward trend suggested by the conceptualization of desires generates, paradoxically, the lower rung material precariousness. Meanwhile, the materialization of desires is possible, in an equally paradoxical way, only through the inflation of beliefs.”

The most challenging problems of consistency in Economics are the ones relating to intuitiveness. Economic reality can be intuited by excessively – and somewhat primordially – resorting to the intermediary cognitive forms of mechanical physics. A testament to this is the invasion of terms such as mechanism, force, energy, dynamics, system, equilibrium, potential and propagation.

The conceptual baseline of Economics originates in the transfers of terminology from the science which has directly fuelled the first industrial revolution. Beyond that, following the theoretical breakthroughs in Biology – by way of Darwinian evolutionism, and of sociology – through Spenglerian evolutionism, Economics acquired nuances of its own cognitive representations.

Understandably for the academic view on the pace of knowledge, Economics profited from the gains of other sciences in order to fortify its explicative function. Except that the massive imports of conceptual representations from the better situated sciences on the scale of cognitive performances have complicated its educational function on the public perception of its standalone conceptual architecture. The main effect of this was the appearance in the social consciousness of a demotion of the epistemic individuality of Economics' conceptual body of representations. The weak distinctiveness in the armoury of formulas employed in the intuitive process of Economics has hidden, under a thick layer of borrowed concepts, Economics' specific cognitive structure.

It is obvious that this fact has reduced to the extreme the adequacy of knowledge to the logic of economic evolution. Among other things, for instance, the basic defining elements of economic reality have become blurred; a fact of a subjective nature, human behaviour has been usually dissolved into expressions of materialist determinism. The epistemic arc of Economics was thus unhelpful to the understanding of the universe of meaning of the humane, as it was constrained to an actional synthesis generated in the tensional spectrum between two imponderable values: desires and beliefs. This is how, for centuries, Economics

has resorted to perpetuating its inadequate vision on reality, with economic education promoting the perceptive and intuitive alignments brought from other forms of knowledge and other ontological states.

The key to rearranging the constitutive parts in the natural position is to remove from Economics the layer of cognitive habits, which covers the paths of conceptualization defined by desires and beliefs. One extraordinary fact which must be noted is that desires, as a structuring force of economic reality, paint a picture of materiality, while beliefs substantiate desires through a formula worthy of alchemy, achieving the transmutation of spiritual elements into material elements. Through this unnaturally moving vortex, the opposing limits suggested by the functional duality between desires and beliefs - the cognitive asymptotes to the order of materiality and that of spirituality – have been reincorporated into Economics' intuitive body of representations.

From the category of the conceptual ordering of desires we have profit, wealth, fortune, win, success, added value, while from the category of beliefs there's an honourable place for money, credit, representations of the possible, visions of wonder, materializations of the trust that it happens for something to occur as a result of the cause without a cause. Out of this epistemic lair come expectations, hopes, illusions, exuberances, panics, motivations, satisfaction, notoriety, authority.

Conceptualizing desires into categories can resort to simple and intuitive forms, whereas the categorical conceptualization of beliefs is diffused and confused, somewhat harder to fit into the guidelines of rational thinking. Not at all accidental, the symbolism and ritualization of a theological nature are accessories of the explicative constructions of the monetary economy.

The precarious unravelling of the weaving between the two universes of Economics impedes on the understanding of the formulas with which reality can be intuited. Centring the understanding of the essence of the economy on desires is a power so great that the real foundations which give purpose to the concepts are simply being excluded. The conceptual order of desires arrests knowledge and makes it unilateral, hindering the choice of efficient solutions.

Among many other distortions, this epistemic sequestration turns the targeting of material performances into a reversed image to the intuitive representation of success, for instance. The upward trend of material success, tonic in the material order of desires, obscures the understanding of the sense of reality – its non-systemic configuration on the principle of exclusion. The glorious expression of the typical upward trend of success can be found in the global statistics and its conclusive form *“85 billionaires own half of the world's fortune”*. By formulating

the economic problem in the binary terms of individual–society, the solution aligns with the downward sense of reality, while a falsely ascending trend is suggested to reason; the relevant informative content of the conclusive form above targets poverty, not wealth, as the centre point of the reasoning and, thus, of economic cognition. Deciphering the lower triad of individual–society–poverty is the true rational challenge of Economics. The upper triad, suggested by the ascendance of the individual – society – virtual (money, credit, trust) relationship, is represented just as deceivingly as a conclusive form by recent analyses as “*the volume of currency transactions is 14 times greater than the global GDP*”.

The upward trend of the conceptualization of desires generates, paradoxically, the lower rung material precariousness. Meanwhile, the materialization of desires is possible, in an equally paradoxical way, only through the inflation of beliefs.

The inversion of senses between the two triads, which can be intuited from the conclusive expressions mentioned above, reveals the epistemic inconsistencies of Economics. The golden key allowing the return to normality is the conceptual reconstruction using the intuitive formulas sourced from another – eminently rational – relationship: the one between means and ends, instead of the one between desires and beliefs. The correct positioning of terms, in alignment with the means and the ends, certainly demands that the transformation of means (which are derivatives of desires) into ends should be avoided, so as not to reverse the explicative triads.

A better definition of the ends in the economy will become possible through this conceptual reconstruction. The ends will now bear the meanings of the concepts whose intuitive sense stems from the critical mass of the positive facts which insure the intension of the purpose of life: development, wealth, comfort etc.

Marin Dinu

Contents

Banking relationship management – A new paradigm? Vasile Dedu, Dan Costin Nițescu	7
The analysis of time intervals for establishing types of users Ion Ivan, Alin Zamfiroiu, Bogdan Vintilă	23
VAR analysis on Foreign Direct Investment in Romania Marinela Geamănu	39
Using the regression model for the portfolios analysis and management Constantin Anghelache, Mădălina Gabriela Anghel	53
The role of small and medium enterprises and poverty in Pakistan: An empirical analysis Sharafat Ali, Humayun Rashid, Muhammad Aamir Khan	67
Dimensions of the destination's sensory profile. Case study: Muntenia Aurelia-Felicia Stăncioiu, Mihail-Cristian Dițoiu, Nicolae Teodorescu, Lucian-Florin Onișor	81
Corporate Governance in Eastern Europe: Case of Romania and Russian Federation Issam MF Saltaji	99
Study on the competitiveness of Small and Medium-sized Enterprises (SMEs) in Vâlcea County Daniel Sorin Manole, Elena Nisipeanu, Răzvan Decuseară	113
Relation between monetary announcement and Phillips Curve? An empirical study from Malaysia Abey P. Philip	131
Management priorities to increase labor force flexibility in the Romanian organizations Ionuț Cășuneanu	143
Behavioral finance: new research trends, socionomics and investor emotions Adrian Mitroi, Alexandru Oproiu	153

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www.economieteoreticasiaplicata.ro; www.ectap.ro

Reception of texts: economia.ta@edeconomica.com

ISSN 1841-8678 (Print)
ISSN 1844-0029 (Online)

Banking relationship management – A new paradigm?

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Abstract.*In this paper, we briefly present the new trends in the banking industry related to customer relationship management. In the first part we realize a brief introduction about the past and present approach related to bank customer relationship management, outlining the importance of rethinking the banking infrastructure towards developing more robust and resilient banking business models and restoring trust among customers. In the second part of the paper, we insist on the idea that crisis shall be seen as a genuine opportunity for banks to change the approach towards their traditional role and refocus on human based banking distributions channels and key means to cultivate loyalty and advocacy among customers. In the last two parts of the paper we mention about the limits of conventional approach and the manners in which behavioral economics, finance and neurosciences may help banks to reduce inefficiency, seize opportunities and manage risks.*

Keywords: banking management, banking industry, banking business models, banking distribution channels.

JEL Classification: D03, D12, D87, E44, G02, G21.

REL Classification: 11A, 11C, 14K.

A. Banking relationship management – How was it before?

Two decades ago banking products and services have been distributed mostly via networks of branches and offices populated with staff, attending personally to their customers. Banks have started to use mainly their own direct sales forces going to customers' offices but lately they have tried as well to distribute their business solutions via brokers, partner companies and other financial intermediaries. By the time internet based channels have evolved and spread to mass customers, more and more banks have diversified their distribution channels via mobile and online applications (internet banking, social media and social network pages). As a consequence of increasing products sophistication and increasing number of distribution channels, the number of direct contact "person to person" relationships has decreased.

In order to reduce operational costs, banks have focused their resources towards redesigning the global banking infrastructure. They have developed global data processing centers, regional IT support centers, nurturing the accessibility of banking solutions via online technologies. Internet based banking channels and the sharp increase in using intermediaries (others than originators) have made banks to lose direct contact with customers and cease to know everything they should know about them, triggering important systemic risks and exacerbating most the consequences of the latest global financial crisis

Financial crisis roots

During the latest crisis, the world has become increasingly unstable triggering disparities related to customer relationships, perceptions and experiences with banks. Some of the main causing roots of the global financial crisis may be found both at macro and micro-level, being both structural and cyclical factors.

Some of the common structural factors were: the confusion between free markets and deregulation of the markets, globalization, asset concentration and the lately over-regulation, the increasing role and complexity of financial markets with limited transparency and meaningful disclosure. Some other roots may be found related to the collapse of ethical behavior (predatory lending and investing), excessive leverage and opacity, defective risk models, "quick buck pocketing" approach, imbalances between savings and spending, asymmetry between performance incentives structures and sustainable banking portfolios.

Some of the main cyclical factors may be the followings: the excessive low risk free interest rates for prolong periods of time, US Subprime Crisis and Sovereign Debt Crisis, commodities prices boom, triggering global macroeconomic imbalances of the global economy. The imbalances may be due to the current account surpluses of Asian and Middle East Countries alongside with sound

deficits in the Eurozone and United States, some of the global demographic imbalances triggering behavioral and social changes. More than that, the increasing worries about global economic growth sustainability (especially the stability of the Eurozone), shortage of financial skills and over regulation, have put significant pressure on banks' complexity and profitability. Over-regulation, uncertain economic growth, debt burden and fiscal deficits remain some of the most important threats to growth after the challenges in maintaining the existing customer base.

The crisis has affected directly customers' perceptions and behavior making bank interactions being less efficient. Crisis has enlightened banks' role in the economy, stakeholders having enhanced demands for responsible banking industry and restoration of customer confidence (Ernst&Young, 2010). Refocusing to long-term solutions is crucial for banks as the level of threats have increased every passing decade and the world has been changing a lot more quickly in recent years. Instead of building a system to fit for all every time, banks shall build robust system able to achieve and maintain stakeholders' satisfaction under a variety of conditions of business climate.

It is important to understand the long-term profitability impact of the new regulatory reforms rather than dealing with them in isolation. Having a better strategic vision of business model implications may help banks assure the best risk adjusted return. Over the last few years, banks had to cope with uncertainty. Coping with uncertainty means having the right approach, the right attitude about the bank process of change and reinvention, realigning the values and business models to the levels needed to assure the resilience over to unpredictable risks and shift in customer engagement and expectations.

Resilience and robust banking models

Resilience is even more important nowadays since many initial isolated risks have affected other banks and financial markets in a much higher way than in the past. Resilience helps banks to thrive amidst any threat and disorder helping them to emerge stronger than before. Banks should enhance resilience because this is precisely the one that allows banks to target and pocket the right opportunities and concentrate on customer engagement. Building robust bank models and systems may help banks operate under a variety of challenging conditions, bouncing back from any eventual disruptions. Robust models allow banks to deploy resources and reshape business models, in order to reach customer confidence and loyalty. Banks have to change and adapt accordingly, otherwise they don't evolve and put the crisis behind.

Acknowledging the risk provides opportunities to manage weaknesses and build on strengths, allowing improving the chances of success. The crisis shall be seen as a learning experience and genuine opportunity for managing weakness, taking uncertainty as “part of the game”. Industry’s developments and the demand for financial solutions have been closely linked to economic growth.

Restoring trust

The financial crisis has led to **significant loss of trust among customers** being probably the most profound effect of the latest crisis. The collapse of ethical behavior among bankers and moral hazard implied because of multi-billions bailouts supported by taxpayers, have made customers to change their perceptions and attitudes related to the institutions they bank with.

Banks need to invest in restoring their reputation and reshaping their brand perceptions. The decline of confidence and changing behavior, have made the markets to be hardly recognizable. One of the major challenges that lie for banks ahead represents the tendency to increase the number of banks customers bank with, spreading the financial solutions accessed over different financial institutions as a perceived efficient manner to reduce exposure risks. Reducing the risks desire comes from the reduced level of trust. Although it’s a question of trust, crisis effects could be reshaped into a genuine learning experience and opportunity to redesign a robust and ethical banking image as some of the main actions to prevent attrition and address loyalty.

B. A New Banking Relationship Paradigm? What’s next?

Crisis as an opportunity to change the approach

The crisis has exacerbated the disparities among customers (both households and companies). The crisis shall be seen as a genuine opportunity to reinvent. Reinventing would allow them to improve their products, services, operations and nevertheless to foresee the shaping of industry’s future. Reinventing represents a complex and time consuming process because it comprises all aspects related to governance and operating model: board composition and qualifications, remuneration and regulatory compliance, risk management, control and financial reporting, capital allocation efficiency, people, technology and legal structure. Banks shall reconsider employee engagement (staff incentive programs) in order to deliver robust and simple superior customer service.

Investigating, understanding the trends shaping financial industry and the factors driving customers to bank elsewhere may be some consistent initial steps in strengthening customer retention, engagement and growing the customer base as

the foundation for new growth (PwC, 2012). Some of the main reasons for those who have changed their banks seem to be the lack of trust, inappropriate access (proximity of branches), misleading advisors, and service failure or misprice related offerings.

Back to basics & Personal relationship management

Banks need to have a back-to basics approach in terms of employees, customers and funding suppliers. They need to reanalyze the design of banking segmentation and focus on their traditional role – raising funds, providing loans instead of developing and selling more and more sophisticated solutions especially when customers are unaware of the risk associated with many banking products and reinstall an unitary customer approach in both branches and alternative channels (call centers, online and mobile banking solutions). It makes sense to encourage customers to use cutting edge technology based alternative banking channels (internet and mobile channels) whenever needed but optimizing personal interactions in order to prevent customer base attrition, dormancy and loyalty. Human-channel distribution remains the best way to tailor banking solutions and reward customer affinity and advocacy. Competitive pricing structures and improved service levels are not enough. Banks need to focus more on brand integrity perceptions, trying to involve customers in product and service development as key differentiator and competitive advantage. Human-channel distribution has proved to be the most effective way to retain customers and improve banking experience.

It's all about rethinking strategy, honing approaches and focusing on long term impact and sustainable growth through realignment of business model to the new realities related to markets, products and services, channels, tax and regulatory reforms. In the context of realignment the business model to the perceived realities, technology can be a key catalyst towards competitive advantage through productivity increase and reducing operating costs. The ongoing pressure for reducing costs makes financial institutions to become more creative and innovative. Banking business models as any other models are prone to be replaced with new models and ideas frequently in order to keep up with competition. That is the reason the banks have to understand all the customer drivers and educate them towards acting in their own (customers') interest. Understanding the right usage of financial solutions helps customers to be more resilient against short term financial challenges.

Loyalty and customer advocacy

Restoring brand confidence and perceptions may be realized through dedicated brand awareness programs, tailored and cohesive solutions helping to improve

brand perception and ensure customer advocacy/brand ambassadors in both online and offline environment. Increasing brand awareness and fidelity may help minimize customer attrition but that needs a deeply refocus on the product mix, by engaging employees to offer more value for money, identify and increase advocacy and loyalty among customers.

“Word of mouth” approach becomes rapidly a gaining useful influential power for banks. Financial comparison websites and dedicated “best deal” forums compete with conventional financial advisors. The increasing importance of online media, comparison sites, reports, online advertising, online communities and social networks as well magnify satisfied customers’ abilities to act as influential advocates for banking solutions. More and more banks have joined social networks and cyber-branches since many people are more likely to use social media and networks for seeking information, offering feedback (comment and offer reviews) for banking solutions and other means of interactions with their banks.

Some banks consider even tailoring specific rewards programs towards enriching banking experience and nurturing advocacy through affinity groups. Although more and more customers consider more appealing (in terms of accessibility and cost) to bank via online channels, tailored solutions relies on human based customer relationships. Rewarding loyalty is more likely to boost retention and customer acquisition and cover the financial costs especially among wealthy customers.

Banks need to restore confidence over the role they play in the society in order to look beyond, maintaining close and mutually benefic relationship with their customers. Taking into consideration the latest systemic failures, close relationships have never been more necessary. Slow adjusting or reactive to change banks are less likely to thrive in the years ahead, that is the reason why financial institutions need to invest both time and financial resources to become more innovative and customer oriented. Cutting edge banking technology is not everything. Some of the most important aspects considered by customers when choosing a bank represent the service quality, the personal relationship with their liaison.

The role of banks, governments and regulators are significant in rebuilding confidence in financial markets. Shareholders require banks to deliver sustainable capital return and a better image among customers, things that may not be achieved without changing values, principles and business models, guarding trust and reputation. Rebuilding trust means clear actions and new employee value propositions, understanding the dynamics of governance framework.

Banks shall study the ways that emotions influence the way people make decisions and behave. It is important to understand the role of emotions in customer decision process in order to enhance trust among them and change their behavior (Veith and Lianu, 2013). Developing new strategies and focus on long run loyalty programs enhances customer relationships. Satisfaction varies much across markets, cultures and demographics that is the reason why banks should be mindful of the important differences when developing their products and customer services, having to address their offers in tailored ways across different markets and beneficiaries. Banks shall redesign the customer relationship management having in mind behavioral economics and finance. Studying the customers' preferences, banks may find ways to make banking more enjoyable.

Employee commitment

Engaging employees not only to sell new services and products but also to retain key customers is possible by finding and nurturing talent. It is essential to create a culture that continues to invest in its people sharing a common set of values, cultivating innovation and excellence, aligning staff with the overall business objectives and recognizing personal relationship management customers as a key pillar for a sustainable industry future. Banks need to engage human capital with the required skills to seize opportunities, adapt and overcome challenges (Ernst&Young, 2013). By far the most important stakeholders are customers because without them banks would be out of business.

Over the last decade, banks have continually changed their approach and business models, relying more and more on a behavioral science way, rather than in a conventional way. Although crisis has forced banks to reduce drastically costs, especially payrolls, cutting back costs on employees proves to be only a short term solution. Fewer people on the payroll, lower operating costs, may fit only when revenues are declining which is not necessarily the case since revenues could be raised in a different approach. Cutting off employees may not be a long term solution since one of the most powerful drivers of customer loyalty nowadays remains the customer relationship management based on branch visits and interactions with real persons.

Employee commitment is very important today, more than any time since the Great Depression. Customer retention reaches potential when some of the following emotional needs are met: pride and passion for the brand they bank with, they share the bank's values and integrity and they are confident they will be most of the times treated well and fairly. Disengaged customers are much more likely to switch banks. Equally important is the need for greater consideration on the role of financial education of companies and households. Technology alone cannot be the solution since they are not designed to work alone. Banks should

rely more applying behavioral science in their business models. By the time global macroeconomic stabilization will be back banks shall quickly focus on growth.

Customer Relationship Management solutions

Analyzing vast amounts of customer data in real time and automatically manner may be realized through complex Customer Relationship Management solutions. CRMs solutions may be categorized as analytical and behavioral. The first category helps financial institutions in collecting and analyzing information regarding customer interactions with to the bank. Banks exploit such information by designing strategies uniquely targeted to consumer needs, enhancing as well loyalty as information on consumer preferences affords an enduring competitive advantage. Integrating various data (e.g. across purchases, operations, service logs, etc.), marketing analysts may obtain a more accurate view of customer behavior (Rajola, 2002). In contrast, behavioral CRM uses experiments and surveys to focus upon the psychological underpinnings of the service interaction.

CRMs solutions help banks analyze customer behavior real-time and monitor sales increases / decreases globally and / or individually, enabling banks to maximize customer profitability and improve customer retention, reaching the right customer, at the right time, through dedicated channel and appropriate manner (Delloite, 2011). Complex solutions may help also banks asses both the potential profit and risk before offering a product / service to customers, focusing more on appropriate products, distributing channels and relationships. Customers' preferences may be reached based on various observations and diaries over evidence, in-depth conversations combined with quantitative research on how people spend money (Afsar et al., 2010).

Bankers recognize that although relationships with customers have changed they are confident that information provided by complex CRM solutions may be the ingredient that could help them thrive. With their help, banks may cutoff costs without being necessary to cut value or leaving banks exposed.

Analyzing and diagnosing customer behavior (mixing knowledge from economics, finance, psychology and sociology) may help banks to understand the dynamics of customer needs, and identify incentives, biases, frames and the bestselling opportunities. CRM systems create the necessary connections between customer segments, geographies and channels, allowing banks to predict the like hood of existing and potential preferences (Foss and Stone, 2002). With their help banks may deliver solutions and provide an up-to-minute tracking and trend analysis of product and services usage including the channel preferences. Basically they offer a robust and comprehensive understanding over both present and future customer intimacy and insights helping banks to respond to market

challenges, enrich customer experiences, improve brand perceptions and pocket market opportunities. CRM systems represent one of the most efficient steps that a bank may take to enhance customer.

Regulators

Regulators across all over the world have joined actions to implement financial reforms at both national and regional levels. Some of the pillars related to regulatory reform refer to the Dodd Frank Wall Street Reform in US, Basel III in the European Union, Capital Requirements Directive IV, Foreign Account Tax Compliance Act and other reforms having important effects over the bank business models. Banks need to understand the way new banking limits and regulations may affect the overall system profitability. Banks need to understand the new framework under various stress testing business scenarios. Over the last few years banks have started transforming their business models to comply with a radically different regulatory environment leveraging consistent and integrated data driving risk management.

During the crisis, central banks have injected significant amounts of liquidity into the financial systems, extending their power to more complex and contentious actions much beyond their conventional role as “lender of last resort”. Many times central banks have been perceived as being the firemen responsible for the resilience of economies and financial systems (Luca, 2013). Although before crisis, central banks have had a low profile on non-financial media, as their responsibilities have grown, central banks have gathered important exposure to media, politics and citizens. The oversight activities from regulators have increased as a result of the latest global financial crisis. Both global community of politicians and regulations are keen on ensuring the stability of the global financial system, no matter the efforts or costs. Banks need to ensure customers that the main pillars of sustainable governance framework are in well in place, understood and lived by the employees.

Due to the fundamentally and irreversibly increasing, riskier and more complex role of central banks over the last decade, central banks may have to face greater transparency and accountability towards parliaments, large public and press related to the way they respond to various challenges of monetary policy, financial stability and managing balance sheet (foreign reserves), especially on issues that are outside of their “conventional” mandate (doing whatever it takes to promote stable economic growth, within the limits of specific independence and freedom from political interferences) (Ernst&Young, 2012).

Nowadays central banks confront with a significant balance sheet hazard risk related to their investment portfolios (foreign reserves) in case some of the issuers

fail to pay their debts. Regulators like any other market participants need to face various challenges. Due to their wider powers and greater restraints are prone to groupthink and shared beliefs about the rationality of markets.

This is the reason why conventional sciences (economics, business and finances) are not enough. Regulators, customers and banks should reshape their conventional understanding via behavioral knowledge, mitigating future market failures. Regulators shall develop policies that influence positive behavior among financial service providers and consumers alike, creating a robust consumer protection framework, complemented by improved financial education for customers, discouraging cheating practices (having a closer eye on details since “the devil is in the details”) and fostering a sound, stable, and more competitive financial sector.

C. Limits of conventional approach

Information asymmetry deals with situations where there is imperfect knowledge among parties, the situations where one or some of them have more information compared to others – generating potential harm because one party may take advantage of the other’s lack of knowledge, triggering market inefficiencies or even failures due to possible hazard risk. Although the general development of information technology over the last decades has contributed significantly in reducing impediments for information availability, information asymmetries continue to exist in various forms, including in financial markets, banking and insurance industries. There is a comprehensive literature on asymmetric information in banking sector and financial markets; probably the most common example in banking industry represents the situation where a borrowing company states its financial reports and business plan to the lender. Although the financial reports may suggest that the company may have enough financial resources and cash flow to pay back the loan, no lender may take the borrower for granted that the latter will never default. The borrower will always have a better understanding of the prospective returns and risk of the business than the lender. All those informational problems, informational asymmetries may cause adverse selection and moral hazard problems vitiating markets efficiency.

Adverse selection represents the tendency for people to avoid accessing financial products and services unless they are sure they will benefit from it. Adverse selection occurs mainly because of information asymmetries and difficulties in selecting customers. Adverse selection can be a problem when there is asymmetric information between the seller of insurance and the buyer; in particular, insurance will often not be profitable when buyers have better information about their risk of claiming than does the seller.

Adaptive expectations refer to the tendency for people to form their views about the future using past trends and the errors in their own earlier predictions – in contrast to rational expectations. Customers and banks tend to be influenced by success stories being resistant to any evidence to the contrary. Few bankers could imagine falling house prices being deluded by the previous successes of selling various financial products backed by mortgages. Few hedge fund managers had the courage to think outside the box and bet against house prices rise. Betting against people's benefit may trigger moral hazard problems as well.

Moral hazard situations result from asymmetric information where the more informed party misuses private information for unethical behavior. One of the latest global financial crisis roots has been the collapse of ethical behavior. Dishonest mortgage sellers did not divulge details about the contracted mortgages, and the customers may be sold for increased prices related to average market costs. Information misuse may come as well from information overload. Improved access to economic and corporate information via online environment has definitely been an important forward leap for customer financial education, but there is both a good thing and bad thing in this entire leap. The problem is too simple increase in information may harm the quality of decision customers need to take. This is the reason why regulators need to reshape their focus towards helping both customers and banks understand and manage better data they possess, being able to turn data into consistent information supporting their decisions.

D. Why do we need behavioral science in banking?

Common sense and behavioral sciences tell us that the conventional economics and finance hypothesis are not always true, business evidence showing many examples of irrational, self-defeating and even altruistic behaviors. Consumers deviate from *homo economicus* and most of the standard economic models in many ways. Because of the many cognitive and behavioral biases, they have difficulties in acting in their best interest and making complex choices. The latest endemic market failures have shown us the limits of conventional sciences.

Behavioral approaches to bank relationship management

Behavioral Economics is a fairly new field that draws insights from both psychology and economics. It has its origins in the criticism of Efficient Market Hypothesis (Fama, 1976) and study the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions and the consequences for market prices, returns, and the allocation of resources (Malik, 2012).

Behavioral Economics helps bankers to explain the irrational customer behavior from the conventional banking and finance point of view. Applying behavioral knowledge may help bankers to reposition their products, features and prices in order to be more attractive and effective for the most customer base, providing a competitive edge (Knoll and Harmston, 2014). The risk of not doing so may arouse the customers' intention to switch from a bank to another. Switching behavior damage not only present profits but disturbs future revenues and cost since customer acquiring costs are generally higher than maintaining costs. Banks may incorporate behavioral science in the practice and business of modern banking business and marketing to improve customer satisfaction reducing the profit reducing the probability and impact of customer bank switching. Behavioral economics offers an important competitive advantage helping banks understand human behavior be more effective in everything they do, provide greater return for shareholders and reduce market inefficiency.

More and more banks invest nowadays important amounts of funds to understand what matters most for people and see it it's legally, financially and technologically possible. Behavioral sciences may help banks build and reposition their offer in a way to maximize the return for shareholders and also to arouse the behaviors that most favors banks in terms of revenues and awareness. Probably the most profitable long-term customers are not necessarily the richest ones but the customers that use products responsibly, maintain their loyalty, are charged fairly for the services and contribute to rebuilding brand pride and awareness. Instead of having customers with high base deposits but low fees banks should rather focus on investment and transaction services generating more fees.

Behavioral biases

Over the last decades, many researchers have focused their attention towards understanding the triggering factors probabilities of banking products and services acquisitions. We will briefly present some of the most common behavioral biases met in among regulators, banks and their customers.

Ambiguity aversion refers to the people's tendency to select options for which the probability of a favorable outcome is known, over an option for which the probability of a favorable outcome is unknown.

Anchoring represents a cognitive bias describing the human tendency to over rely on incomplete or irrelevant information (something that they know from the past or a social norm), basing their decisions on adjusted values, facts or events although they have no bearing in the actual evidence. In order to avoid anchoring, people shall judge their decisions based on multiple aspects, seeking multiple perspectives and opinions in order to have a more realistic perception over reality. Anchoring may be a source for investment or banking mistakes since many people

anchor their investment/regulatory decisions on less relevant figures and statistics. Many people tend to buy stocks that have fallen “too much” on a limited period of time, or bankers base their decisions based on irrelevant statistics (including periods of economic boom) and then adjust the value to account for other circumstances. People give more importance to things they may remember than things they don't remember as easily (Availability Heuristics).

Confirmation bias refers to the tendency to search, select, interpret and overweight information that supports someone's beliefs, ignoring, rejecting or undervaluing relevant evidence or information contradicting the initial beliefs. It's all about the desire or “wishful thinking” effect on initial belief or a form of selection bias in perceiving evidence. After 2007 many customers having deposits or even investing in stocks and mutual funds have been blasted by negative reports and opinions in media related to the macroeconomic context. Although the context has changed significantly, many people had the tendency to neglect evidence and overweight information confirming their initial investment opinions. People insufficiently revise their beliefs when presented with new evidence.

Familiarity and Framing bias refers to the tendency of people to reach conclusions based on the 'framework' within which a situation was presented reaching to different conclusions from the same information, depending on how or by whom that information is presented (Framing bias). People are risk avoiders; they protect smaller gains rather than gamble in a larger gain.

Future discounting/Hindsight bias– the tendency to think that one would have known actual events were coming before they happened. Although nowadays many people admit that the rhythm of lending before the crisis was not sustainable, very few people could reach this conclusion at that time.

Hyperbolic discounting– people often make choices that are inconsistent over time – the tendency to prefer smaller payoffs now over larger payoffs later, which leads one to largely disregard the future when it requires sacrifices in the present. This is probable reason why few people tend to invest long term since they understand that they cannot enjoy their money sooner. Another mistake would be the tendency of people to use debit cards for example, for the day-to-day necessities of life. They reserve credit cards for big-ticket items, even when they are planning to pay these off at the end of the month. Finally, unsophisticated consumers pay more in interest and fees than they would if they were smarter.

Informational Cascades– people observe the actions of others and “abandon their own information in favor of inferences based on earlier people's actions”

Loss aversion – represents the tendency of people to prefer avoiding losses than acquiring gains. Bank customers are almost always better off paying with their

credit cards (avoiding losses) than their debit cards. With a credit card, they can get rewards and the free use of funds for up to 7 weeks but most of them prefer not to risk paying additional costs. Loss aversion may also explain those effects.

Mental accounting refers to the tendency to divide current and future assets into separate portions. People would rather save money than pay off their debts on credit cards or consumer loans. Another mental accounting example represents the tendency to spend money received as bonuses, gifts and prizes on things that otherwise would never buy.

Money illusion – the tendency of people to think about currency in nominal terms, rather than in real terms. The most common examples represent the nominal interest rates presented for deposits instead of real interest rate (deducted by inflation rates).

Overconfidence bias refers to the tendency of people being more confident in their abilities taking more risks that could be justified by their abilities. Decision paralysis represents the opposite of overconfidence voiding people to make any decision at all, sometimes being just as bad in terms of outcomes.

Social proof & Herding bias – the tendency of people to mimic the crowding effect/gestures which arises when groups of agents share information. Before crisis many young people wanted to own their house, indebting themselves for two or even three decades ahead just to conform the social norms that every family needs to have their own house. This irrational herding bias has nurtured the housing prices bubble over the last decade before crisis.

Neuromarketing

Although there are many pitfalls for being biased, customers need to be educated and helped to act in their own interest. Making the right decision may reduce long term market failures and significantly reduce systemic risks. Over the last few decades, neuroscientists, marketers and bankers have joined their focus to study the brain's electrochemistry of bank customers, attempting to understand customer's behavior by examining the physiological processes in the human brain when people are exposed to financial decisions. Neuromarketing applied in banking uses the latest neuroscientific technologies and methods for understanding what stands behind the bank customer choices and behavior.

Although people differ very much with respect to concepts such as risk aversion, time preference and tastes, looking “inside the brain” with special imaging technologies, banks may have an explanation for the wide range of individual economic behaviors and their effects translated to specific banking market segments. Tools available to neuromarketing allow banks to understand customers

reactions “how and why” choices are made: what part of brain response in front of an advertisement and which one tells them what to do and.

The implications for understanding how bank customers’ brains work are huge for the potential growth of banking industry. Although could be seen a natural progress due to the medical and computer innovation era, there are voices that consider neuromarketing a privacy invasion over the customers intimacy and insights.

E. Conclusions

The latest global crisis has seriously damaged trust among customers, their perceptions and behavior related to the banks they work with. Competitive pricing structures and cutting edge technology based financial solutions are not enough to restore customers’ confidence, prevent attrition and cultivate their loyalty. Human-based distribution channel remain the best manner to offer tailored banking and reward customer affinity. In order to be more efficient banks shall study the manners in which emotions influence customers’ decisions and behaviors via dedicated customer relationship management electronic solutions (CRMs). Behavioral and neurosciences knowledge may help banks to reposition their products, features and prices in order to be more attractive and effective for the most customer base, providing a competitive edge. Much of the market inefficiency is due to the many behavioral biases. A better understanding of what stand beside anchoring, loss aversion, framing, anchoring, overconfidence, mental accounting, herding and many other customers’ biases may help both customers and banks to reduce market inefficiency, seize opportunities and manage much better risks.

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The analysis of time intervals for establishing types of users

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Abstract. *Depending on the time of solving a received task the users are categorized in many categories. In the paper structures of time intervals are determined for establishing types of users and models to determinate the users' collectivities according to the time needed for solving the users' tasks.*

Keywords: user, type, collectivity, interval, mobile.

JEL Classification: C63.

REL Classification: 10J.

1. Establishing the types of users

Determining types of users is very important for the optimization of mobile applications. Developers identify common usage patterns in the attempt to optimize various aspects of their applications (Pocatilu, 2012). Identifying the correct types of users for an application and improving the involved use cases improves dramatically the quality of the application (Ivan et al., 2006).

Let NT be the number of users depending on the speed of completing a given task. The set TP of the types is given by:

$$TP = \{TP^1, TP^2, \dots, TP^{NT}\}$$

where

TP^i represents type i , with $i = \overline{1 \div NT}$.

The type of a user is established depending on the time interval in which it completes a given task. Let I_{TP^i} be the time interval for the type i of users with $i = \overline{1 \div NT}$. The time intervals are:

$$I_{TP^i} = (M_{start}^i, M_{end}^i), i = \overline{1 \div NT}$$

where:

M_{start}^i - the start moment of the interval for type i ;

M_{end}^i - the stop moment of the interval for type i ;

The time intervals for each type are disjunctive and orthogonal. So:

$$I_{TP^i} \cap I_{TP^j} = 0$$

To establish the intervals let $S = \{S_1, S_2, \dots, S_{NS}\}$ be a set of specialists, where NS is their number. They give values for each element from set TP of types of users.

For all specialists the sum of the provided values for all types of users is 100, so:

$$\sum_{j=1}^4 P_i^j = 100, i = \overline{1 \div NS}.$$

The sum of the values obtained by the type j users from all specialists, SV^j , is given by the formula:

$$SV^j = \sum_{i=1}^{NS} P_i^j, j = \overline{1 \div NT}$$

The weight W^j of the time interval for the type j users is determined through the formula:

$$W^j = \frac{SV^j}{\sum_{i=1}^{NT} SV^i}$$

On the basis of the data supplied by the specialists the minimum and maximum values are determined for each type of user.

The minimum value, MIN^j obtained by j user type is determined by the formula:

$$MIN^j = \min_{1 \leq i \leq NS} \{P_i^j\}, j = \overline{1 \div NT}$$

The maximum value MAX^j obtained by j user type is determined by the formula:

$$MAX^j = \max_{1 \leq i \leq NS} \{P_i^j\}, j = \overline{1 \div NT}$$

On the basis of the questionnaire structures of distribution of the users' collectivities are determined and the extremities of the time intervals for each type of user are established

$$Lim_0 = 0$$

$$Lim_i = \frac{x_i}{100} * TT, i = \overline{1 \div NT - 1}$$

$$Lim_{NT} = TT$$

where:

TT – total time allocated to the solving of the problem;

Lim_0 – the inferior extremity of the interval for the first type of users

Lim_i – the superior extremity of the interval for the i type of users and the inferior extremity for $i+1$ type of users;

Lim_{NT} – the superior extremity of the time interval for the last type of users;

x_i – the accumulated percent up to type i , calculated by the formula:

$$x_i = \sum_{h=1}^i P^h, i = \overline{1 \div NT}.$$

So, for determining the collectivities of users the following function is used:

$$\Omega^j(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_{j-1}, Lim_j) \cup \Phi_j, \quad j = \overline{1-NT} \\ 0, & \text{otherwise} \end{cases}$$

where

$$\Phi_j = \begin{cases} Lim_{NT}, & \text{if } j = NT \\ 0, & \text{if } j < NT \end{cases}$$

The number of users from j collectivity, NUC^j is determined by the formula:

$$NUC^j = \sum_{i=1}^{nru} \Omega^j(UA_i), j = \overline{1-NT}$$

where:

nru – number of users from the analyzed set;

UA_i – application's i^{th} user.

In (Ivan et al., 2013) the authors propose a series of metrics for quantifying the quality of mobile applications.

2. The mode of building the time intervals

For $NT=4$ the types of users are defined:

- *Hyperactive* is the user that completes the received task in the first moments from the statement that describes the task; he is built to solve a problem from the first moment in order to set himself free and solve other problems; the short time allocated for solving doesn't allow a deepening of the domain and thus he gets solutions from intuition, characterized by simplicity and immaturity; he is not comfortable with delaying the problems and he prefers immediate solutions.
- *Cautious* is the user that waits for a short period and then completes the activity; the waiting is caused by the fact that the cautious user documents himself regarding the received task, deepens into the domain of the problem and the supplied solutions are detailed, based on experience and a well based theory.
- *Organized* is the user that realizes the activities by following well defined steps of documentation and deepening of the domain; when he is documented well enough he completes the task with the experience gained in the documenting and deepening process; for him it is important to go through the steps necessary for the self-building of the solution, without additional effort; giving importance to the steps, the moment of starting the completion of the task

depends on how many problems he had to solve before the current problem; if he's got more problems to solve, he solves the ones he began and after that starts the new one;

- *Sloppy* is the user that delays the completion of the task for the last moments; this type of users is oriented towards critical moments, and will finalize the task very close to the deadline; as the deadline is close, the solutions are not detailed as he starts very late and the pressing time makes him hurry and propose simple solutions, based on intuition, similar to the hyperactive user.

According to (Zamfiroiu et al., 2012) all users must fall into one of the defined users collectivities.

A set of 56 persons was build out of a lot of 76. They were given the questionnaire from Figure 1. The questionnaire was realized in order to highlight the structure on time intervals of the four types of users.

In realizarea unei sarcini există patru tipuri de utilizatori:

Momentul anunțului	Termenul limită
(hiperactiv)	(prudent)
(organizat)	(delăsător)

Stabiliți în propria opinie, procentele intervalelor de timp de lucru pentru fiecare tip de utilizator:

Tip utilizator	Procent	
Hiperactiv		%
Prudent		%
Organizat		%
Delăsător		%
Total	100	%

Exemplu: Utilizatorul prudent indeplinește sarcina în 40% din timpul total.

Figure 1. The questionnaire given to specialists

Through the supplied questionnaire the specialists split the available time for completing a task for each type of users.

Each specialist supplied his own structure of time for the $NT = 4$ types of users respecting the format: $\{P_i^1, P_i^2, P_i^3, P_i^4\}, i = \overline{1 \div NS}$. The obtained results are presented in Table 1.

Table 1. *Obtained results*

Specialist (S_i)	Hyperactive (P_i^1)	Cautious (P_i^2)	Organized (P_i^3)	Sloppy (P_i^4)
S1	20	30	30	20
S2	35	30	20	15
S3	30	30	30	10
....	...	...	...	...
S55	15	35	40	10
S56	15	30	50	5

After processing the data from Table 1 the weights from Table 2 were obtained.

Table 2. *Weights of the time intervals for the types of users*

Type of user	Hyperactive	Cautious	Organized	Sloppy
Weight (W^j)	0,24	0,30	0,28	0,18

So the hyperactive user completes the received task in 24% of the allocated time for completion. The cautious user uses 30% of the total time. The time allocated for the cautious user is allocated after the time allocated for the hyperactive user. So the cautious user completes the task in the interval 24%-54% of the total time allocated for the completion of the task. The organized user completes the task in the interval 54%-82% of the total time, the duration of the interval being of 28% of the total time allocated for the completion of the task.

The sloppy user completes the task in the period close to the deadline with a duration of 18% of the total time allocated for the completion of the task.

The sum of percentages is 100%, the total time allocated for the completion of the task. The minimum and maximum values supplied by the specialists are presented in Table 3.

Table 3. *Minimum and maximum values*

User type	Hyperactive	Cautious	Organized	Sloppy
Minimum value MIN^j	0	5	5	0
Maximum value MAX^j	50	70	50	75

With these values of minimum and maximum an ideal structure of user types is built. As the collectivities are of very large dimensions, the normal law of distribution works in orienting choices:

- hyperactive – minimum; choosing the minimum time for determining the category;
- cautious – maximum; choosing the maximum time for determining the category;

- organized – maximum; choosing the maximum time for determining the category;
- sloppy – minimum; choosing the minimum time for determining the category.

The ideal membership structure of the types of users is {0,70,50,0}. Because for the hyperactive and sloppy users the minimum values are 0, the next values different than 0 are used (5). So the ideal structure is {5,70,50,5}. As their sum is 130, the values are normalized to obtain the total of 100.

For normalization the following formula is used:

$$WN^j = \frac{W^j}{\sum_{i=1}^{NT} W^i} * 100$$

where

W^j - non-normalized weight;

WN^j - normalized weight.

So the ideal membership structure of types of users is: {4,54,38,4}.

Using the same principle the not-ideal structure is built: {50,5,5,75}.

By normalizing using the above formula we get: {37,4,4,55}.

The structure obtained from the minimum values is determined. Because the hyperactive and sloppy users' minimum values are 0 the next available ones will be used, 5. The structure is {5,5,5,5}. After the normalization the structure is: {25,25,25,25}.

The structure obtained from the maximum values is: {50,70,50,75}. After the normalization the structure of maximum values is: {20,29,20,31}.

On the basis of the average values obtained after the analysis of the data supplied by the specialists the average structure is obtained: {24,30,28,18}.

Table 4. *The structures of types of users*

Structure	Hyperactive (H)	Cautious (C)	Organized (O)	Sloppy (S)
Ideal	4	54	38	4
Not-ideal	37	4	4	55
Minimum	25	25	25	25
Maximum	20	29	20	31
Average	24	30	28	18

Depending on the determined intervals and the users' membership to a certain type the structure of the collectivity is determined:

- collectivity with a normal structure in which few users are at extremities and many users are in the groups from the center;
- collectivity with heterogeneous structure in which the users are equilibrated between the four groups;
- collectivity with structure oriented towards critical moments in which most of the users are at the right extremity (very close to the superior limit);
- collectivity with hyperactive structure in which most of the users are at the left extremity (very close to the inferior limit);
- collectivity with cautious structure if the majority of users are cautious.

For determining the extremities of the intervals of types of users' collectivities the following intervals are used:

- Lim_0 , the inferior extremity of the interval for the first type of users;
- Lim_1 , the superior extremity of the interval for the first type of users and the inferior extremity for the second type of users;
- Lim_2 , the superior extremity of the interval for the second type of users and the inferior extremity for the third type of users;
- Lim_3 , the superior extremity of the interval for the third type of users and the inferior extremity for the fourth type of users;
- Lim_4 , the superior extremity of the interval for the fourth type of users.

So the collectivity of the hyperactive users CSH, is determined by the model:

$$CSH = \{UA_i \mid \Omega^H(UA_i) = 1, i = \overline{1 - nru}\}$$

where:

$$\Omega^{hiperactiv}(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_0, Lim_1) \\ 0 & \text{otherwise} \end{cases}$$

And the number of users from this collectivity is given by the formula:

$$NUC^H = \sum_{i=1}^{nru} \Omega^H(UA_i)$$

In a similar manner is determined the collectivity of cautious users CSP:

$$CSP = \{UA_i \mid \Omega^P(UA_i) = 1, i = \overline{1 - nru}\}$$

where:

$$\Omega^P(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_1, Lim_2) \\ 0 & \text{otherwise} \end{cases}$$

And the number of users from this collectivity is given by the formula:

$$NUC^P = \sum_{i=1}^{nru} \Omega^P(UA_i)$$

The collectivity of organized users CSO, is given by:

$$CSO = \{UA_i \mid \Omega^O(UA_i) = 1, i = \overline{1 - nru}\}$$

where:

$$\Omega^O(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_2, Lim_3) \\ 0 & \text{otherwise} \end{cases}$$

And the number of users from this collectivity is given by the formula:

$$NUC^O = \sum_{i=1}^{nru} \Omega^O(UA_i)$$

The collectivity of sloppy users CSD, is given by:

$$CSD = \{UA_i \mid \Omega^D(UA_i) = 1, i = \overline{1 - nru}\}$$

where:

$$\Omega^D(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_3, Lim_4) \cup \Phi_4 \\ 0 & \text{otherwise} \end{cases}$$

Knowing that $\Phi_4 = Lim_4$ the equality becomes:

$$\Omega^D(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [Lim_3, Lim_4] \\ 0 & \text{otherwise} \end{cases}$$

And the number of users from this collectivity is given by the formula:

$$NUC^D = \sum_{i=1}^{nru} \Omega^D(UA_i)$$

Through the established formulas the users collectivities are determined.

3. The analysis of the data supplied by specialists

Let SLF be the set of the specialists that awarded the same value for all the four types, built accordingly to the relation:

$$SLF = \{S_i \mid S_i \in S, P_i^j = P_i^k, i = \overline{1 \div NT}, k = \overline{1 \div NT}\}$$

The set of the users that is the result of filtering accordingly to the above relation is: $SLF = \{S5, S52\}$. The two specialists awarded for all the four types of users the same value – 25. Eight specialists attributed the same interval for three types of users and for the fourth type of users a value different than the first three. The specialists that attributed three identical values are presented in Table 5.

Table 5. Identical value for three types of users

Specialist	Hyperactive (H)	Cautious (C)	Organized (O)	Sloppy (S)
S3	30	30	30	10
S12	30	30	30	10
S21	20	20	40	20
S31	30	30	30	10
S38	20	20	20	40
S41	20	20	20	40
S42	20	40	20	20
S43	40	20	20	20

The identical value attributed to the three types is 20 or 30, and the rest of 40 or ten is attributed to the fourth type of users.

There are users that gave identical values to two types of users. For the rest of the values they attributed either identical values, Table 6, either different values Table 7.

Table 6. Two identical values for two types of users

Specialist	Hyperactive	Cautious	Organized	Sloppy
S1	20	30	30	20
S9	20	30	30	20
S14	20	30	30	20
S26	10	40	40	10
S28	10	40	40	10
S29	15	35	35	15
S30	20	30	30	20

Table 7. Identical values for two types of users

Specialist	Hyperactive	Cautious	Organized	Sloppy
S10	15	30	15	40
S17	20	35	35	10
S20	50	20	20	10
S22	25	25	40	10
S23	20	20	50	10
S36	20	40	40	0
S39	25	35	35	5
S47	40	30	15	15
S48	25	30	15	30

The values attributed by specialists to the four types of users and their frequencies are presented in Table 8.

Table 8. *The frequencies of the values*

Value	0	5	10	15	20	25	30	35	40	45	50	70	75	Total
Frequency	3	12	32	15	47	19	39	9	33	2	11	1	1	224
Frequency (per cent)	1,34	5,36	14,29	6,7	20,98	8,48	17,41	4,02	14,73	0,89	4,91	0,45	0,45	100
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	

By sorting the per cent frequencies the following order is obtained: F5, F7, F9, F3, F6, F4, F2, F11, F8, F1, F10, F12, F13.

The sum of the first nine per cent frequencies: F5, F7, F9, F3, F6, F4, F2, F11, F8 is 96.88%. This shows that the nine values cover 96.88% of the total values the specialists attributed. So, the representative values are: 20, 30, 40, 10, 25, 15, 5, 50, 35.

4. The study of the stability of time intervals

For the analysis we consider a collectivity of users that interact with the MCSAM application to take a test.

The test was available for seven days or 185 hours. So, $TT=185$. The moment a user takes the test, MU_i^{st1} , is represented in Table 9.

Table 9. *Moments of taking the test*

User	MU_i^{st1} (hours)
UA1	98,33
UA2	120,46
...	
UA69	174,51
UA70	180,56

To determine students collectivities the following intervals are used:

$$Lim_0 = 0$$

$$Lim_1 = \frac{24}{100} * 185 = 44$$

$$Lim_2 = \frac{54}{100} * 185 = 100$$

$$Lim_3 = \frac{82}{100} * 185 = 152$$

$$Lim_4 = 185$$

So the formulas for determining the users collectivities that interacted with the application are:

$$\Omega^H(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [0,44) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^P(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [44,100) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^O(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [100,152) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^D(UA_i) = \begin{cases} 1, & \text{if } MU_i^{problema} \in [152,185] \\ 0 & \text{otherwise} \end{cases}$$

The collectivity of hyperactive students CSH is:

$$CSH = \{UA30, UA31, UA37, UA39, UA49, UA63\}$$

The number of students from the hyperactive collectivity is:

$$NUC^H = \sum_{i=1}^{70} \Omega^H(UA_i) = 6$$

The collectivity of cautious students CSP is:

$$CSP = \{UA1, UA6, UA8, UA25, UA28, UA32, UA33, UA54, UA60\}$$

The number of students in the cautious collectivity is:

$$NUC^P = \sum_{i=1}^{70} \Omega^P(UA_i) = 9$$

The collectivity of organized students CSO is:

$$CSO = \{UA2, UA3, UA7, UA10, UA12, UA16, UA17, UA18, UA19, UA21, UA23, UA24, UA26, UA29, UA40, UA42, UA44, UA45, UA46, UA48, UA51, UA52, UA53, UA56, UA57, UA58, UA59, UA61\}$$

The number of students from the organized collectivity is:

$$NUC^O = \sum_{i=1}^{70} \Omega^O(UA_i) = 28$$

The collectivity of sloppy students CSD is:

$CSD = \{UA4, UA5, UA9, UA11, UA13, UA14, UA15, UA20, UA22, UA27, UA34, UA35, UA36, UA38, UA41, UA43, UA47, UA50, UA55, UA62, UA64, UA65, UA66, UA67, UA68, UA69, UA70\}$

The number of students in the sloppy collectivity is:

$$NUC^D = \sum_{i=1}^{70} \Omega^D(UA_i) = 27$$

Because $CSH \cap CSP \cap CSO \cap CSD = 0$ the sum of the numbers of students in all collectivities is equal to the total number of students:

$$NUC^H + NUC^P + NUC^O + NUC^D = nru$$

The number of students in each collectivity is presented in Table 10.

Table 10. Number of students per collectivity

Type	Hyperactive	Cautious	Organized	Sloppy	Total
Number of students	6	9	28	27	70
Percentage (%)	9	13	40	38	100

If another structure is used, the limits of the intervals change. So, for the ideal structure the intervals are:

$$Lim_0 = 0$$

$$Lim_1 = \frac{4}{100} * 185 = 7.4$$

$$Lim_2 = \frac{58}{100} * 185 = 107.3$$

$$Lim_3 = \frac{96}{100} * 185 = 177.6$$

$$Lim_4 = 185$$

So, the formulas for determining the students collectivities are:

$$\Omega^H(UA_i) = \begin{cases} 1, & \text{if } MU_i^{st1} \in [0, 7.4) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^P(UA_i) = \begin{cases} 1, & \text{if } MU_i^{st1} \in [7.4, 107.3) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^O(UA_i) = \begin{cases} 1, & \text{if } MU_i^{st1} \in [107.3, 177.6) \\ 0 & \text{otherwise} \end{cases}$$

$$\Omega^D(UA_i) = \begin{cases} 1, & \text{if } MU_i^{st1} \in [177.6, 185] \\ 0 & \text{otherwise} \end{cases}$$

The collectivity of hyperactive students CSH is:

$$CSH = \{UA30, UA31, UA49\}$$

The number of students in the hyperactive collectivity is:

$$NUC^H = \sum_{i=1}^{70} \Omega^H(UA_i) = 3$$

The cautious students collectivity CSP is:

$$CSP = \{UA1, UA6, UA8, UA19, UA25, UA28, UA29, UA32, UA33, UA37, UA39, UA46, UA54, UA60, UA63\}$$

The number of students in the cautious collectivity is:

$$NUC^P = \sum_{i=1}^{70} \Omega^P(UA_i) = 15$$

The collectivity of the organized students CSO is:

$$CSO = \{UA2, UA3, UA4, UA5, UA7, UA9, UA10, UA11, UA12, UA13, UA14, UA15, UA16, UA17, UA18, UA20, UA21, UA22, UA23, UA24, UA26, UA34, UA35, UA36, UA38, UA40, UA41, UA42, UA44, UA45, UA47, UA48, UA50, UA51, UA52, UA53, UA55, UA56, UA57, UA58, UA59, UA61, UA62, UA64, UA67, UA68, UA69\}$$

The number of students in the organized collectivity is:

$$NUC^O = \sum_{i=1}^{70} \Omega^O(UA_i) = 47$$

The collectivity of sloppy students CSD is:

$$CSD = \{UA27, UA43, UA65, UA66, UA70\}$$

The number of students in the sloppy collectivity is:

$$NUC^D = \sum_{i=1}^{70} \Omega^D(UA_i) = 5$$

The number of students in each collectivity is presented in Table 11. The numbers are determined by using the application *CountUserTypes* made in C# and available at <http://alinzamfiroiu.ro/Applications/CountUsersTypes.rar>.

Table 11. *Number of students in collectivities for the ideal structure*

Type	Hyperactive	Cautious	Organized	Sloppy	Total
Number of students	3	15	47	5	70
Percentage (%)	4	22	67	7	100

The MCSAM application is developed for the Android running mobile devices and is aimed at the students of the Master of Economic Informatics Study, second year. The application records statistical data about the behavior of users (Zamfiroiu and Sboru, 2013).

To determine the stability of the ideal structure the number of distance learners that uploaded the homework on the platform was determined using the application *CountUserTypes*. These numbers are represented in Table 12.

Table 12. *Number of students for different collectivities on the ideal structure*

Collectivity	Hyperactive	Cautious	Organized	Sloppy
I	0	0	8	20
II	0	4	14	2
III	1	4	19	21
IV	0	5	18	17
V	0	0	2	27
VI	0	1	4	19
VII	0	0	5	27

The values in Table 12 are graphical represented in Figure 2.

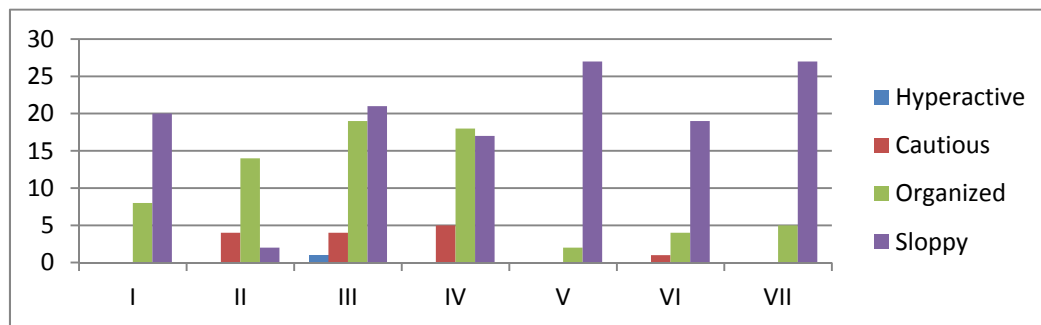


Figure 2. *Graphical representation of the distribution of students on types by the ideal structure*

According to (Ciurea, 2011) the graphical representation of data creates a greater impression on the viewer and also the time the actual data is retained in memory increases.

One can see the orientation of the students towards the critical points, most of them being in the sloppy collectivity.

5. Conclusions

Structures of limits of intervals are determined for determining the types of users depending on the time they complete a received task.

Ideal structures and average structures are determined on the basis of the results obtained from specialists in the domain of work time management.

For the study of the stability of the intervals of the structures and the choosing of the optimum structure for the determination of the groups of users new users collectivities are analyzed taking into consideration the four types of users and the five determined structures: ideal, non-ideal, minimum, maximum, average.

Data acquisitions are pretty easy to do and cover all interaction between client and operator and are organized in very large databases. The aim is to adequately use this information on the basis of statistical methods in order to obtain distinct durations for developing applications in which simulations are efficient aiming to optimize the flux to increase the users satisfaction degree.

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VAR analysis on Foreign Direct Investment in Romania

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Abstract. *A research analysis of the impact of FDI on GDP, exports and imports in Romania, on the basis of econometric models, provides us with an opportunity to examine how they have established in the transition period a number of interdependencies, more or less intense, among the variables mentioned above. In a way, the analysis which we performed gives us an opportunity to see not only the rigid positions of explained and explanatory variables, but also a change in the causality among these, which can be identified, both by different sizes of elasticity coefficients and by applying Vector Autoregressive model (VAR).*

The purpose of such a quantitative analysis based on patterns of foreign direct investment, was to identify the two-way relationship, with different intensities from one period to another, of the FDI and their determinants as well as among the indicators of performance of the Romanian economy and foreign direct investment, as a major factor of influence.

We apply the VAR technique to quantify the parameters of elasticity between FDI, as an explained and/or explanatory variable and other factors in the cause-effect relationship.

The VAR analysis was based on data obtained from NOTR (National Office of Trade Registrar), NBR (National Bank of Romania) and NIS (National Institute of Statistics) for FDI, GDP indicators, export and import indicators for the period 1997-2011.

Keywords: foreign direct investment, the method of auto-regressive vectors, gross domestic product, export, import, heteroskedasticity, homoskedasticity, co-integration, auto-correlation.

JEL Classification: C001, C12, C30.

REL Classification: 10B, 10F, 10G, 10H.

Econometric analysis of auto-regressive vectors (VAR) represents a linear system of regressions in which a set of variables are estimated on the basis of past values of the same variable and of other variables in the set. This method is often used for analysing macroeconomic phenomena, since they manifest themselves as complex, dynamic systems with feedback and mutual causality and therefore, only the system type tests are able to capture the relationship between variables (Boțel, 2002).

To identify the relationship between the variables I used the impulse-response function, decomposition of variance of forecasting error and Granger causality tests.

The Cholesky impulse-response function shows further developments in a variable, due to the shock value of other variables, following the trajectory of this effect in time.

A decomposition method of forecast error variance indicates the volume of information with which each variable contributes to the explanation of the other variables, and the causal relationships highlights the studied Granger variables, a variable X is causing a Granger effect in another variable Y if changing the values of X causes changes of Y, and the Y variable can be predicted using the information provided by the variable X.

The identification of the system was made using the recursive decomposition method of Choleski type of the variance-covariance matrix of the residual terms. This method enforces the restriction that a variable cannot be influenced by a shock which affects those variables subsequently ordered to it. This involves the distinction between various behaviors in economy, the studied variables being the results of the interaction between supply and demand on the markets (Zha, 1997).

Taking into account these considerations of the VAR method, we have forecasted a model in which the order of the variables is FDI, GDP, export and import. The reasoning is that FDI is considered predetermined on a short term, because it is very much influenced by investors' perception of a country's potential on a medium and long term, the market, the stage of development, the risk aversion of global events, but also by subjective shocks, such as political disputes, economic and financial crises in neighbouring countries.

Thus, in this model, the GDP, export and import do not have an immediate impact on FDI, but only with a lag. Thus, the increase or decrease in GDP, export or import should not influence of FDI on the very short term (one year). On the other hand, sudden increase or decrease of FDI can have a strong and immediate impact on the gross domestic product, exports or imports. We consider that this reasoning best characterizes a relatively small, developing economy, exposed to external shocks, such as Romania's economy⁽¹⁾.

The VAR analysis was based on data obtained from NOTR (National Office of Trade Registrar), NBR (National Bank of Romania) and NIS (National Institute of Statistics) for FDI, GDP indicators, export and import indicators for the period 1997-2011.

The econometric models have undergone diagnosis analyses for testing their statistical properties, the main steps taken being:

- I. Testing the order of integration of the variables of interest;
- II. Choosing the of number of lag of the VAR;
- III. Testing the stability of VAR;
- IV. Testing the properties of "white noise" of residual terms (the normal distribution, the lack of autocorrelation and heteroskedasticity).

I. Testing the order of integration of the variables of interest (*the Augmented Dickey-Fuller Test*)

The test showed, at a significance level of 5%, that the series are not stationary, but are integrated of order I. Thus, in the VAR analysis, we use the first difference of these variables. Unfortunately, I could not test the existence of a relationship of co-integration among the variables used.

Table 1. *The order of integration*

Series	FDI	GDP	EXPORT	IMPORT
Order of integration	I(1), c	I(1)	I(1),c	I(1), c

Null Hypothesis: **D(PIB) has a unit root**

Exogenous: None

Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.159878	0.0344
Test critical values:		
1% level	-2.754993	
5% level	-1.970978	
10% level	-1.603693	

*MacKinnon (1996) one-sided p-values. Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 13

Null Hypothesis: **D(ISD) has a unit root**

Exogenous: Constant

Lag Length: 2 (Automatic based on SIC, MAXLAG=3)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.662966	0.0232
Test critical values:		
1% level	-4.200056	
5% level	-3.175352	
10% level	-2.728985	

*MacKinnon (1996) one-sided p-values. Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 11

Null Hypothesis: **D(IMPORT) has a unit root**

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.561098	0.0236
Test critical values:		
1% level	-4.057910	
5% level	-3.119910	
10% level	-2.701103	

*MacKinnon (1996) one-sided p-values. Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 13

Null Hypothesis: **D(EXPORT) has a unit root**

Exogenous: Constant

Lag Length: 1 (Automatic based on SIC, MAXLAG=3)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.295192	0.0391
Test critical values:		
1% level	-4.121990	
5% level	-3.144920	
10% level	-2.713751	

*MacKinnon (1996) one-sided p-values. Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 12.

II. Choosing the number of lags of the VAR

The number of lag sites was determined on the basis of Akaike information criterion and Schwarz information criterion. Tests have shown a maximum number of 2 lags, but, however, in this model, we decided to use a single lag because of the small number of observations, namely 15.

Table 2. *VAR Order Lag Selection Criteria*

VAR Lag Order Selection Criteria

Endogenous variables: ISD PIB IMPORT EXPORT

Exogenous variables: C

Date: 04/10/13 Time: 19:36

Sample: 1997 2011

Included observations: 13

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-498.4096	NA	4.35e+28	77.29378	77.46761	77.25805
1	-435.4820	77.44928	3.76e+25	70.07416	70.94331	69.89551
2	-386.3678	30.22412*	7.02e+23*	64.97967*	66.54414*	64.65810*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

III. Testing the VAR stability

The stability condition of a VAR is that the characteristic equation roots of the estimated coefficients matrix of VAR should be inside the unit circle. The stability of a system assumes that the shocks are transient and disappear after a certain period of time, and their lack of steadiness implies that certain results, such as the standard errors for the impulse-response function, are not valid. According to tests, the estimated VAR is stationary.

Table 3. *Roots of Characteristic Polynomial*

Roots of Characteristic Polynomial

Endogenous variables: D(ISD) D(PIB) D(IMPORT) D(EXPORT)

Exogenous variables: C

Lag specification: 1 1

Date: 04/10/13 Time: 20:00

Root	Modulus
0.524420 - 0.526322i	0.742988
0.524420 + 0.526322i	0.742988
-0.565088	0.565088
0.398551	0.398551

No root lies outside the unit circle. VAR satisfies the stability condition.

IV. Testing the properties of "white noise" of the residual terms

This stage will be performed using the Lagrange Multiplier in order to see if there is any auto-correlation, the Lutkepohl test to check the normality of the series and the White Heteroskedasticity test to detect the existence of heteroskedasticity (the lack of a constant variance).

The test results are not satisfactory, the assumptions of the existence of autocorrelation and existence of homoskedasticity cannot be rejected at the conventional 5% significant level. Although the errors do not have a normal distribution, we chose to ignore this problem considering the appropriate models in terms of theory, and the lack of normality does not mean that the model is invalid, but only that there are other variables which explain the pattern, a reasonable assumption given the multitude of factors that influence foreign direct investment, GDP, export and import.

Table 4. *VAR Residual Serial Correlation LM Tests*

VAR Residual Serial Correlation LM Tests

H0: no serial correlation at lag order h

Date: 04/10/13 Time: 20:09

Sample: 1997 2011

Included observations: 13

Lags	LM-Stat	Prob
1	28.57219	0.0270
2	18.59634	0.2902
3	14.70959	0.5460
4	36.79062	0.0022
5	22.33316	0.1328
6	21.41833	0.1630

Probs from chi-square with 16 df.

Table 5. *VAR Residual Heteroskedasticity Tests*

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Date: 04/10/13 Time: 20:04

Sample: 1997 2011

Included observations: 13

Joint test:			H0: No Heteroskedasticity
Chi-sq	df	Prob.	
89.57477	80	0.2174	
Individual components:			

Dependent	R-squared	F(8,4)	Prob.	Chi-sq(8)	Prob.
res1*res1	0.711939	1.235742	0.4471	9.255204	0.3212
res2*res2	0.804831	2.061882	0.2529	10.46280	0.2340
res3*res3	0.932416	6.898192	0.0398	12.12141	0.1459
res4*res4	0.928858	6.528225	0.0438	12.07516	0.1479
res2*res1	0.542543	0.592999	0.7548	7.053059	0.5309
res3*res1	0.493541	0.487246	0.8205	6.416027	0.6007
res3*res2	0.884407	3.825539	0.1053	11.49730	0.1751
res4*res1	0.535488	0.576399	0.7650	6.961349	0.5408
res4*res2	0.946510	8.847495	0.0257	12.30463	0.1381
res4*res3	0.970017	16.17596	0.0085	12.61022	0.1260

Table 6. VAR Residual Normality Tests

VAR Residual Normality Tests

Orthogonalization: Cholesky (Lutkepohl)**H0: residuals are multivariate normal**

Date: 04/10/13 Time: 20:12

Sample: 1997 2011

Included observations: 13

Component	Skewness	Chi-sq	df	Prob.
1	0.275096	0.163969	1	0.6855
2	0.158724	0.054585	1	0.8153
3	0.231081	0.115697	1	0.7337
4	-0.215977	0.101066	1	0.7506
Joint		0.435317	4	0.9795
Component	Kurtosis	Chi-sq	df	Prob.
1	0.851946	2.499324	1	0.1139
2	1.063754	2.030735	1	0.1541
3	1.041256	2.078200	1	0.1494
4	0.658393	2.970024	1	0.0848
Joint		9.578283	4	0.0482
Component	Jarque-Bera	df	Prob.	
1	2.663293	2	0.2640	
2	2.085320	2	0.3525	
3	2.193896	2	0.3339	
4	3.071091	2	0.2153	
Joint	10.01360	8	0.2641	

Table 7. *The correlation Matrix of residual terms***The correlation Matrix of residual terms**

	D(ISD)	D(PIB)	D(IMPORT)	D(EXPORT)
D(ISD)	1.000000	0.075367	0.095842	0.278671
D(PIB)	0.075367	1.000000	0.964500	0.818762
D(IMPORT)	0.095842	0.964500	1.000000	0.898733
D(EXPORT)	0.278671	0.818762	0.898733	1.000000

■ VAR system Results

Vector Autoregression Estimates

Date: 04/10/13 Time: 19:59

Sample (adjusted): 1999 2011

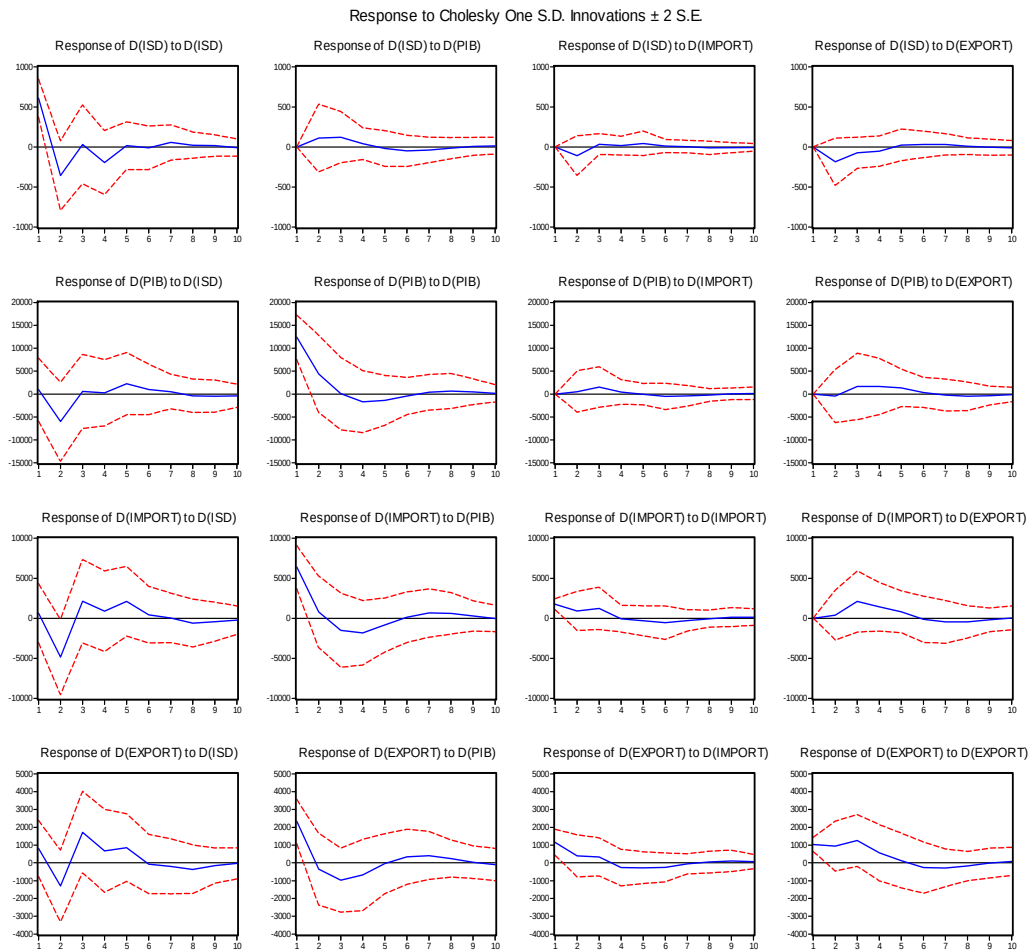
Included observations: 13 after adjustments

Standard errors in () & t-statistics in []

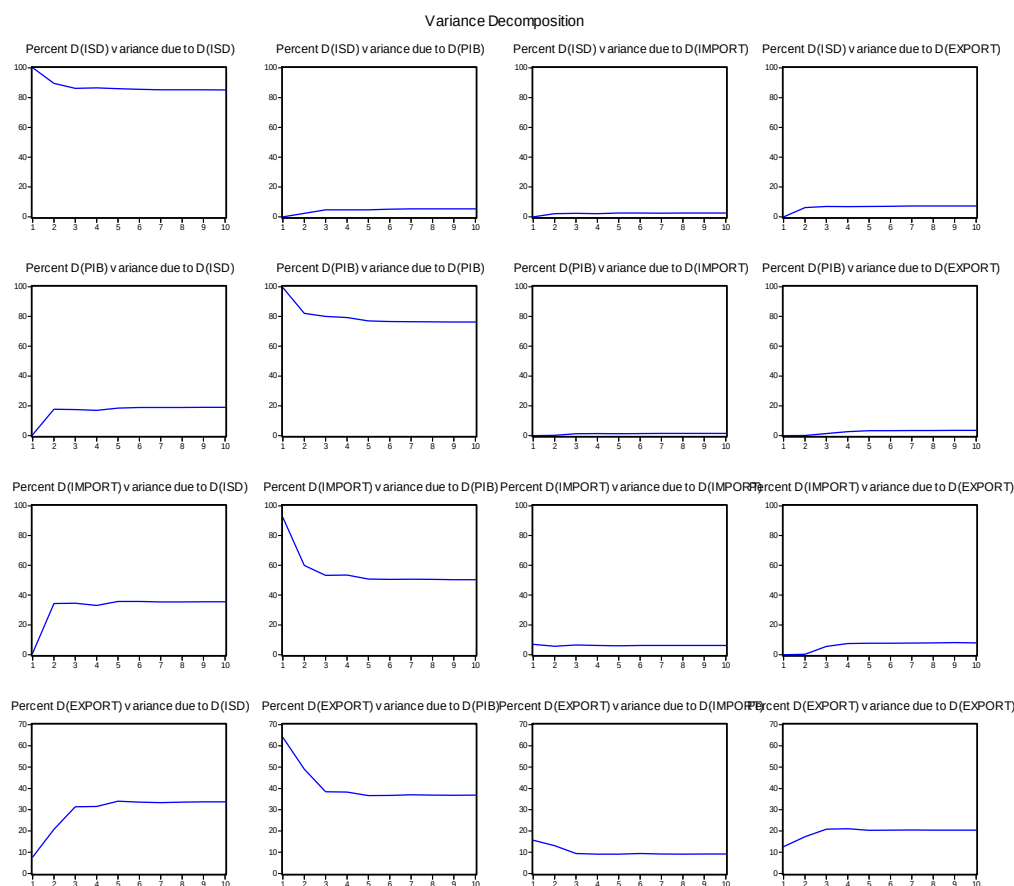
	D(ISD)	D(PIB)	D(IMPORT)	D(EXPORT)
D(ISD(-1))	-0.428084 (0.32059) [-1.33531]	-10.13960 (6.53667) [-1.55119]	-8.499737 (3.50549) [-2.42469]	-2.934662 (1.53015) [-1.91789]
D(PIB(-1))	0.013729 (0.04064) [0.33783]	0.131924 (0.82860) [0.15921]	-0.146097 (0.44436) [-0.32878]	-0.006772 (0.19396) [-0.03491]
D(IMPORT(-1))	0.056075 (0.09877) [0.56773]	0.586321 (2.01391) [0.29114]	0.269233 (1.08002) [0.24928]	-0.373760 (0.47143) [-0.79282]
D(EXPORT(-1))	-0.179555 (0.13731) [-1.30768]	-0.427047 (2.79967) [-0.15253]	0.377704 (1.50141) [0.25157]	0.909230 (0.65537) [1.38736]
C	486.3555 (310.678) [1.56546]	8433.600 (6334.63) [1.33135]	5208.791 (3397.14) [1.53329]	2752.416 (1482.85) [1.85616]
R-squared	0.405348	0.277176	0.433164	0.465070
Adj. R-squared	0.108022	-0.084236	0.149745	0.197605
Sum sq. resids	2968277.	1.23E+09	3.55E+08	67620524
S.E. equation	609.1262	12419.89	6660.543	2907.330
F-statistic	1.363312	0.766924	1.528355	1.738807
Log likelihood	-98.64673	-137.8421	-129.7418	-118.9653
Akaike AIC	15.94565	21.97571	20.72951	19.07158
Schwarz SC	16.16294	22.19300	20.94680	19.28887
Mean dependent	211.1923	7223.923	3416.923	2913.385
S.D. dependent	644.9562	11927.67	7223.291	3245.639
Determinant resid covariance (dof adj.)		1.86E+26		
Determinant resid covariance		2.67E+25		
Log likelihood		-454.3360		
Akaike information criterion		72.97476		
Schwarz criterion		73.84392		

■ Impulse response functions

As expected, due to the fact that the VAR estimated residual terms are not characterized by a normal distribution, the impulse-response functions do not seem to be significantly different from zero. However, we can try a prudent analysis of these results to at least see if the sign of variables for shocks in the other variables in the system, can pinpoint answers or future research topics.



■ Decomposition of variance



The interpretation of the results must take into account that we used the first difference of the variables, since the data series were not stationary, so we have to deal with variable growth rates.

■ Granger causality

In the table shown below, the values in column "Prob" represent the probability of the null hypothesis: the dependent variable is not caused in a Granger way by the independent variables. It can be seen that the only valid results statistically, at a significance level of 5%, show that only export and import are caused largely by FDI from a Granger point of view. Thus, we can affirm that from a Granger point of view the FDI causes exports and imports. This demonstrates that the FDI generated financial flows, materials, technological and managerial flows which led the development of the production activities which increased on the short term, the demand for both import and export.

One of the main components of FDI is represented by the net credit granted by non-residents to enterprises with FDI, which means that this component of FDI has stimulated the activity of production destined for export/import.

Table 8. *VAR Granger Causality/Block Exogeneity Wald Tests*

VAR Granger Causality/Block Exogeneity Wald Tests

Date: 04/10/13 Time: 17:24

Sample: 1997 2011

Included observations: 13

Dependent variable: D(ISD)			
Excluded	Chi-sq	df	Prob.
D(PIB)	0.114132	1	0.7355
D(IMPORT)	0.322318	1	0.5702
D(EXPORT)	1.710024	1	0.1910
All	3.163884	3	0.3670
Dependent variable: D(PIB)			
Excluded	Chi-sq	df	Prob.
D(ISD)	2.406181	1	0.1209
D(IMPORT)	0.084760	1	0.7709
D(EXPORT)	0.023267	1	0.8788
All	2.554823	3	0.4655
Dependent variable: D(IMPORT)			
Excluded	Chi-sq	df	Prob.
D(ISD)	5.879136	1	0.0153
D(PIB)	0.108095	1	0.7423
D(EXPORT)	0.063286	1	0.8014

All	6.013297	3	0.1110
Dependent variable: D(EXPORT)			
Excluded	Chi-sq	df	Prob.
D(ISD)	3.678320	1	0.0551
D(PIB)	0.001219	1	0.9721
D(IMPORT)	0.628566	1	0.4279
All	6.758120	3	0.0800

The results of the econometric analysis are developed and supported by Acaravci and Ozturk, Ilhan who, in their study "Foreign direct investment, export and economic growth: empirical evidence from new EU countries" have researched the relationship of causality between FDI, exports and GDP in ten developing countries, members of the European Union, including Romania.

The relationship between FDI and GDP is analyzed in terms of:

- the factors that determine economic growth;
- the factors that encourage FDI flows;
- the role of multinational corporations in the host country;
- the relationship of causality between FDI and GDP.

In the specialized literature there are numerous techniques, tools and methods for determining the character of the relations between the three variables mentioned, in the sense of alternating their quality according to the dependent and independent variable on short, medium and long term (co-integration and Engle and Granger causal models).

The work is based on two-step procedure in the Engle and Granger model. In a first stage, considering long-term relationship between the three variables, and in the second stage the VEC dynamic model is used, based on Granger causality to test the causal relationship between the variables.

The results of Acaravci and Ozturk research show a causal relationship in one sense, between FDI and GDP growth in the Czech Republic and Slovakia; in Latvia between GDP and FDI, in Poland between FDI and exports. A two-way causation, resulted between GDP and exports in Latvia and Slovakia and between

FDI and export for Latvia. There is a unique relationship on the medium term and long term or balance between real GDP, real exports and FDI in Bulgaria, Estonia, Hungary, Lithuania, Romania and Slovenia.

Econometric analysis suggests that any causal relationships in the dynamic VEC model for these countries, including Romania, cannot be estimated.

The causal relationship of GDP, exports of goods and services, and FDI, acquires particular meanings from one country to another, depending on its level of economic and social development, competitiveness, in a broad and narrow sense, the micro and the macro-economic and structural peculiarities of the respective economies, levels of technological, territorial, spatial distribution and endowment with natural factors of production.

The results of calculations, confirmed as well by other investigations abroad, reveal the lack of relevance of one way and two way links of different intensities between FDI, exports and GDP growth. Even empirical data show, for example, that in the peak of the economic crisis in Romania, 2009 and 2010, characterized by the negative evolution of GDP, exports have exceeded in 2010 the highest level recorded in the year of crisis, even though GDP had fallen two years in a row.

Note

- ⁽¹⁾ A second possible model that could be tested, is that in which the order of the variables is GDP, export, import, FDI. We start from the assumption that the economy is characterised mainly by foreign direct investment aimed at making a profit as soon as possible. Thus, the investments are elastic to the evolution of production, exports and imports, foreign investors are greatly influenced by supply and demand in the short term that characterize the market on which they want to invest. For this reason, in this model, the variable is placed last, FDI and GDP first, because, of all the variables used, the production is the one that most depend on factors that are not included in the model, such as: the rate of savings, labour, domestic demand, inflation etc.

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Using the regression model for the portfolios analysis and management

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Abstract. *In the frame of this article we submitted the practical possibilities to analyse the stock market activity in Romania, by means of the linear regression model. Thus, the study is focusing on the existing correlations between the yield of a portfolio formed by ten financial assets issued by companies quoted on the main market at the Bucharest Stock Exchange and the overall evolution of the capital market in Romania, expressed with the help of the Bucharest Exchange Trading index. A linear regression model implies that the methods used for estimating the two parameters, the methods applied for testing the properties of the regression model estimators as well as the main aspects concerning the utilization of the regression model in making predictions are well known.*

Keywords: linear regression, financial instruments portfolio, BET index, yields, correlation coefficient.

JEL Classification: C23, E44, G11.

REL Classification: 11B.

1. Introduction

The evolution of today's economy, characterized by the increase of the complexity and intensity of all its specific processes, made it more and more frequently needed the setting up of specific applications meant to secure an as much as true reflection of the various situations which may occur in the daily activity, as well as the favourable or unfavourable influences which those ones may induce on the entire analysed system. This statement grounded the researchers' concern as to reflect as exactly as possible, the relations existing between the various evolutions of the human life – in general terms – and its economic side – in particular terms-. Such econometric models can be largely utilized in the analysis performed on the financial activities and, implicitly, on the capital market.

The first attempts to formalize a coherent structure for conceiving an econometric model is dated back the mid-last century when these kind of attempts could have been found out, for instance, in the works signed by Walters, *An introduction to econometrics* or Frank, *Statistics and econometrics*. These have been taken over studied thoroughly at the beginning of the years 2000 by Gujarati, the one who, in his work *Basic econometry*, Fourth edition (2005) is formulating a set of six stages meant to conceive and implement an econometric model.

The drawing of econometric models applicable directly to activities specific to the financial markets and, mainly, to the capital market, took place during the second half of the last century when, based on the existing theoretical models, the first models strictly applicable to the financial and capital investment domain, have been created (Milles, *The econometric modelling of financial time series*, 1993; Diebild, *Elements of forecasting*, 2002).

2. The simple regression model

The simple regression model is representing a correlation where the dependent out coming variable, Y , is linearly dependent on the explicative, factorial variable, X , but also influenced by the residual ε , as follows:

$$Y_i = b + aX_i + \varepsilon_i, \text{ for all values } „i”.$$

The two parameters are estimated through the data series set up for the two variables. The estimators for the two parameters are defined as $\hat{b}$ and $\hat{a}$. The model parameters are established in a stochastic manner, on the basis of the estimators.

The residual variable ε is normally distributed, having the mean 0 and a constant dispersion and being included in the model because of the fact that in the economy a functional linear dependence between two variables is not always to be met but merely one of probabilistic kind, as the data series are jeopardized by measurement errors with influence on the estimates for the two parameters while the data series are set up through observations on a number of samples.

When defining the linear regression, there are a number of hypotheses to be considered. The estimated value of the out coming variable, of the estimators of the model parameters and their properties depend on characteristics of the independent variable and residual variable properties, so that the above mentioned hypotheses are referring to the variables which define the regression mode as well as to the residual variable.

1) The data series are not affected by recoding errors. The hypothesis is postulating the characteristics of the series of values which are utilized for estimating the parameters. The estimation of the parameters is achieved on the basis of a values sample $(x_i, y_i)_{i=1,n}$ which represents values for the two variables. In the case of the classical model of regression, it is considered that the values of the factorial characteristic are determinist (fix values) while those of the out coming characteristic are stochastic. The values of the factorial characteristic are non-stochastic if for each value of this characteristic there is a corresponding family of values of the out coming characteristic. For each value x_i of the factorial characteristic, there is an average of the family of the out coming characteristic which is calculated and the series of values $E[Y|X = x_i], i = 1, n$ is set up.

For each fixed value of the factorial characteristic, the residual variable is of mean zero, namely: $E[\varepsilon_i|X = x_i] = 0$, for each i

Based on this statement it is resulting that the other un-recorded factors, excepting the factorial characteristic, have no systematic influence on the mean of the out coming characteristic. If the hypothesis is met by the linear regression model, it is written: $E[Y|X = x_i] = b + ax_i$

2) The homoscedasticity hypothesis – the residual dispersion is constant. This property shows that the conditional distributions $(y_i/x=x_i)$ have the same dispersion, represented by the following equality: $\text{var}[\varepsilon_i|X = x_i] = \sigma_\varepsilon^2$, is constant for any i .

If the residual variables do not meet this property, the regression model is heteroscedastic and the residual variables have different variances:

$$\text{var}[\varepsilon_i|X = x_i] = \sigma_i^2$$

3) The lack of the residuals correlation. This property is expressing the fact that between the residual terms the covariance phenomenon is not showing up, it being written in form of:

$\text{cov}(\varepsilon_i, \varepsilon_j) = 0$, for any $i \neq j$. If the residual variable meets the hypotheses „2” and „3”, the relation is resulting:

$$\text{cov}(\varepsilon_i, \varepsilon_j) = \begin{cases} 0, i \neq j \\ \sigma_\varepsilon^2, i = j \end{cases}$$

A quite different situation happens when the residual variable is submitting an auto-correlation of first degree, namely:

$$\varepsilon_t = \rho \varepsilon_{t-1} + u_t, \text{ where } u_t \text{ is white noise.}$$

4) Non-correlation of the residual variable with the independent variable. When this hypothesis is met, it is written:

$\text{cov}(X, \varepsilon_j) = 0$, for any j , which means that an increase of the values of the factorial variable is not leading automatically to an increase of the residual variable values. The residual values are distributed upon a normal repartition of mean 0 and dispersion σ_x^2 . Then, for the residual variable, we shall write that $\varepsilon_i \in N(0, \sigma^2)$.

Analysis and interpretation of the residual variable

In the frame of the linear regression model, ε_i is representing the residual variable while e_i or $\hat{\varepsilon}_i$ is measuring the gap between the real value y_i and the adjusted value through the regression model. We define $e_i = y_i - \hat{y}_i$.

In order to set up an estimate for the two parameters of the regression line, an estimate for the residual variable dispersion is established, with the following properties:

1. For the series of gaps, the sum of its terms equals to zero. In this case, the following equality is written $\sum_i \varepsilon_i = 0$. The calculation formula for the gap, the

estimator formula for the free term and the fact that the sum of the gaps of the series terms as against the mean is zero, are factors being taken into consideration, where off it is resulting:

$$\sum_i \varepsilon_i = \sum_i (y_i - \hat{b} - \hat{a}x_i) = \sum_i (y_i - \bar{y}) - \hat{a} \sum_i (x_i - \bar{x}) = 0$$

The property is not valid for the series of the residual variables but only for the situation when the hypothesis $E(\varepsilon_i) = 0$ is met for all indices i . We shall express the gap of a value as against the adjusted value in connection with the residual variable, the following equalities resulting:

$$e_i = y_i - \hat{y}_i = (b - \hat{b}) - (a - \hat{a})x_i + \varepsilon_i$$

Considering the relations $\hat{b} = \bar{y} - \hat{a}\bar{x}$, $b = \bar{y} - a\bar{x} - \varepsilon$ and $a - \hat{a} = \sum_i w_i \varepsilon_i$, we get:

$$e_i = \varepsilon_i - \bar{\varepsilon} - (x_i - \bar{x}) \sum_i w_i \varepsilon_i$$

2. The dispersion of the residual variable for the classical regression model (the parameters are estimated through the least squares method) is estimated through the relation:

$$\hat{\sigma}_\varepsilon^2 = \frac{1}{n-2} \sum_i e_i^2$$

We shall take into account the hypotheses grounding the classical regression model $E(\varepsilon_i) = 0$, $\text{var}(\varepsilon_i) = \sigma_\varepsilon^2$, $\text{cov}(\varepsilon_i, \varepsilon_j) = 0, \forall i \neq j$ and $\text{cov}(X, \varepsilon_i) = 0$ for all indices i . Calculating e_i^2 and applying the mean operator, the following equality is resulting for each index i :

$$\begin{aligned} E(e_i^2) &= \sigma_\varepsilon^2 + \frac{\sigma_\varepsilon^2}{n} + \sigma_\varepsilon^2 (x_i - \bar{x})^2 \sum_k w_k^2 - 2E\left[(\varepsilon_i - \bar{\varepsilon}) \cdot (x_i - \bar{x}) \sum_k w_k \varepsilon_k\right] \\ &= \sigma_\varepsilon^2 + \frac{\sigma_\varepsilon^2}{n} + \sigma_\varepsilon^2 (x_i - \bar{x})^2 \frac{1}{\sum_k (x_k - \bar{x})^2} - \\ &\quad - 2\sigma_\varepsilon^2 \left[(x_i - \bar{x}) w_i - \frac{1}{n} (x_i - \bar{x}) \sum_k w_k + (x_i - \bar{x}) w_i \right] \end{aligned}$$

Using the addition operator and considering the properties of the series $(w_i)_{i=1, n}$, we get:

$$E\left(\sum_i e_i\right) = (n-2)\sigma_\varepsilon^2$$

We establish the estimator of the residual variation, which is to compare with the

estimator $\hat{a}^2 = \frac{\sum_i e_i^2}{n}$, as non-shifted estimator.

For the linear regression model, the size of the dispersion of the gaps series $(e_i)_{i=1,n}$ is higher to the extent the series of the out coming characteristic values is larger but smaller if the dependence between the two characteristics is stronger.

Between the dispersion of the gaps series, of the endogenous characteristic values and the linear correlation coefficient the equality: $\sigma_e^2 = (1 - r^2)\sigma_y^2$ is confirmed.

We shall demonstrate the last relation taking into consideration the fact that, in case there is a linear dependence between the two variables, $r^2 = \frac{SPE}{SPT}$, where

$SPT = SPR + SPE$. Since $1 - r^2 = \frac{SPR}{SPT}$ and out of the formula of calculation for the residual variable dispersion, we get:

$$(1 - r^2)\sigma_y^2 = \frac{SPR}{SPT} \frac{SPT}{n} = \sigma_e^2$$

The gaps dispersion has been calculated through the formula:

$$\sigma_e^2 = \frac{1}{n} \sum_i e_i^2$$

Out of the residual normality hypothesis, it is resulting:

$$\frac{\hat{\sigma}_e^2}{\sigma_e^2} (n - 2) \rightarrow \chi_{n-2}^2$$

A confidence interval for the residual variable dispersion can be set up if a significance threshold α , is fixed, the confidence interval being:

$$(n - 2) \frac{\hat{\sigma}_e^2}{\lambda_2^2} < \sigma_e^2 < (n - 2) \frac{\hat{\sigma}_e^2}{\lambda_1^2}$$

λ_1^2 and λ_2^2 are values provided by the repartition χ^2 for $n-2$ freedom degrees and a set up significance threshold α .

By graphical plotting of the coordinates points $(y_i, e_i)_{i=1,n}$, we can verify empirically whether the homoscedasticity hypothesis is met. By graphical plotting of the data series there are two situations occurring: if the point are defining the *point cloud*, then the homoscedasticity hypothesis is not met; while when the points are disposed in the form of a horizontal strip, the hypothesis is valid for the data series $(x_i, y_i)_{i=1,n}$.

3. The application of the regression model on the capital market in Romania

In order to take advantage of the submitted theoretical aspects, we used the regression econometric model meant to evaluate the relation between the yield of a portfolio of financial instruments and the overall evolution of the capital market.

A significant element which has to be known by any portfolio manager consists of the selection of the component financial instruments. Therefore, we submitted to the fundamental analysis a number of 20 companies quoted at the Bucharest Stock Exchange (see table no.1), which equities are presently transacted on the main REGS market, both in the category I of financial instruments and the II one. The analysis was based on information out of the synthesis accounting documents, respectively the accounting balance sheet and the profit and losses account. The selected companies as subject of the analysis are part of a large range from the point of view of their field of activity as a portfolio diversified on more economic sectors will be less risky as comparatively with a portfolio including assets from a single branch of activity.

Table 1. Companies submitted to the fundamental analysis

No	Company's name	Symbol	Category	Field of activity
1.	Aerostar	ARS	II	Manufacturing of aircrafts and space craft
2.	ALRO	ALR	I	Aluminium metallurgy
3.	Antibiotice	ATB	I	Manufacturing of basic pharmaceuticals
4.	Banca Comercială Carpatica	BCC	I	Monetary intermediation activities
5.	Banca Transilvania	TLV	I	Monetary intermediation activities
6.	Biofarm	BIO	I	Manufacturing of pharmaceuticals
7.	BRD-Groupe Societe Generale	BRD	I	Monetary intermediation activities
8.	BERMAS	BRM	II	Beer manufacturing
9.	Boromir Prod Buzau (Spicul)	SPCU	II	Manufacturing of bread: cakes and fresh pastry
10.	Calipso Oradea	CAOR	II	Bars and other activities meant to serving drinks
11.	Electromagnetica București	ELMA	I	Manufacturing of instruments and devices for measuring, checking, control, navigation
12.	Farmaceutica Remedia	RMAH	II	Wholesales of pharmaceuticals
13.	OMV Petrom	SNP	I	Extraction of crude oil
14.	Prodplast	PPL	II	Manufacturing certain products of plastics
15.	SIF Muntenia	SIF 4	I	Other financial intermediations n.c.a.
16.	C.N.T.E.E. Transelectrica	TEL	I	Transport of electric energy
17.	S.N.T.G.N. Transgaz	TGN	I	Transports by pipelines
18.	Turism Felix Băile Felix	TUFE	II	Hotels and other similar accommodation facilities
19.	SIF Banat Crișana	SIF 1	I	Other financial intermediations n.c.a.
20.	SIF Oltenia	SIF 5	I	Other financial intermediations n.c.a.

Source: self-systematization.

Out of the 20 analysed companies, we have selected a number of 10 companies to be included in the portfolio, namely: five commercial companies, two national companies, two financial investments companies and a banking company, for which the daily evolution of the prices has been analysed over the period 01.01.2012–31.12.2012. The companies have been selected according to rigorous criteria by granting them marks which have been turned into scores afterwards, whereof the final classification:

Table 2. *Selected companies which equities are considered to enter into the portfolio*

No	Company	Symbol
1.	Banca Transilvania	TLV
2.	Bermas	BRM
3.	Biofarm Bio	BIO
4.	Electromagnetica	ELMA
5.	OMV Petrom	SNP
6.	SIF Oltenia	SIF5
7.	SIF Muntenia	SIF4
8.	Transgaz	TGN
9.	Turism Felix	TUFE
10.	Transelectrica	TEL

Source: self-calculations.

Further on, we have analysed the data concerning the daily evolution of the prices for the ten financial assets quoted on the main market of the Bucharest Stock Exchange in the year 2012 (366 calendar days/ 250 actual transacting sessions – the data being used are daily surveys over a time horizon between January 1st 2012 and December 31st 2012, respectively 250 surveys, excepting week-end days and legal holidays, the data being processed in form of yields), as well as those directly connected with the BET index evolution (the reference index of the capital market in our country) during the considered period.

Based on this information, we have set up the yield of the portfolio which includes in equal proportions the ten types of equities previously mentioned (equally weighted portfolio) as well as the yield of the BET index for the one year period submitted to the (see Table 2).

When utilizing this model, the data processed by the help of the Microsoft Excel data processor have been imported into a newly created application with the support of the Eviews informatics programme. We have applied statistical tests for each and every of the two series of data emphasized by the graph of the two indicators, submitted bellow:

■ For the data series concerning the portfolio yield

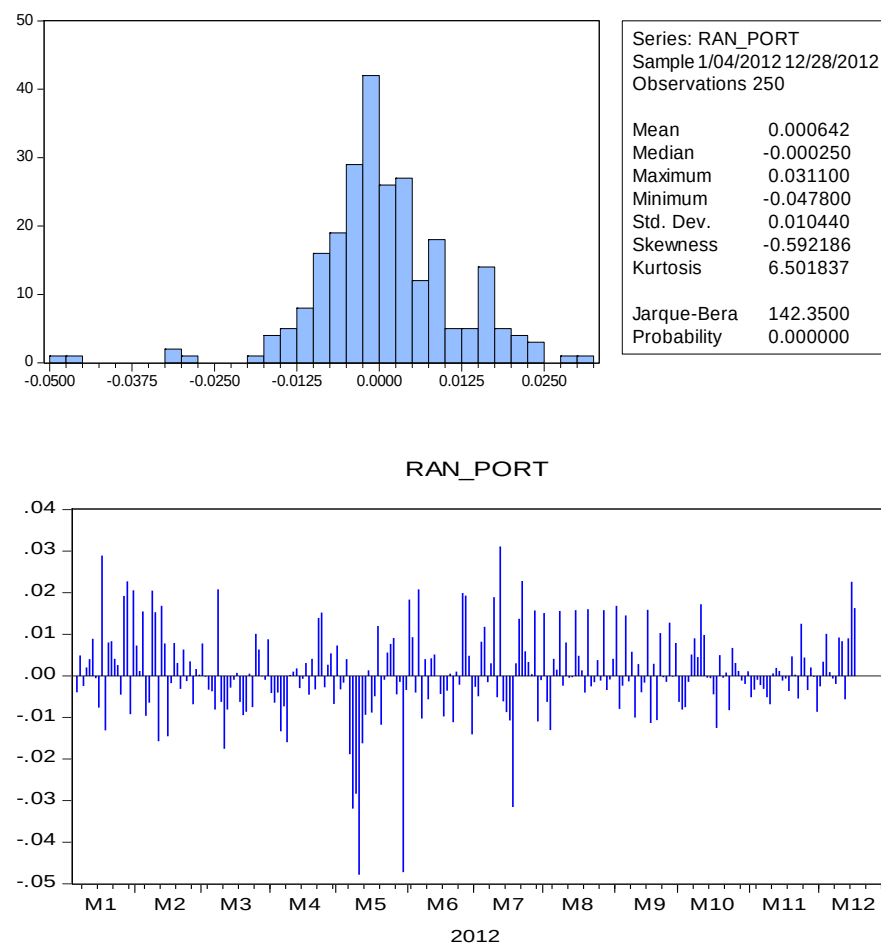


Figure 1. Statistical tests for portfolio performance

- For the data series concerning the BET index variation

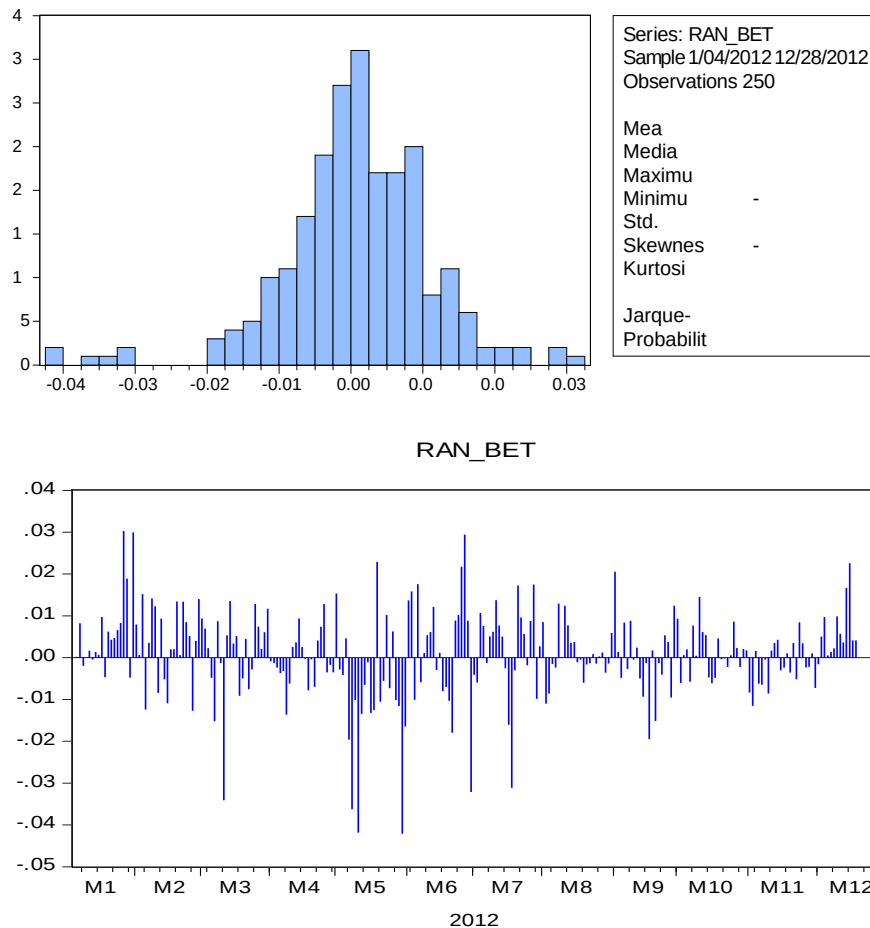


Figure 2. Statistical tests for BET index

Out of the graphs above it can be noticed that the repartition of the two data series is a very similar one which means that there is a pronounced dependence between the two sizes. This idea can be sustained also by the argument of the graph representation of the evolution of the two analysed indicators.

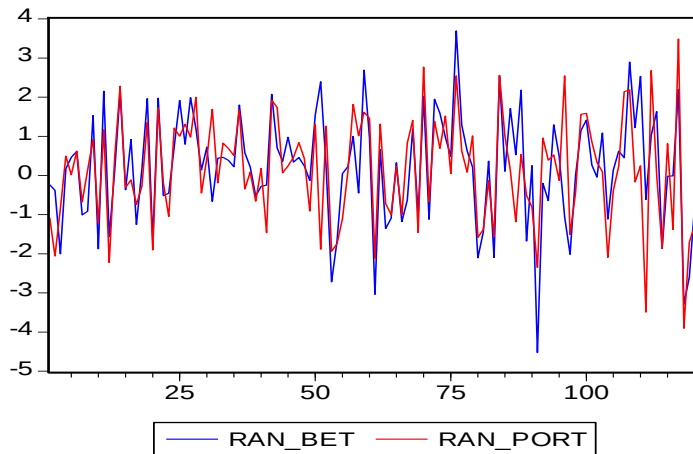


Figure 3. *Evolution of BET index and portfolio performance*

From the above graph it is obvious that the evolution of the two data series is more than similar which leads to the conclusion that there is a pronounced dependence between the two analysed indicators.

In order to establish the type of the econometric model to be utilized in order to define the existing relation between the portfolio formed up by the ten assets previously mentioned (a dependent variable) and the overall evolution of the capital market (shown up by the BET index evolution – as explicative variable) a graph representation of the data series has been achieved, by drawing up the relative regression line.

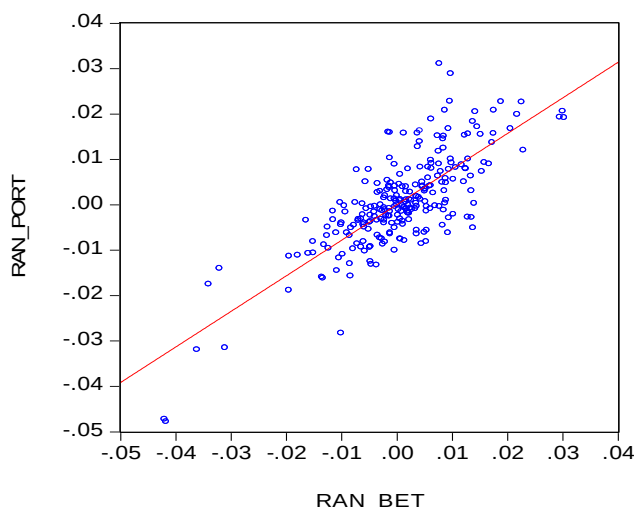


Figure 4. *Relative regression line*

On the basis of the out coming observations, the simple linear regression model has been defined as the form of:

$$\text{RAN_PORT} = \alpha + \beta \times \text{RAN_BET} + \varepsilon$$

where:

RAN_PORT = the value of the yield for the considered portfolio of assets (the dependent variable)

RAN_BET = the value of the yield for the BET index (the independent variable)

α, β = the parameters of the linear regression model

ε = the residual value of the regression model.

With the help of the Eviews informatics programme, applying the method of the smallest squares for the estimation, the parameters of the regression model above mentioned have been estimated and specific tests concerning the validity of such a model have been performed.

Dependent Variable: RAN_PORT

Method: Least Squares

Date: 11/20/13 Time: 18:41

Sample (adjusted): 1/04/2012 12/18/2012

Included observations: 250 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.61E-05	0.000415	0.159076	0.8737
RAN_BET	0.783438	0.039942	19.61420	0.0000
R-squared	0.608039	Mean dependent var		0.000642
Adjusted R-squared	0.606459	S.D. dependent var		0.010440
S.E. of regression	0.006549	Akaike info criterion		-7.210973
Sum squared resid	0.010637	Schwarz criterion		-7.182802
Log likelihood	903.3717	Hannan-Quinn criter.		-7.199635
F-statistic	384.7167	Durbin-Watson stat		2.104345
Prob(F-statistic)	0.000000			

Estimation Command:

```
=====
LS RAN_PORT C RAN_BET
```

Estimation Equation:

```
=====
RAN_PORT = C(1) + C(2) x RAN_BET
```

Substituted Coefficients:

```
=====
RAN_PORT = 6.60561413185e-05 + 0.783437809153 x RAN_BET
```

The regression model describing the linear dependence between the yield of the portfolio formed up of ten financial assets and the BET index evolution can be transcribed as follows:

$$\text{RAN_PORT} = 0,0000660561413 + 0.783438 \times \text{RAN_BET} + \varepsilon$$

The value recorded by Prob (0.0000) indicates the fact that the variable is significant from statistical point of view. Thus, we can conclude that the influence which the general evolution of the Romanian stock exchange market has upon the considered portfolio of financial instruments is a significant one. The connection between the two variables is a direct one which shows that for an increase of 1% of the BET index yield, the portfolio yield records an increase of 78.34%.

The loose term of the model is presenting a very low value which creates the image of an insignificant influence of the factors not depending on the stock exchange market dynamics on the yield of the analysed portfolio.

The value being recorded by R-squared shows that, at a ratio of 60.80%, the portfolio yield is explained by the BET index yield the difference up to 100% representing the influence of other factors not included in the present model.

4. Conclusions

In order to study the dependence between the yields of an equi-weighted portfolio, formed up by ten equities quoted on the main BVB market and the evolution of the BET index, a number of aspects out coming from the practical activity have been underlined, meant to offer a complete image of the management activity of the financial instruments portfolio. As far as the validity of this econometric model is concerned, we can notice the fact that the tests being automatically done by the Eviews specialized informatics programme have confirmed its sturdiness. In this respect it is enough to mention the values recorded by the test R^2 , F-statistic (384.7167) or Prob(F-statistic) (0.00). All these are fully confirming the validity of the considered model and lead to the ideas that it can be successfully utilised in the future for estimating the value of the considered portfolio yield depending on the evolution of the main index of the Bucharest Stock Exchange.

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The role of small and medium enterprises and poverty in Pakistan: An empirical analysis

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Abstract. *The role of Small and Medium Enterprises (SMEs) is very important in economic growth, employment generation and poverty alleviation. Annual time series data has been used to examine the impact of SMEs on poverty in Pakistan for the period between 1972 and 2007. Log-linear autoregressive model has been estimated by Ordinary Least Squares (OLS) method using one year previous value of HCR as explanatory variable. The results of the study confirm a strong and negative impact of small scale industries' output on poverty levels in Pakistan. The economic policy makers must focus on the establishment of formal financial markets to overcome the financial constraints faced by the SME sector in Pakistan. Simplification of lending procedures, enforcement of credit rights, and reduction in credit costs would be helpful for the establishment of robust SME sector in Pakistan.*

Keywords: poverty, small and medium enterprises, income inequality, population growth.

JEL Classification: I32.

REL Classification: 14D.

I. Introduction

The performance of Small and Medium Enterprises (SMEs) has been a major concern in the developing economies. Different authors define SMEs differently. Some of the authors differentiate them in terms of capital assets while others on the basis of skill and turnover. The Bolton Committee (1971) formulated “economic” and “statistical” definition of SMEs according to which an SME is an independent firm, which has relatively small share of its market place, and managed by the owners themselves, or part owners personally, and not by the medium of formalized management structure. According to statistical definition SMEs are characterized by the size, contribution to GDP, employment opportunities provided by these firms, exports, and their contribution to national economy. Jordan et al. (1998) define the SMEs that have fewer than 100 employees and a turnover of less than 15 million euro. The UNIDO defines SMEs in terms of number of employees and classifies them in developing and developed economies differently (Abor and Quarty, 2010). Classification of SMEs in developing countries is usually practiced as follows:

- Micro-firms with less than five workers;
- Small-firms with 5 to 19 workers;
- Medium-firms with 20 to 99 employees;
- Large-firms with 100 or more employees.

On the other hand, classification of SMEs in industrialized nations is given as follows:

- Small firms with 99 or less employees;
- Medium-firms with 100 to 500 employees;
- Large firms with 500 or more workers.

Although SMEs have been defined by different economists differently but they have been recognized as an important potential sector for generation of employment opportunities and major contributor of livelihood for the poor class. Importance of SMEs has been recognized all over the world. SMEs increase productivity growth in the economy. Increased productivity growth plays an important role for public welfare and reduction in poverty. SMEs not only play significant complementary role in industrialization of the economy but also act as driver of structural change. The productivity growth in the economy implies innovation in the economy. SMEs growth also enhances the degree of specialization.

Therefore, an efficient network of SMEs in Pakistan is a pre-requisite for the establishment of robust industrialization. Government of Pakistan has declared SMEs as one of the four important drivers of growth for the Pakistan economy. SMEs play very important role in value addition and employment generation in

Pakistan. SME sector is highly labor-intensive and this sector provides employment to the major part of non-agriculture labor force in Pakistan (Economic Survey of Pakistan, 2004-05). In Pakistan, SMEs constitute 90 percent of the business enterprises, provides 80 percent of the employment opportunities to non-agriculture labor force, 25 percent of the total exports, 35 percent of the manufacturing value added and contributes more than 30 percent to the GDP of the national economy (Economic Survey of Pakistan, 2009-10). SME sector in Pakistan comprises of cotton weaving, wood and furniture, metal products, art silk, grain milling, jewelry, carpets, sports goods, pottery, dairy and poultry, fisheries, food and catering, and slaughtering.

Pakistan's industrial sector is geographically diversified. The large-scale industries are, mostly located in urban areas whereas most of the SMEs are located in small towns and rural areas. These SME units located in rural localities are of great importance for the provision of employment to poor rural workers (Qureshi and Ghani, 1989). Hence SME sector is very important in Pakistan's economy. A well-developed modern SME sector, in an open economy, is highly desirable. Developing countries have been reaping the benefits of the export orientation of this sector (Berry, 1998).

The instant paper is organized as follows: Section II represents the review of literature. Section III comprises of the data and methodology. The results and discussion have been presented in Section IV. Aided by descriptive statistics and correlation matrix. Furthermore regression estimates have also been reported in this section. Section V comprises of conclusions of the study. The references are listed in Section VI.

II. Review of literature

Pioneer studies in development economics by Lewis, Nurkse and Rosenstein-Rodan focused on economic development. However, these authors less focused on the impact of economic development on the poor and were proponents of the 'trickle-down' impact of economic growth to the poor (Lipton and Ravallion, 1995). Some of the development economists have argued that robust growth and sustained development can be obtained through development of capital intensive large scale enterprises (Loveman and Sengenberger, 1991).

According to Adelman and Robinson (1989) development more often takes place in urban areas than in rural areas hence the poor are not benefited by the process of development. The growth of unskilled labor-intensive sectors may be helpful for poverty reduction and equal distribution of income (Alderman and Robison, 1989). The growth of labor-intensive industries may ensure greater involvement of the

poor and better utilization of cheaper labor input. The utilization of low-wage workers in the production process, if low wages are high enough for reducing poverty and low enough for competing in the market with the rivals, makes the labor-intensive industries compete in international market and helps in poverty reduction simultaneously. Sen (1960) and Myrdal (1968) emphasized on the roles of labor-intensive industrialization on poverty reduction.

In recent years the importance of SMEs for the contributions in economic growth and development of the economies has been recognized. SMEs employ much more labor force than the huge multinational corporations (Mullineux (1997). Due to dynamic and evolutionary nature of small scale firms, they serve as agents of change (Audretsch, 2000). SME sector has been a source of concern for the policy makers for the accelerated growth in developing nations. SMEs are a major source of potential employment in low income economies. That is why these enterprises are considered to be the “engine of growth” for attainment of growth objectives in developing nations (Advani, 1997). The initiatives for the promotion of SMEs by the governments of the recent times, especially in developing countries, are underway (Feeny and Riding, 1997).

Wider economic and socio-economic objectives such as poverty alleviation can be achieved by developing the SMEs (Cook and Nixon, 2000). There is a low cost associated with the job creation in SMEs and these enterprises are more labor intensive than the larger firms (Leidholm and Mead, (1987) and Schmitz (1995).

Since the SMEs are labor intensive and these type of firm are more likely to be based in rural areas and smaller urban areas hence the development of SMEs may be helpful for the economic satiability, growth and employment. The dispersion of these enterprises in these areas and their labor intensity may be very important in equal distribution of income. The development of SMEs helps the economies to grow in the long run these enterprises improve domestic market efficiency and uses the scarce resources productively (Kayanula and Quartey, 2000).

Mukras (2003) suggests set of policy recommendations for poverty alleviation through strengthened SMEs. Strengthened SMEs generate employment and economic growth in the economy. The proponents of pro-SMEs argue that entrepreneurial and innovative ventures in SMEs help to improve growth of the economy and reduce the poverty levels in developing economies (Beck et al., 2004). Small scale enterprises increase competition and entrepreneurship in the economy and result in economy wide benefits in efficiency, innovation and growth in productivity. Gebremarian et al. (2004) analyzing the relationship between development of small scale business, growth and incidence of poverty in West Virginia found a strong negative relationship between small scale business and the incidence of poverty.

Beck et al. (2005) exploring the relationship between SMEs, growth and poverty find a strong and strong relationship between the importance of SMEs and growth in GDP per capita. The study could not find enough evidence of the poverty alleviating impact of SMEs in a sample of 45 countries. However, it has been deduced that SMEs are labor intensive so growth in these enterprises increases employment more than the large scale industries' growth (Snodgrass and Biggs, 1996). Aina and Amnes (2007) suggest more effective and fully funded policy program for the development of SMEs in Nigeria, for generating employment opportunities for economic growth, to empower the poor and deprived.

The adoption of growth strategies that helped to promote labor-intensive industries and SMEs promoted high levels of growth with low levels on income inequality in Republic of Korea and Taipei, China during 1950s to 1990s. The absorption of rural surplus labor and reduction in urban unemployment due to establishments of these small and medium enterprises helped these economies to growth with low inequality. The People's Republic of China, though, has shown robust and high levels of growth but income inequality increased during last three decades. It has been suggested that the unification of labor market and encouragement of SMEs, more labor-intensive development policy, for better growth and more equal distribution of income in China (Li and Lou, 2008).

Some of the studies focus SMEs sector's contribution to the GDP and employment that it generates in the economy. SME sector has been playing a very important role in development, employment generation and poverty alleviation in African economies. About 85% of the manufacturing employment in Ghana is provided by the SME sector. This sector consists of 92% of business and contributes 70% of the GDP in Ghana. Where as in South Africa, this sector contributes to 52-57% of the GDP and provides 61% of employment. SMEs constitute 91% of the formal business in South Africa. The authors also suggest appropriate strategy for the improvement in Ghana and South Africa, (Abor and Quartey, 2010).

Agyapong (2010) discusses the role of micro, small and medium enterprises (MSMEs) in poverty alleviation in Ghana. The author is of the view that town and rural based MSMEs help to create jobs and increase income of the people. This increased income helps the people to obtain better schooling, health facilities and empowers them to get rid of vicious circle of poverty. Furthermore, growth in small and medium enterprises (SMEs) also contributes to human capital through on job training. The author is also of the view that MSMEs also contribute in the increase of tax revenue of the government.

III. Data and methodology

This study focuses on the impact of small scale enterprises on poverty in Pakistan for the period between 1972 and 2007. The impact of inflation, health expenditure, rate of population growth and income inequality on poverty has also been analyzed. Annual time series data is used for all of the variables. An autoregressive model has been used to incorporate previous year's poverty level (measured by HCR) as one of the explanatory variables. Small scale industries output as percentage of GDP has been used as proxy variable of small scale enterprises. The data of small scale industries' output as percentage of GDP (SME) and Health Expenditure as Percentage of GDP (HE) for the 1972-2004 has been obtained from the Statistical Handbook (2005) of State Bank of Pakistan and the data for these variables for the period of 2005-07 has been taken from the State Bank of Pakistan Annual Report (2008). Annual poverty Head Count Ratio (HCR) and income inequality measured by Gini coefficient (GINI) has been obtained from Annual Economic Survey of the Ministry of Finance, Government of Pakistan. The population growth rate (P) and consumer price index (CPI) has been taken from the World Development Indicators (WDI) (2008) of the World Bank.

In the model, poverty is function of small scale enterprises, inflation, health expenditure, and population growth rate and income inequality. The following autoregressive model has been estimated:

$$LHCR_t = \alpha + \beta_1 LSME_t + \beta_2 LCPI_t + \beta_3 LHE_t + \beta_4 LP + \beta_5 LGINI_t + \beta_6 LHCR(-1) + \varepsilon_t$$

Where:

LHCR = Log of Poverty Head Count Ratio;

LSME = Log of Small scale industries' output as percentage of GDP;

LCPI = Log of Consumer Price Index;

LHE = Log of Health expenditure as percentage of GDP;

LP = Log of Population growth rate;

LGINI = Log of Gini Coefficient;

LHCR(-1) = Log of one year lagged value of Poverty Head Count Ratio;

ε_t = Error term.

IV. Results and discussions

a) Descriptive Analysis

This analysis consists of time series data set for 36 years from 1972 to 2007. The descriptive statistics displayed in Table 1 show that the average of the head count ratio (HCR) averaged around 27.63 percent during 36 years with standard

deviation of 6.74. The average of the Gini Coefficient (GINI) is 0.38 with standard deviation of 0.02. The mean values of small scale industries output as percentage of GDP (SME), inflation measured through Consumer Price Index (CPI) and health expenditure as percentage of GDP (HE) has been 4.83, 8.97 and 0.74 percent, respectively, with standard deviation of 1.15, 5.30 and 0.73 percent respectively. The population growth rate (P) stood on the average at 2.65 percent with standard deviation of 0.30.

Table 1. Descriptive statistics of the variables

	HCR	SME	CPI	HE	P	GINI
Mean	27.63	4.83	8.97	0.74	2.65	0.38
Median	25.20	4.45	7.88	0.73	2.54	0.39
Maximum	45.75	8.70	26.66	1.19	3.19	0.42
Minimum	20.71	3.80	2.91	0.40	2.14	0.34
Std. Dev.	6.74	1.15	5.30	0.17	0.30	0.02
Skewness	1.04	1.96	1.73	0.42	0.54	0.12
Kurtosis	3.26	6.66	6.11	3.63	2.24	1.69
Jarque-Bera	6.64	43.09	32.58	1.63	2.61	2.67
Probability	0.04	0.00	0.00	0.44	0.27	0.26
Observations	36	36	36	36	36	36

The results show that all the variables are positively skewed except Gini coefficient. Small scale industries' output as percentage of GDP is more skewed than the HCR. The peakedness or flatness relative to normal distribution of the data set is measured by kurtosis. The excess kurtosis value for HCR of 0.26 is not so high than that of the normal distribution. Value of kurtosis for SME is 6.66 showing the data set to be more peaked than that of normal curve. Health expenditure and population growth rate show normal peakedness as these variables show kurtosis closer to zero. Joint hypothesis of skewness and kurtosis is tested by Jarque-Bera (JB) test. JB test suggest that SME and CPI are not normally distributed.

The correlation matrix reported in Table 2 shows that small scale industries output as percentage of GDP, health expenditure and Gini coefficient are negatively associated with poverty measured by HCR but health expenditure is highly correlated with poverty levels in Pakistan. Inflation and population growth rate are positively correlated with poverty. The association between population growth rate and poverty is strong.

Table 2. Correlation matrix

	HCR	SME	CPI	HE	P	GINI
HCR	1.00					
SME	-0.38	1.00				
CPI	0.33	-0.18	1.00			
HE	-0.64	-0.18	-0.34	1.00		
P	0.66	-0.70	0.47	-0.25	1.00	
GINI	-0.25	0.50	-0.31	-0.17	-0.59	1.00

Time trends of PHCR and small scale industries' output as percentage of GDP are shown in Figure 1. The trends lines shown in the figure show a negative association between poverty and SME output in Pakistan. Poverty levels have been declining in the years of increase in small scale industries' output. Poverty shows increasing trends in the years of decline in small scale industries' output.

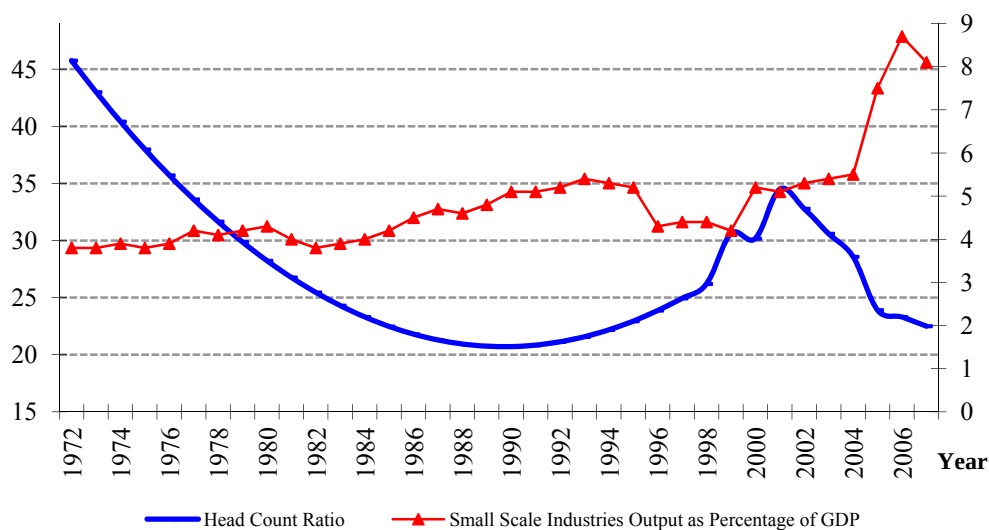


Figure 1. Poverty and small scale industries' output trends

b) The Impact of SMEs on Poverty in Pakistan The model at equation (1) has been estimated to analyze the impact of small scale industries' output as percentage of GDP (SME), consumer price index (CPI), health expenditure (HE), population growth rate (P) and Gini coefficient (GINI) on poverty (HCR) in Pakistan. The results are reported in the Table 3. The estimated model is significant as the value of R-squared and Adjusted R-squared is 0.96 and 0.95. It implies that approximately 95 percent of the variations in explained variable are explained by explanatory variables included in the model. F-statistic is also highly significant at 1 percent significant level. H-statistic has been used to check the presence of autocorrelation in the error term. The value of h-statistic comes out to be 1.04 which implies that there is no autocorrelation problem in error term. The Durbin-Watson d statistic is not used autoregressive models to detect serial correlation. Durbin (1970) suggested h-statistic to test first-order serial correlation in autoregressive models.

Small scale industries' output as percentage of GDP also showed negative and significant impact on poverty in Pakistan. This may be due to the fact that small scale enterprises use more labor than employed by large scale firms. SMEs play key role in the acceleration of pro-poor growth in the economy. Since the SME sector employs about 80 percent of the non-farm labor force in Pakistan so the role of the SME sector in ensuring the fruits of the economic growth to be equitably distributed.

The positive sign with inflation elasticity of poverty shows that inflation exerts a positive impact on poverty levels in Pakistan. But the coefficient of inflation is not significant. The results do not prove a relationship between inflation and poverty explained by the economic theory. In economic theory increase in inflation, in short run, is associated with increase in employment levels in the economy. Increase in inflation reduces the purchasing power of the low income segments of the population due to the vulnerability of these people to inflationary pressures in the economy (Kalim and Shahbaz, 2009). Inflation effects poverty through its impact on real wages in the economy. Real wages, Latin America, increase slowly than the increase in inflation during the times of high inflation (Cardoso, 1992). This increase in employment benefits the strived in the economy. Agenor (1998) and Chaudhry et al. (2010) strengthen the conclusion of positive relationship between inflation and poverty.

Table 3. Estimations of the Autoregressive Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.6108	0.2922	2.0902	0.0458
LSME	-0.2497*	0.0668	-3.7403	0.0008
LCPI	0.0039	0.0211	0.1857	0.8540
LHE	-0.0161	0.0675	-0.2383	0.8134
LP	0.7186*	0.1684	4.2664	0.0002
LGINI	-0.4173**	0.1884	-2.2151	0.0351
LHCR(-1)	1.0115*	0.0714	14.1745	0.0000
R-squared = 0.96 Adjusted R-squared = 0.95 F-statistic = 121.40 Prob(F-statistic) = 0.00 h-statistic = 1.04				

Note: *(**) significant at 1% (5%) level of significant.

Expenditure on health also showed negative and significant impact on poverty. Better health services in the economy help to improve the human capital and better human capital increases the productivity of labor. Higher productivity of labor results in higher income and reduction in poverty. Provision of better health services in an economy provides economic security and helps the poor to improve their economic conditions. Better health services help reduce poverty and lower poverty levels by improving health conditions of the poor class.

Population growth rate has been found to be positively and significantly associated with poverty in Pakistan in the long run. The population growth rate elasticity of PHCR is 0.719 showing that one percent increase in population growth rate causes 71.90 percent increase in poverty head count ratio. There is close correlation between population growth and poverty. A persistent and gradual rise in population increase absolute and relative poverty in the economy by stagnating or deteriorating employment opportunities. According to the population-poverty cycle theory, some negative consequences are yielded by the too rapid population growth. Increase in population increases the household size and dependency ratio in the economy. Rapid population growth increases the economic, social and psychological problems related to the situations of underdevelopment. Population growth reduces saving rates both at individual and national levels and as a result prospects of improved livelihood become meager not only for the existing generations but also transmit the poverty to the generations to come (Todaro and Smith, 2009). Population growth causes an increase in poverty by negatively affecting economic growth in Pakistan (Afzal, 2009). Chaudhry (2009) is also of the view that increased population, increased dependency ratio increase the probability of the household to be the poor.

The Gini index elasticity of poverty is -0.4173 implies that income inequality has a negative impact on poverty levels in Pakistan. The elasticity shows that one percent increase in Gini coefficient increases the poverty measured by HCR by 41.73 percent. The elasticity is significant at 5 percent level of significance. This may due to the fact that increase in income inequality may affect growth. Aggregate saving in a country may increase with the increase in the income inequality if the rich people in the economy save high proportion of their income than the low income groups. This higher saving level would be source of high levels of investment and increased growth. Income distribution impacts growth through economic, political or social channels (Voitchovsky, 2005). Low levels of poverty can be achieved either through achieving the goal of higher levels of growth or improved distribution of income, or both (Datt and Ravallion, 1992). Kakwani, (1993) and Bourguignon (2001, 2003, 2004) establishing a relationship between poverty alleviation, economic growth, and changes in income distribution concluded that combination of economic growth and income distribution determines the direction and incidence of poverty. The total effect of economic growth can be poverty augmenting if economic growth has negative impact on distribution of income.

The coefficient of one year previous value of HCR exerts positive and highly significant impact on incidence of poverty. Our result strongly supports the vicious cycle of poverty argument of Nurkse that a “country is poor because it’s poor”. The result of this study is also in strong agreement with the results of Chaudhry et al. (2010).

V. Conclusions

This study focused on the impact of small scale industries on poverty in Pakistan. The analysis incorporated autoregressive model wherein Inflation, health expenditure, population growth rate, income inequality and one year lagged value of poverty head count index as explanatory variables. Annual time series data for the period of 1972-2007 has been used. The study reviews the earlier empirical studies on the relationship between small scale enterprises and poverty. This paper represents the descriptive analysis of the explanatory variables and trends in poverty and small scale industries' output.

The poverty reducing impact of increase in small scale industries' output has been examined. The result is significant which implies that small scale enterprises can play very important role in the economic growth, employment generation and poverty alleviation in Pakistan. The results of the study imply that a strong SME base is required for the development of the economy and poverty alleviation in Pakistan. The economic policy makers should focus on the establishment of formal financial markets to overcome the financial constraints faced by the SME sector in Pakistan. Simplification of lending procedures, enforcement of credit rights, and reduction in credit costs would be helpful for the establishment of robust SME sector in Pakistan. Moreover provision of health services and more educated and technically skilled labor force would accelerate the growth of the SMEs and would be helpful in the process of poverty reduction.

Health expenditure and poverty levels have been found to be negatively related. This may be due to the fact that health services may be unequally distributed for the rich and the poor. Poverty itself may be a constraint for the poor to avail better health services. This implies that policies should focus on the provision of better health services to the household irrespective of their respective income group. The policies focusing on better education and health facilities would also help to control population growth

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Dimensions of the destination's sensory profile. Case study: Muntenia

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Abstract. *The development of a destination sensory brand represents a complex process, given the multitude of product components, and, by integrating their specific sensory dimensions in their brand platform, can transform the interaction tourist – destination into a memorable experience. In this sense, the achievement of the destination's sensory profile constitutes the first step, in which its perceived sensory dimensions for the elements of attraction and for the representative types of tourism are analyzed. In this paper, it is attempted, based on some research, to outline the sensory profile for the destination Muntenia, starting from the sensory dimensions perceived by tourists.*

Keywords: sensory marketing, sensory dimension, sensory profile, experience, destination brand.

JEL Classification: M31.

REL Classification: 14G.

1. Introduction

Located in Southern Romania, the destination Muntenia⁽¹⁾ is delimited by the rest of the historical regions, by the Carpathians in the North, by the rivers Siret, Putna and Milcov in the Northeast, by the Danube in the South and East, and in the West by the river Olt. The composition of the destination includes the following counties: Argeș, Brăila, Buzău, Călărași, Dâmbovița, Giurgiu, Ialomița, Ilfov, Prahova and Teleorman, as well as Bucharest municipality, each of these components representing, in fact, an independent microdestination.

In the case of a destination at regional level, the organization in charge with the destination management and, respectively, marketing develops the brand by supporting the natural elements, the climate, the infrastructure, the history, the local culture, the gastronomy, as well as all the facilities which belong to the hospitality sector (Stăncioiu et al., 2011). Such a strong brand can be achieved in time, as far as in the mind of the tourist are formed intense and unique associations regarding the destination. Given the fact that a person experiences in the present relying on past experiences, so that what was once in the exterior of the person is now inside (Murray, 1938), the marketer needs to pay more attention to sensory marketing, which can result in the development of memorable experiences at destination level. Sensory marketing in tourism targets the first moments of the perceptual process, “expands” the assessment base of the tourist, contributes to developing experiences, improves product quality, offers support for the multi-sensory communication and can ultimately lead to tourist loyalty.

Since the purpose of the organization in charge of the destination management, and, respectively, marketing is to obtain a destination brand, supported by the synergy of sensory dimensions (visual, auditory, olfactory, gustatory and tactile), which makes the tourist loyal and transforms him into a vector image, it is necessary to determine the sensory profile of the destination Muntenia, as a first step, and afterwards, by the application of sensory marketing strategies, to obtain its sensory signatures.

2. Conceptual framework

In the current economy, a “leveling” of the performances of goods and services appears increasingly often, so that the solution of differentiation arises, actually, from the experience lived by a consumer, when interacting with the product (Pine II and Gilmore, 2010). The interaction between a person and the environment is based on the sensory information, consciously and unconsciously received, thus creating a framework for assessing and experiencing things (Schifferstein, 2010). Therefore, during a visit at the destination, the tourist experiences the place with

all his five senses (Markwell, 2001), practically consuming that certain atmosphere (Echtner and Ritchie, 1993).

The marketing branch which analyzes five sensory dimensions, in order to influence perception, reasoning and consumer behaviour, is the sensory marketing (Krishna, 2012). In this context, multi-sensory experience influences consumer perception over product quality, so that, as the sensory bandwidth is higher (Hill, 2010), i.e. the number of integrated sensory dimensions into a brand platform, the price is higher (Yoon and Park, 2012), the consumer being willing to pay for experience. Sensory marketing strategies represent ways through which multi-sensory experiences can be developed, and can be applied at product level (goods, services, events, places) as well as at communication level (Rodrigues et al., 2011).

The importance of sensory marketing is demonstrated by the decision-making process, controlled to a higher extent by the sensory and emotional components of the consumer, than the rational ones. Given the fact that “the emotional reaction = evoked senses x positive reaction x emotion” (Lindstrom, 2009, p. 214), it can be noticed the direct proportionality between emotion and the number of senses involved, which is why experiences become memorable. When a stimulus reaches the body of the amygdala and establishes an emotional connection, a new memory is then formed, which can be recovered after the event by the interaction with the original stimulus (Hill, 2010).

Knowing that the perceptual process starts right from the sensory inputs (Cătoi and Teodorescu, 2004), and in the first few seconds the limbic system is involved (the subcortical, unconscious layers of the brain), it is possible that the consumer's reaction to a stimulus, such as a brand, to be decisive in these first moments (Datculescu, 2006). The perception of a tourist regarding the destination is the result of receiving, selecting, organizing and interpreting the sensory information, on the basis of which the tourist forms an image of the destination, under the influence of previous experiences and recommendations of acquaintances (Andreu et al., 2000).

The tourist forms the image of a destination during the three stages of experience, as it follows: during the pre-consumption stage, he forms a fundamental image of the destination, by the experience of a mental “knowledge” of the place, over which the image induced by communication is overlapped (Gunn, 1988); during the consumption stage, the previously-formed image undergoes a major change as a result of experiencing the destination, visually, auditory, olfactory, gustatory and tactile, in the contact points (Hyun and O'Keefe, 2012); during the post-consumption stage, the image stabilizes by means of the satisfaction being felt and of the entire experience's evaluation (Fakeye and Crompton, 1991).

Based on the previously exposed information, the destination brand image is synthesized in the perception of the place, being supported by the associations retained by the tourist (Cai, 2002). Therefore, the management of the physical records, of the design and of the entire atmosphere of the destination aims at stimulating the five sensory channels of the consumer (Middleton et al., 2009). As the perceived services' quality is difficult to be perceived (because of their intangibility), the creation of an atmosphere that invokes colours and shapes, perfumes, melodies and elements pleasant to touch, can convert the experience into "something" tangible (Rushton and Carson, 1989).

The destination brand represents the memorable experience, uniquely associated to the visited place, which strengthens the emotional connection between a tourist destination (Ritchie and Ritchie, 1998). In this respect, the role of the marketer is to turn the brand identity into a set of associations, which he will develop in the mind of the tourist as brand image (Aaker and Joachimsthaler, 2000), while the tourist's experience represents the connection between the destination identity, the perceived image and its communication, seen as a way of consumption, being anchored at a sensory, emotional and rational level, both during an activity and in moments of contemplation and socialization (Govers and Go, 2009).

Starting from the remarkable experiences of tourists, the marketer can achieve and then communicate the sensory profile, which will be the basis of developing, in time, the brand of that certain destination. At the same time, designing experiences that can be accumulated in relation to the destination is based on achieving the sensory profile, resulting in the development of its own brand (Figure 1).

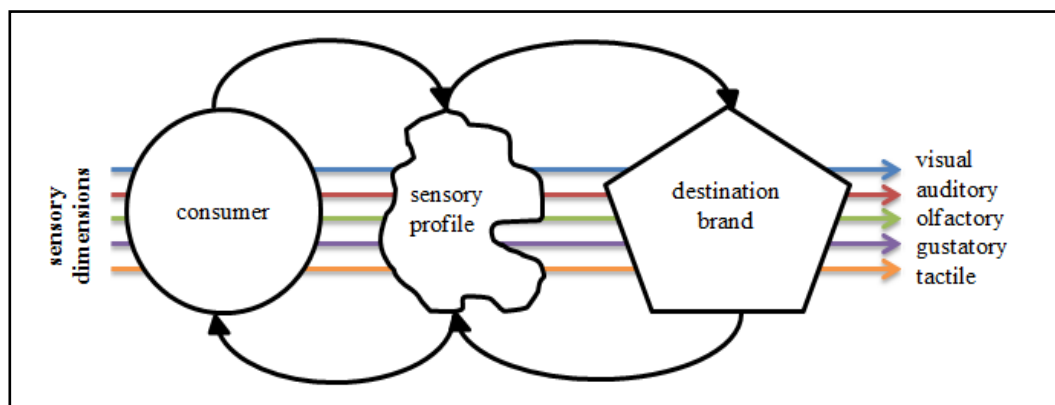


Figure 1. *The relation between consumer, sensory profile, destination brand and sensory dimensions*

Once the destination brand is formed, it is important for marketers to support/maintain the sensory profile (on the basis of its favourable sensory elements) or to change it (the unfavourable sensory elements) and, at the same time, to develop those activities “in situ”, by means of the sensory elements, characteristic to the tourist.

The interaction of all these elements imposes the necessity to study them in detail, taking into account all the factors, especially the subjective ones that influence them.

The marketer's design of memorable experiences of the destination, therefore, and the destination brand development in time, starts from achieving the sensory profile of the destination, on the one hand, helping to improve the perceived image of the destination and, on the other hand, the development, in time, of the sensory brand has as starting point the image perceived by tourists, through the sensory dimensions.

3. Methodological framework

The research aiming at evaluating the destination Muntenia, under the stimuli felt by tourists through each sensory channel and the positive, neutral or negative associations that they have formed in relation to the region, the comprised counties, the practiced types of tourism and the visited attraction elements (points of contact with the destination), was performed by the authors in the period March – July 2012. It was supported by another research, conducted in October 2010 – January 2011, on a representative sample of 1887 young people, aged 20-24 years, higher education graduates or with ongoing higher education, from all Romanian regions (Stăncioiu et al., 2011) in which there have been identified the elements of attraction and the representative types of tourism for the region/destination Muntenia.

The present study was conducted on a sample of 348 respondents (women – 77.9%; men – 22.1%), aged 20 – 24 years, higher education graduates or with ongoing higher education from the following regions: Muntenia (57.3%), Transilvania (15.6%), Moldova (11.5%), Oltenia (10.1%), Dobrogea (4%), Banat-Crișana (0.6%), Maramureș (0.6%) and Bucovina (0.3%). 84% of the subjects had visited Muntenia, while 16% have not visited yet the region for the following reasons: lack of material resources (33.9%), insufficient time (30.4%), lack of interest (16.1%), do not know (8.9%), insufficient information about the possibilities of rest (5.4%) and unfavourable information about the region (5.3%). The tourists who visited Muntenia would like to re-visit this region, with a share of 94.1%, in order to practice the following types of tourism: leisure, recreation and rest

(32.9%), visits to friends and relatives (30.9%), cultural tourism (16.8%), tourism for business and professional reasons (13.4%), balneary tourism (4.9%) and other types of tourism (1.1%).

Given that the process of destination image formation depends, in the first stage of the tourist experience, also on the induced communication, it is necessary to identify the modalities of promotion that help the tourist to experience the destination mentally. In this case, according to most respondents (76.6%), the way of promotion considered appropriate for the destination Muntenia is a combination of the traditional form of communication (offline) and online, while 16.5% opted for a promotion particularly in the online environment (websites, social networks), 5.1% of respondents believing that the offline promotion is appropriate and 1.8% choose another way of promotion. The information sources, which are considered trustworthy by the tourists, using them throughout the experience, are presented in Figure 2. Although the websites rank first place regarding tourist confidence, it can be noticed, that overall, the online environment (websites and social networks) and the offline environment (magazines and tourist guides) have each approximately half of the respondents.

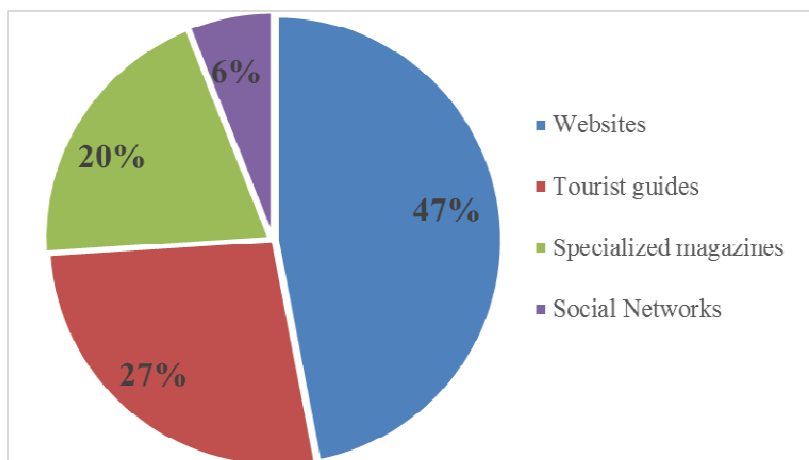


Figure 2. *Tourists' confidence in the information sources they use*

Along with visiting the destination and the consumption of atmosphere, the image formed in the mind of the tourist suffers a major change, so that the analysis of the elements that influence the perception of the tourism services quality (Figure 3), or of the satisfaction degree for each sensory dimension (Figure 4), becomes a priority for the marketer.

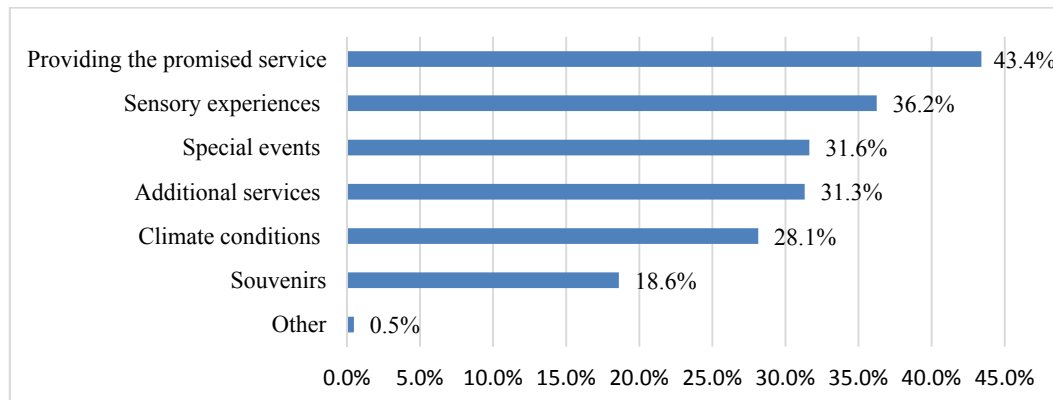


Figure 3. *The elements taken into consideration in perceiving the quality of tourism services*

If the elements considered by tourists when assessing the quality of tourism services (Figure 3) are: providing the promised services (43.4%), sensory experiences (36.2%), special events (31.6%), additional services (31.3%), climate conditions (28.1%), souvenirs (18.6%) or other (0.5%), the elements which negatively affect the perception of tourism services quality are: impolite personnel (49.9%), failure to provide the promised services (49.6%), inadequate infrastructure (33.4%), lack of leisure facilities (32.4%) and others (0.3%). Noteworthy in Figure 3 is that, after providing the promised services, the sensory experiences represent the marketer's solution to ensure the quality of the tourism product. Therefore, in order to ensure the tourist satisfaction, the points of contact (interaction between tourist and product) should be identified and transformed into memorable experiences. Tourists' satisfaction regarding the product Muntenia, decomposed on each sensory dimension (Figure 4), is presented as follows: visual satisfaction (43.5%), followed by gustatory satisfaction (39.5%). at an almost indistinguishable difference from the auditory satisfaction (39.2%). The proximity between the gustatory and the auditory satisfaction can be explained by one of the main reasons for which the respondents visited Muntenia, i.e. visits to relatives and friends, type of tourism that focuses on the component "meal", as an element of socialization.

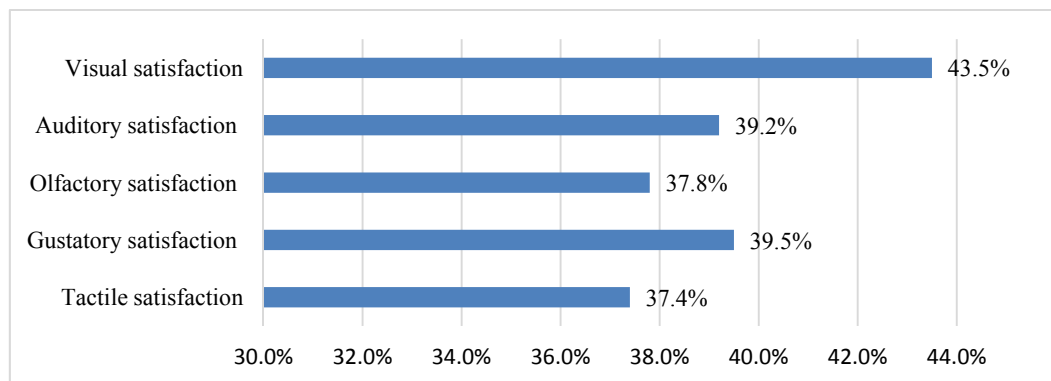


Figure 4. *Tourist satisfaction for each sensory dimension in Muntenia*

The main types of tourism practiced in Muntenia are: leisure, recreation and rest tourism, visits to relatives and friends, cultural tourism, tourism for business and professional reasons, balneary tourism. The sensory dimensions perceived by tourists for the types of tourism specific to Muntenia are presented in Figure 5.

The visual stimuli reach the highest values for the leisure, recreation and rest tourism, as well as for the cultural tourism. The auditory stimuli have a maximum point for the tourism for business and professional reasons. The olfactory stimuli, as it can be observed, have a special importance for the balneary tourism, as well as the tactile stimuli, showing a point of maximum for the same type of tourism, while the gustatory stimuli characterize best the type of tourism “visits to relatives and friends”, with similar values for the tourism for business and professional reasons or cultural tourism. Of all the types of tourism specific to the destination Muntenia, the leisure, recreation and rest tourism has the most balanced distribution of sensory experiences, as the tourist is experiencing diverse activities within this type of tourism.

The importance of measuring the sensory dimensions of the types of tourism in the destination is justified, mainly, by the process of the destination image formation in tourists’ minds. Therefore, the types of tourism represent the reason why tourists travel to a destination, thus being an important component in the formation of expectations, under which the tourist will perceive the destination, eventually forming the destination image. Measuring the important sensory dimensions for each type of tourism and attending the tourist’s senses which correspond to these dimensions is a solution for obtaining tourist satisfaction and creating a positive image of the destination in his mind.

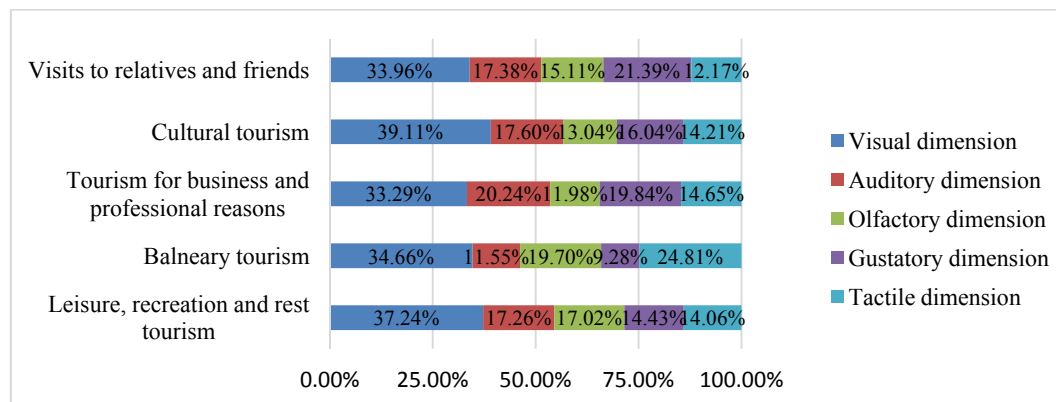


Figure 5. *Sensory dimensions perceived in the destination Muntenia*

Regarded as a macrodestination, the region of Muntenia consists in several microdestinations, namely, the counties of Argeş, Brăila, Buzău, Călăraşi, Dâmboviţa, Giurgiu, Ilfov (including Bucharest), Prahova and Teleorman. For each county, in Figure 6, there are presented the sensory dimensions perceived by tourists. The analysis of sensory dimensions at the county level is of interest from the perspective of destination management, and, respectively marketing organization at regional level, in the context of prioritization and development of certain types of tourism, so, implicitly of certain sensory dimensions, whose distribution should be monitored in the counties which include the points of contact tourist – macrodestination.

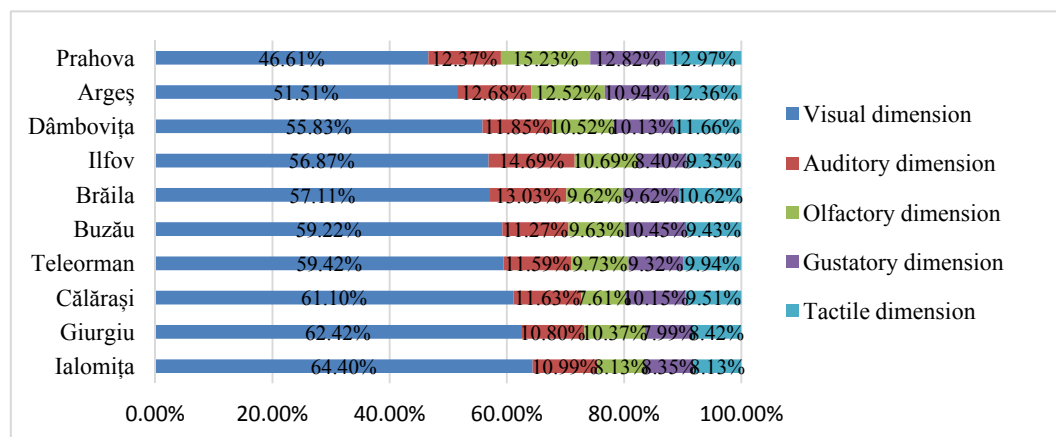


Figure 6. *Sensory dimensions perceived at the level of each county from Muntenia*

Each element of attraction of the destination Muntenia can represent a possible point of contact between the tourist and the destination. In Figure 7 the sensory dimensions of some items specific to the destination Muntenia are presented, which tourists associate, mainly, with a certain sensory dimension. The visual

dimension is considered by the respondents as being the most important and these results are reflected in the presented graphs. However, some stimuli are associated more to an element of attraction, than to other elements, such as the pairs: Palace of Parliament – visual experience, Romanian Opera – auditory experience, Tulips’ Festival – olfactory experience, Bucharest – gustatory experience and Mud Volcanoes – tactile experience.

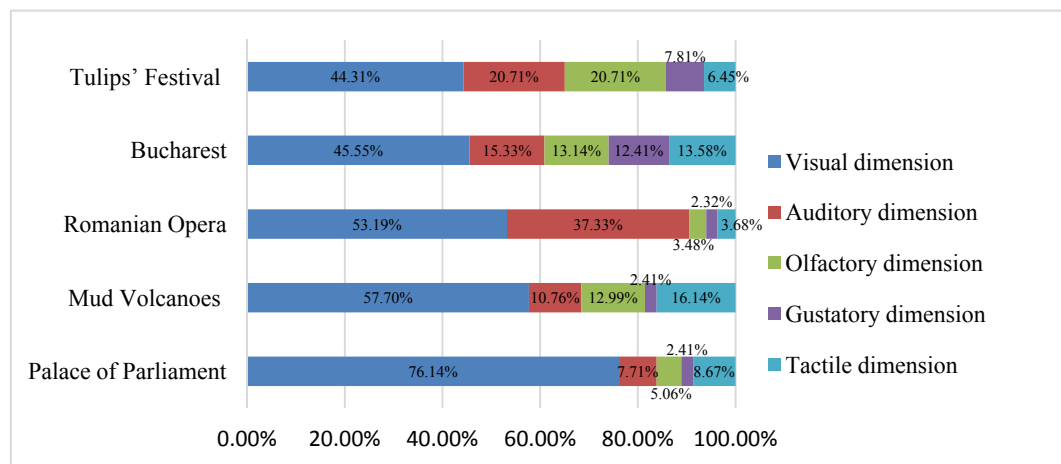


Figure 7. The sensory dimensions associated by tourists with elements of attraction from Muntenia

The interaction tourist – destination involves receiving the sensory information by tourists, through the sensory channels. From a sensory point of view, Muntenia has the following profile, achieved by aggregating all points of contact (Figure 8), similar model of the sensogram used by Lindstrom for brands (Lindstrom, 2009).

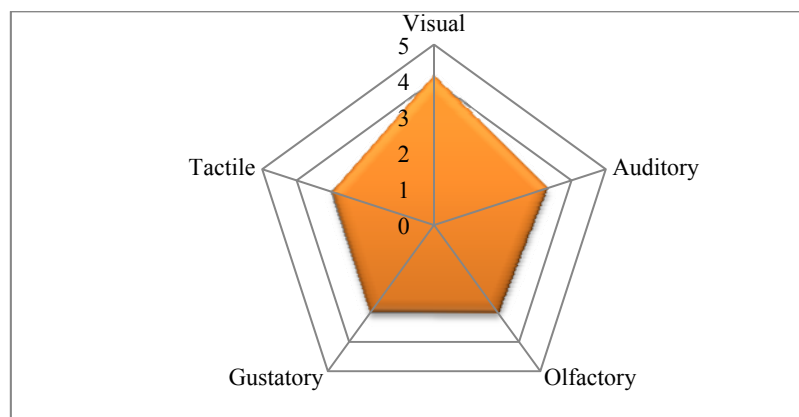


Figure 8. Sensory profile of the destination Muntenia

Noteworthy is the fact that the sensory profile of the destination Muntenia (Figure 8) is moderately developed, having no sensory signature (unique and powerful association created in tourist's mind in relation to a visual, auditory, olfactory, gustatory and tactile specific to the destination). The visual dimension is the most developed, with the best chance to obtain a visual signature, reason for which the marketer (the destination management and, respectively, marketing organization) should act towards maximizing the visual dimension of Muntenia, while improving the tourist experience for the other sensory dimensions. The points of contact between the tourist and the destination Muntenia are exactly the elements of attraction, so that, pursuing the perceived sensory dimensions for each element, tourist's interaction with the destination in those points of contact can be improved. For the destination Muntenia, as well as for the microdestinations such as counties, the whole experience can be improved, also by developing stimuli for the sensory dimensions which are low perceived or which, conversely, create a negative impression for the elements of attraction, respectively, for the corresponding types of tourism.

In order to identify some signatures for each sensory dimension, the visual, auditory, olfactory, gustatory and tactile elements are analyzed, in order, under the form of sensory experiences, which occur in tourist's mind when he mentally experiences Muntenia.

Within the first dimension, the first visual "element" that tourists associate with the experience Muntenia is Bucharest, according to Table 1, however this is a destination, that can be "decomposed", in its turn, in different attractions. The next element, being a general one – landscapes, cannot become visual signature, so that the stylizing of the "element" Palace of Parliament (correlated with the destination Bucharest, as well) can represent a visual signature of the brand Muntenia, in the case of sustained communication and, of course, of developing other experiences in the destination, intended to support the signature. From Table 1, a few more points of contact can be delimited, in which the tourist experience can be improved, thus contributing to strengthening the brand: Curtea de Argeș, Bucegi Mountains, Peleş Castle, Mud Volcanoes, the Danube and the Sphinx.

Table 1. Visual elements that “compose” the experience in the destination Muntenia

% from total column				
	Visual elements	Total	of which	
			Men	Women
	Base	348	77	271
1	Bucharest	8.6	7.8	8.9
2	landscape	5.7	3.9	6.3
3	Palace of Parliament	5.5	7.8	4.8
4	plain	4.6	7.8	3.7
5	Curtea de Argeș	4.6	7.8	3.7
6	Bucegi Mountains	4.6	5.2	4.4
7	Peleş Castle	3.4	2.6	3.7
8	Mud Volcanoes	3.4	1.3	4.1
9	Danube	2.6	3.9	2.2
10	The Sphinx	2.6	1.3	3.0
11	crowd	2.0	2.6	1.8
12	good visual experience	2.0	3.9	1.5
13	Other elements	44.0	37.7	45.8
14	Do not exist/I do not know	6.3	6.5	6.3

The auditory dimension (Table 2), according to the respondents’ opinion, records a negative experience, i.e. the noise. The auditory element that can become, in time, auditory signature for the brand Muntenia is the Romanian Opera, and the points of contact in which the auditory dimension could be improved are Urlătoarea Waterfall, Romanian Athenaeum and Bucharest.

Table 2. Auditory elements that “compose” the experience in the destination Muntenia

% from total column				
	Auditory elements	Total	of which	
			Men	Women
	Base	348	77	271
1	noise	9.8	10.4	9.6
2	quietness	4.9	1.3	5.9
3	music	4.9	0.0	6.3
4	Romanian Opera	3.7	2.6	4.1
5	concert	3.2	2.6	3.3
6	folklore music	3.2	1.3	3.7
7	Urlătoarea Waterfall	2.9	3.9	2.6
8	Romanian Athenaeum	2.6	0.0	3.3
9	Bucharest	1.7	2.6	1.5
10	pleasant	1.7	1.3	1.8
11	birds	1.4	1.3	1.5
12	traffic	1.4	3.9	0.7
13	good auditory experience	1.1	1.3	1.1
14	Other elements	41.7	41.6	41.7
15	Do not exist/I do not know	15.8	26.0	12.9

The olfactory experience for Muntenia means fresh air and freshness. The olfactory signature of the brand Muntenia, according to the results in Table 3, could become the Tulips' Festival in Pitești and the points of contact with the destination in which the olfactory experience could be improved are Lacul Sărat and Bucharest.

Table 3. Olfactory elements that “compose” the experience in the destination Muntenia

% from total column				
	Olfactory elements	Total	of which	
	Base		Men	Women
1	fresh	5.5	2.6	6.3
2	fresh air	4.0	2.6	4.4
3	pollution	3.4	2.6	3.7
4	dust	2.9	3.9	2.6
5	Tulips' Festival in Pitești	2.9	2.6	3.0
6	good olfactory experience	2.0	2.6	1.8
7	pleasant	1.7	1.3	1.8
8	Lacul Sărat	1.4	0.0	1.8
9	bloomed linden	1.4	2.6	1.1
10	fir tree	1.1	1.3	1.1
11	Bucharest	1.1	1.3	1.1
12	Other elements	50.3	46.8	51.3
13	Do not exist/I do not know	22.1	29.9	19.9

The gustatory dimension (Table 4), represented by the traditional food, cannot reach, in this shape, the gustatory signature of the brand Muntenia, since none of the elements presented in the table is uniquely associated with the destination Muntenia, however, starting from one of these “elements”, e.g. borsch or grilled minced meat rolls (“mici”), it can be identified / developed / created a unique recipe or a specific product, that, after the implementation of sensory marketing strategies, should become a symbol of the gustatory dimension for the region.

Table 4. Gustatory elements that “compose” the experience in the destination Muntenia

% from total column				
	Gustatory elements	Total	of which	
	Base		Men	Women
1	traditional food	7.8	0.0	10.0
2	good gustatory experience	3.7	1.3	4.4
3	flavour	3.2	0.0	4.1
4	sweet	2.9	1.3	3.3
5	fast-food	2.3	2.6	2.2
6	stuffed cabbage rolls (“sarmale”)	2.0	2.6	1.8
7	shaorma	2.0	5.2	1.1
8	borsch	1.4	0.0	1.8
9	diversification	1.4	1.3	1.5
10	dumplings (“papanasi”)	1.4	0.0	1.8
11	bitter	1.1	3.9	0.4
12	grilled minced meat rolls (“mici”)	1.1	1.3	1.1
13	Other elements	45.1	48.1	44.3
14	Do not exist/I do not know	24.4	32.5	22.1

Under the impact of high temperatures, the tactile experience in Muntenia is marked by warmth and drought. In fact, the only element that can be, in time, a tactile signature of the brand Muntenia is represented by the attraction Mud Volcanoes, these having themselves a barren aspect (Table 5).

Table 5. Tactile elements that “compose” the experience in the destination Muntenia

		% from total column		
Tactile elements		Total	of which	
			Men	Women
	Base	348	77	271
1	warm	13.5	6.5	15.5
2	temperature	5.2	3.9	5.5
3	drought	3.2	1.3	3.7
4	Mud Volcanoes	2.6	3.9	2.2
5	pleasant	2.0	0.0	2.6
6	good tactile experience	1.4	1.3	1.5
7	dust	1.4	1.3	1.5
8	grass	1.1	0.0	1.5
9	park	1.1	1.3	1.1
10	Other elements	44.0	46.8	43.2
11	Do not exist/I do not know	24.4	33.8	21.8

The sensory signatures (visual, auditory, olfactory, gustatory and tactile) create in the tourist's mind and soul strong associations with the destination, which leads to the development of a strong destination brand that integrates all the sensory dimensions. It is obvious that, in order to create these signatures, it is necessary, first, to formulate sensory marketing strategies, for each dimension, strategies that are congruous and supported throughout the entire tourist experience, respectively in the pre-consumption, consumption and post-consumption phase.

At the end of the experience, if the tourist is satisfied, he will return to the destination or recommend it to friends and acquaintances, offering a favourable opinion. In Figure 9 there is presented the degree of tourist satisfaction regarding the sensory experiences in the destination Muntenia. The visual experiences have generated the most satisfaction, while the tactile experiences, the lowest satisfaction.

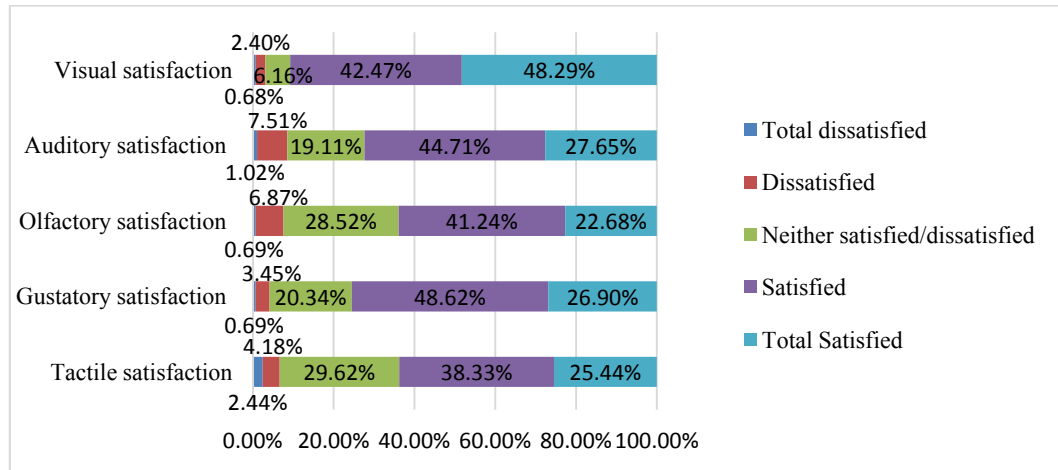


Figure 9. The satisfaction degree of the respondents regarding the sensory experiences from Muntenia

Achieving the sensory profile of the destination involves the analysis of sensory experiences of tourists, starting from the elements of attraction characteristic to the administrative-territorial structures (county, region etc.), by aggregating all the points of contact.

This represents the first step in the development of sensory marketing strategies, so that the designed profile leads, in time, at obtaining the sensory signatures of the brand Muntenia, and therefore, based on the associations made by the tourist, as a result of the exposure to the stimuli “sensory signature” and respectively, “lived experience”, at the formation of a favourable image in his mind.

4. Conclusions

The sensory profile of the destination Muntenia indicates the fact that the sensory dimensions are developed to a similar level, without excelling in any category. The visual dimension is better defined, however a visual signature is not attained. Therefore, the destination Muntenia, from the sensory point of view, is limited, to a greater extent, to generic stimuli (e.g., drought, noise, freshness etc.), than to punctual attraction elements, that represent those unique and powerful associations that tourists make in relation to that certain destination. However, there are elements such as, Bucharest and the Palace of Parliament (visual experience), Romanian Opera and Urlătoarea Waterfall (auditory experience), Tulips' Festival and the tulips (olfactory experience) or Mud Volcanoes (tactile experience) that can become, in time, powerful associations with the destination Muntenia.

Knowing the sensory profile of the destination, the sensory signatures are communicated, as well as other specific elements that help favour a mental experimentation of the destination (that is because the tourist's experience starts from home, from the moment he gains information about the destination and according to the fundamental formed image, the tourist perceives the destination). Furthermore, the consumption atmosphere at the points of contact is improved (i.e. the integration of all sensory dimensions within the elements of attraction, their convergence to the dominant desired associations and then, providing the promised services), and, finally, tourist satisfaction is measured (for correcting the initial communication and the projected profile as well as for increasing the quality of the consumption atmosphere).

The purpose of the marketer which is concerned about the destination management and, respectively, marketing is to develop a sensory brand of the destination, through the interference of the associations that tourists form towards a tourism destination, under the influence of the experienced sensations, leading to emotions, thoughts and memories. However, until the creation of such brand, continual research is necessary in order to measure the perceptions of tourists and to identify the optimal sensory profile, as well as the sensory marketing strategies or the sensory experiences that support the development of the sensory brand of the destination.

The limits of the research derive both from the approached field, the sensory one, as in the Romanian specialized literature there are very few studies in sensory marketing, due to the fact that the perception is individual, each individual having its own "reality" and from the absence of a sensory scale able to quantify any free expression of the respondent regarding the felt sensation (as consumers have a great difficulty in identifying the type and intensity of the perceived sensation). To this, it can be added the fact that the destination represents a complex product, difficult to be standardized, marketing being difficult to apply.

Therefore, in this respect, future directions should focus on developing an instrument that simultaneously measures the sensory dimensions, using as inputs, actually, the free expression of the consumer. Also, it is desirable to achieve the function that overlaps destination image (through the five sensory channels) over the destination identity.

The future directions of research should contain, besides the sensory profiles already achieved, that of the destination Bucharest (Dițoiu et al., 2012; Stăncioiu et al., 2012) and that of the destination Banat-Crișana (Dițoiu and Căruntu, 2013), also the sensory profiles of the other destinations of Romania, respectively, Oltenia, Transilvania, Moldova and Dobrogea so as the touristic resources, so

diverse, specific to Romania, are developed in the sense of supporting the destination brand.

As far as Muntenia is concerned, the other segments of age should be subjected to research, which form the target-public of the destination, in order to complete the sensory profile, afterwards measuring the gap between projection and perception.

Note

- ⁽¹⁾ Due to the complexity of the destination Romania (comprising numerous microdestinations), historical and geographical criteria were taken into consideration in delimiting this destination, according to which Muntenia, alongside the other regions, form the macrodestination Romania.

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Corporate Governance in Eastern Europe: Case of Romania and Russian Federation

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Abstract. *Corporate governance has been well known in the last two decades for making the attraction of investors its main objective. During communism, corporate governance was absent from economical life and thus quick steps were taken by former communist countries to adopt corporate governance, Romania and the Russian Federation are two countries that realized the strategy. Eventually after the collapse of the communist bloc both countries have moved in different directions based on internal and external factors. Romania has moved toward the European Union Model, while Russia experimented with building a different model by borrowing parts from Western values and at the same time using traditional values. These perspectives are clearly differentiated in Romanian Petrom OMV and Russia's Gazprom.*

Keywords: corporate governance, Romania, Russia, OMV-Petrom, Gazprom.

JEL Classification: G34.

REL Classification: 17G.

1. Introduction

Adopting the governance model of a certain country may not be suitable for a different country. Former communist countries quickly liberated their markets and adopted capitalism without an accurate preparation and without international standards, including corporate governance standards. Although models from Western countries were adopted, this did not achieve the expected results. For example, to this day, the Bucharest Stock Exchange does not function the way it was supposed to. A lot of regulations are written in law but are not applied. Romania decided to adopt Western models, especially the Austrian model which allowed Romania to be a part of European Union in 2007. Russia, on the other hand, used Western models such as German and American models, but traditional values are heavily reflected to be a core part of Russian governance.

Governance mechanisms, accounting systems, understanding the role of stakeholders and of different committees must belong to the actual standards of the country and must be harmonized with international standards in order to enable corporate governance to achieve its objectives. Many big companies were sold after the liberalization of markets, new owners / investors brought their own visions of corporate governance, different from one of the host country. Thus, local interests caused politicians to seek the direct involvement of the state in trying to coerce these companies. For example, the Russian state was directly involved in a business conflict in the industrial town of Pikalevo in 2009, forcing the owners to respect social responsibility. However, Russian governance mechanisms, rather than helping society are only helping individuals.

2. Romanian Governance Model & Petrom-OMV

Corporate governance has taken a conceptual and legal place during the last two decades and regulations issued to structure a governance model. However, the model has been corrupted by politicians, socialists and economists. Even though capitalism has established a long time ago, the transfer to a market economy will also take time (Feleagă et al., 2011). Through communism, decisions that should benefit society are not made. Instead, the government takes advantage of society, and does not utilize natural resources. In 1995, the Bucharest Stock Exchange was founded by The National Securities Commission, but poor practices and a non-efficient banking system allowed for the generation of false financial reports (Feleagă et al., 2011).

The governments did not apply their own rules. The market was supposed to be a controlling mechanism but stakeholder responsibilities were not recognized. Romanian law issued in 2001 established the guidelines for the integrity and the

transparency of financial statements, but the law completely failed because this rule is not applied. Due to this the corporate governance institution was established by the Bucharest Stock Exchange (BSE). In 2001, The OECD, along with USAID, launched a program to develop Romanian governance through setting several objectives:

- A. Assessing corporate governance in Romania.
- B. Providing recommendations to develop corporate governance in order to be closer to OECD standards.
- C. Determine necessary governance techniques.
- D. Improving governance understanding in Romania and informing international society about progresses in Romanian corporate governance.
- E. Helping Romania with access to international dialogue on governance.

OECD principles were considered a benchmark for the Romanian corporate environment (OECD; 2001). Significant difficulties of Romanian governance were pointed out by Prof. Niculae Feleagă (2008):

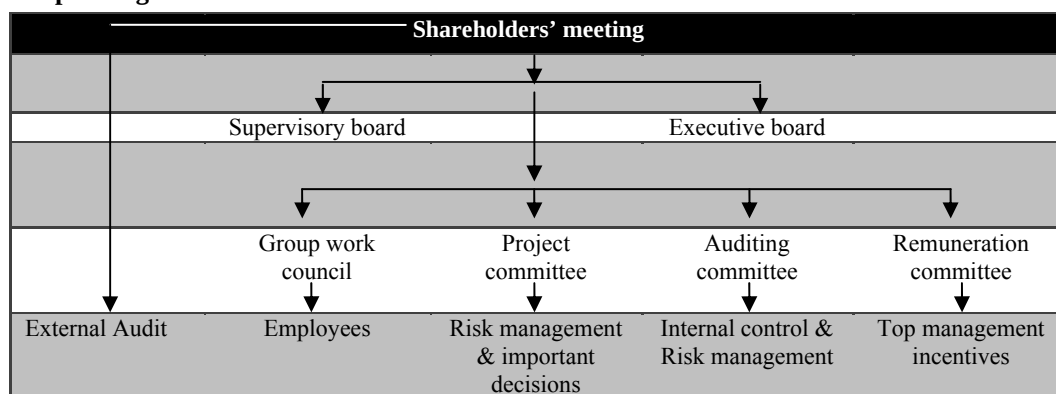
- Poor analyses deal with the relationship between managers and shareholders, and with the reason of why stakeholders are scared from being involved in the decision-making process.
- Omitted conceptual framework for an effective market and social influence.
- The impact of Auditors on corporate governance is doubtful.
- Failure to change accounting systems to be accordance with international accounting systems.
- Missing effective control mechanism.
- Missing understandable, comparable and relevant financial disclosures.

The decision to apply OECD governance codes was made by the Bucharest Stock Exchange in 2008, but it came into effect only one year after. Listed companies were requested to submit a conformity declaration (Feleagă et al., 2011). A new law similar to European Union law was set to improve the performances of the executives and the board of directors. An urgent need to improve government regulations is necessary. Recent revisions of Romanian regulations provided important improvements over conditions of internal auditing and auditing committee, but the application of the requirements was complicated (Dobroțeanu et al., 2007). Romanian law describes responsibility, composition, and insures the independence of the committees by replacing internal and external auditors. Governance provisions obligate listed companies to report on a comply-or-explain principle. This code ensures the independence of auditing, nominating and remunerating committees. The responsibility of auditing committee is to aid the board of directors in order to accomplish its responsibilities regarding financial reports, risk management and internal control systems. Also, it is responsible for

providing advice to the board by replacing and hiring external auditors, and to monitor the objectiveness and the independence of external auditors (Bucharest Stock Exchange; 2008).

OMV Petrom – Romania is an important company sold to Austrian group “OMV”. The executive board adopts a “two-tier” governance model. The executive board is in charge of daily operations and it is monitored by the supervisory board. According to Petrom rules, which are approved by shareholders, the duties of the supervisory board must be achieved efficiently. The main duties are to supervise executive board activities, to select and replace members of the executive board, to insure that the company’s activities are according to regulations, to provide activity reports at least once a year, and to represent company concerns. The members of the executive board and the supervisory board are obligated to fulfil their responsibilities and to perform in the best interest of shareholders. The ownership structure is divided between several shareholders. OMV owns 51.01 %, Romanian Ministry of Economy owns 20.64 %, Property Fund (issued by the Romanian government to compensate individuals after the revolution of 1989) owns 18.99 % and individual people own 9.36 % (OMV-Petrom, 2012). The minority of shareholders is protected through several laws. Environmental and social activities are insured by Petrom regulations, and are related to Petrom businesses. These activities are presented in a biannual performance report (OMV-Petrom, 2012).

Corporate governance structure of Petrom



Source: Created by author.

The supervisory board contains 9 members from European countries and the average age among them is 54.00 years. They have a medium education level with practical experiences in different companies (Petrom, 2013). Diversity and independence are the main factors in selecting these members. The board

performance is evaluated by the results of their activities and work procedures (OMV-Petrom, 2012).

The supervising board selects the members of the executive board. The executives run daily transactions, monitor and manage the performance of the business to insure that everything is according to Romanian law and Petrom regulations. They consist of five members selected to work for four years. The chief of the board is a Romanian woman and members come from different countries such as Romania, United Kingdom and Austria. The average age of the members is 50.20 years and their education level ranges from medium to high. Some are specialized in engineering, law and economy (Petrom, 2013). The board meets on a weekly basis to exchange information and make decisions based on comprehensive approval (OMV-Petrom, 2012). The duties of the audit committee are established according to section No.92 – 4 A of the Stock Corporation Act. The committee meets six times annually dealing with annual financial statements, evaluation of auditory activities, risk management systems and procedures of internal control (OMV-Petrom, 2012). The financial statements are prepared according to international financial reporting standards and are audited by external auditors. The auditing fees of external auditors are monitored by the supervisory board. In 2012, Ernst & Young audited financial statements of OMV (OMV-Petrom, 2012). The project committee helps the executive board with complex duties and wherever it is necessary. The activities of the project committee are reported to the supervisory board. Thus, meetings are held when needed (OMV-Petrom, 2012). The remuneration committee deals with compensation for the executive board members. Employees are not represented in the remuneration committee. The main duty of the remuneration committee is to manage the executive board members (OMV-Petrom, 2012). According to the governance report of 2012, the remuneration committee met five times, and members of the executive board were invited to attend as well. PricewaterhouseCoopers LLP advised the remuneration committee to include market information, governance developments and OMV's application with employee's contracts to estimate the incentives in the short term and the long term along with advice regarding risk management and tax advisory services (OMV-Petrom, 2012). Top management remuneration is based on Austrian law. It encompasses the managers' performance, the performance-related component for the long and the short term. Also included are the company's performance, and that of other companies/competitors in the European market. Financial and non-financial measures are used to evaluate the board's performance with OMV-Petrom strategies, which are included in the remuneration policy (OMV-Petrom, 2012). Short term remunerations include basic salary, variable remuneration and non-cash incentives. Long term incentives were launched in 2009 to increase the value of the company in the long term. The interests of management

are aligned with the interests of shareholders by providing them with shares in OMV. The maximum share grants for members of the executive board (as percentage of annual salary) are up to 175% for the Chairman. The Deputy Chairman receives up to 150%, and other members who have worked a minimum of the three years, between January 2012 and December 2014, receive up to 125%. The group work council represents the employees in the executive board meetings in order to exchange and discuss the information regarding plans that affect them. The risk management is organized into financial and operational forms. The risk management is divided into many branches such as: market risk, project risks, process risks, financial risks, tax risks, compliance risks, personnel risks, legal risks, regulatory and reputational risks, security, health and safety risks (Petrom, 2012).

The framework of internal control systems include:

- Internal control environment.
- Assessment of process and compliance risks.
- Risk mitigation via control activities.
- Documentation and information.
- Monitoring and auditing.

The ethical aspect of corporate law is based on principles from OMV group – Austrian law, which are in accordance with the United Nations Global Compact principles. They guide efforts toward the best corporate practices and make sure that transparency at the management level results in the confidence of stakeholders. Therefore, OMV has utilized Austrian governance law and its recommendations since 2002.

3. Russian Governance Model & Gazprom Russia

The corporate governance is characterized by an ownership structure where the majority of shareholders control the company. Also, the state plays a significant part in the management of the company. The lack of protection for the rights of shareholders, the penury of independent internal and external auditors, the lack of executive responsibility and the lack of hiring of independent directors are common characteristics in Russian governance. Due to this, there is an urgent need to develop a comprehensive governance law, which should be compulsory for companies. Recently, a new version of an old law has been issued for 2013. After the collapse of the Soviet Union, the Russian economic system adopted several steps towards a market economy. They added limited liabilities, joint-stock and close joint-stock companies to take a place, however the law requested joint-stock companies with a large number of shareholders which was not

available in Russia at the time. The framework of Russian governance was structured twenty years ago and significant progress has been achieved by highlighting its weaknesses. The main challenge is to increase trust in the Russian stock market. Companies which are owned by the state and are a subject of the new governance law contribute fifty percent of the Gross domestic product. Even within privately owned businesses, the state will hold significant shares enabling it to rule the companies.

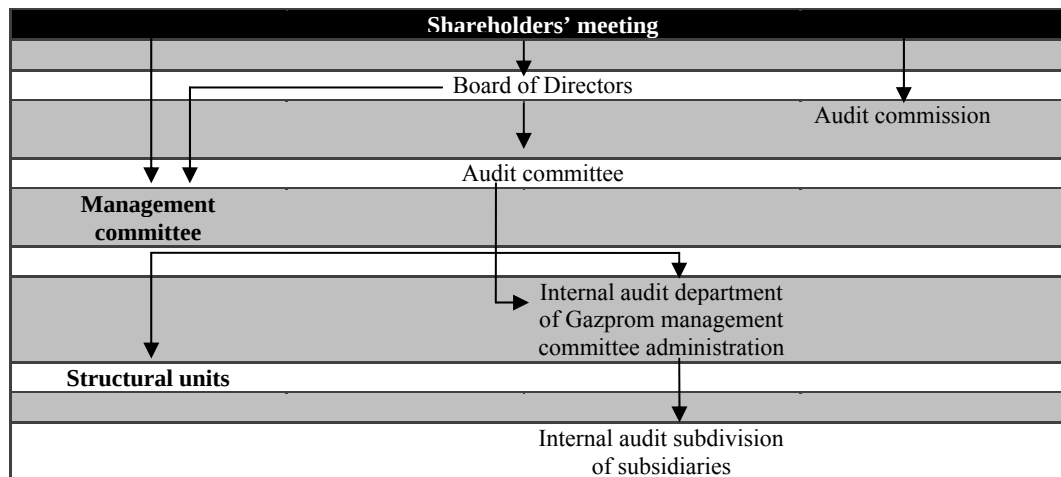
The new governance law was applied in 2013 to improve the performance of all companies. The challenge was to improve the transparency of financial statements and of the state regulations in order to strengthen relationships with investors. In addition, there was another important development taking process in the public house (Doma), which was to adopt changes in the civil law. Unsolved matters of certain conflicts were highlighted through these processes, which lead to a high hope that the new law will achieve its objectives. The OECD principles are applied to achieve positive changes in a capital market in order to attract foreign investors after improving transparency and integrity principles.

The Russian board of directors is similar to a single tier model like the American and the British boards which include executives as well as non-executives and external directors. Executives are a minority in the board of directors. Recently in Russia, the number of independent directors increased to ensure board independence. Independent directors are supposed to strengthen the trust of the stock market and the public. They are also supposed to provide advice to managers on how to improve their performance. However in Russia, the role of independent directors is not well understood and does not play a major role in the companies' performance. During the last five years, the function of internal auditing has been more common and has been an important part of company practices. Internal auditors are responsible for a fair assessment of financial statements by ensuring independence from executive officers. These statements are illegally reported (according to new law) to the general director, which nullifies the auditing concept. Also, the risk management may increase because of a poor performance of executives.

Gazprom Russia is considered an important gas supplier in Russia and neighbouring regions. The single tier model complies with generally accepted international standards and protects the rights of shareholders as well as establishes a good relationship with different groups of stakeholder. According to the reports of 2012, equity capital was divided into shares between the Russian state (50.002 %), American Depositary Receipt holders (26.955 %) and other registered entities (23.043 %). In 2005, on the other hand, the Russian state owned

50.002 %, Russian legal entities owned 29.482 %, Russian individuals owned 13.068% and non-residents owned 7.448%. These changes occurred due to the desire of adding Gazprom into the American stock market.

Corporate governance structure of Gazprom



Source: Gazprom website (2012), <http://www.gazprom.com/about/management/corporate-governance/>

An internal control system protects the shareholders and the investors. All procedures and objectives of the internal control system were replaced in 2012 by the board of directors. These regulations comply with Russian law and the laws of the Federal Securities Market Commission. They also comply with Gazprom regulations and international standards of internal audit and control (Gazprom, 2012). Financial reports need to be protected and prepared efficiently, fair, on time and must be completed by applying Gazprom legalizations. The external auditor is selected through an open bidding event set annually. The rules of external auditors must comply with Russian legislations. They must ensure that accounting statements are prepared according to Russian standards, and consolidated financial statements are prepared according International Financial Reports Standards (Gazprom, 2012). In 2012, the PricewaterhouseCoopers audit agency was selected. The duties of an external auditor are represented by insuring the independence of internal auditors, avoiding employees' investments in the company and monitoring individual relations between employees and top-management (Gazprom, 2013). Gazprom completely respects the Russian and the global environmental regulations in its businesses. Environmental policy is based on protecting the environment and reducing the negative influences on the atmosphere. From 2012 to 2015, a program was adopted and includes a list of investment projects and systemic measures to insure the energy security. Gazprom held a social program from 2005 to 2011 in Russia where an estimated 146 billion RUB was used to support different social

activities. This money was also used to improve education, science, healthcare and cultural lifestyle. Another social program (2007-2012) used 7,8 billion RUB targeted to spiritual and physical improvements of child life, and maximizing the number of children in social activities. In 2013, Gazprom was a special sponsor of the UEFA football league to show the modern value of the new generation and respect to other cultures. The board of directors contains eleven members. Their average age is 58.81 years and they are well experienced. The majority holds a PhD in economics, philosophy and law. The minority holds a bachelor's degree in economics and graduated from aviation institution. All members have worked in different places both in public and private sectors. All members are Russian citizens and the board only has one female member. The management committee contains 17 members from Russia and their average age is 50.50 years. They are also well educated and the majority holds a PhD degree in economics and engineering. Two members graduated from the law faculty and the University of economics. All members are well experienced from different backgrounds such as state universities, governments, banking sectors, and other institutions. The main gender of the executives is masculine with two women. The auditing regulations, approved by shareholders, conduct the activities of the auditing commission (Gazprom, 2012). Objectives of the commission are to monitor operations and financial activities. Controlling the compliance of financial statements with accounting standards and insuring that these statements are disclosed to shareholders and investors are parts of these objectives. They also ensure the efficiency of asset management and reduce the risks of financial and operational activities to improve the efficiency of internal control system. The audit commission consists of 9 Russian members including 2 women. Gazprom lives by ethical codes to determine and establish respect among employees, board of directors, management committee and revision commission (Gazprom, 2012). The best practices of national and international experiences are adopted in Gazprom business behaviour and are used to develop governance laws. The issues of stakeholder relationships are reflected in Gazprom regulations. Also, the principles of the relationship between Gazprom and its employees are disclosed. The remuneration committee conducts compensations of the directors after being approved by shareholders. The short-term compensations are paid to all members of the management committee and the board of directors. Other benefits such as providing health and civil services are also mentioned in the contracts. Determining the amount of remunerations is subjected to certain regulations. For the board of directors it is divided into a basic remuneration and premium remuneration. The basic remuneration includes the main responsibilities and duties. The premium remuneration is related to additional duties (Gazprom, 2012). Risk management exercises strong and continuous efforts to improve Gazprom systems. Approved by

shareholders, an action plan was set up to improve the risk management systems in 2011. For the risk management, Gazprom develops unified approaches to organize policies, methodologies and procedures. Thus recently, an interaction strategy linked to the risk management system was applied in the Gazprom group. In the meantime, several efforts have been made in order to minimize the credit risk of Gazprom in international and domestic markets.

Key Risk Factors as they are presented in the Gazprom report (2012)

Strategic and country – specific risks:

- Risks relating to global credit crunch developments.
- Risks relating to operations in European gas market.
- Risks associated with development of renewable power sources.
- Risks of state regulation in the sector.
- Risks relating to natural gas transit.
- Risks associated with entering new regions and new markets.
- Risks associated with gas production development from unconventional sources.
- Geographical and climatic risks.

Risks relating to customs, foreign currency and tax regulation:

- Risks associated with the changes in currency regulation and tax legislation in Russia.
- Risks relating to changes in rules of customs control and payments in Russia.

Financial risks:

- Foreign exchange risks, interest rate and inflation risks.
- Credit and liquidity risks.
- Market risks including risks associated with decrease in volumes and cost of gas sold at foreign markets.

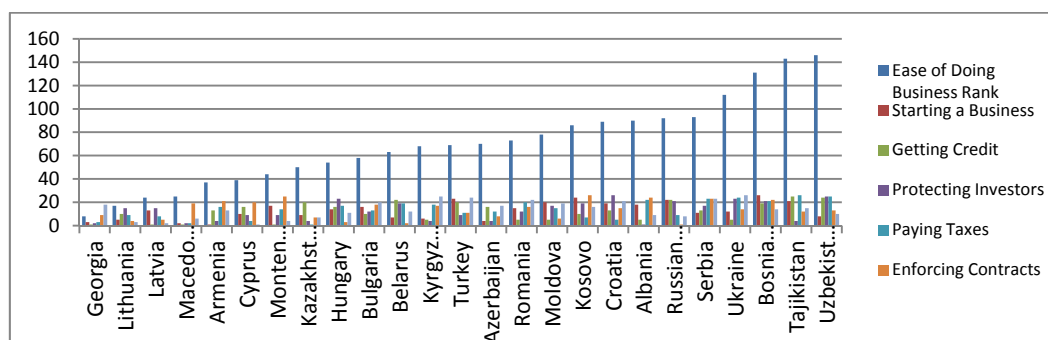
Operating risks:

- Risks relating to non-extension of subsoil licenses.
- Cost escalation risks.
- Risks relating to exploitation of operating facilities.
- Risks associated with assessment of hydrocarbon reserves.
- Risks associated with vertical integration and diversification of operations.
- Risks relating to registration of title to real estate and land plots of OAO Gazprom.
- Environmental risks.

	Gazprom	Petrom
OECD principles	Adopted	Adopted
Governance model	Single tier model	Double tier model
BOD Members' citizens	Russia, Former USSR (that returns to fact that Gazprom were presented as a national company, recently foreign capital takes a place in order to be listed in American Stock market)	European including Romania (that returns to fact that Petrom is a member of OMV group; majority of member of OMV are from Austria, and executive board's chief is Romanian)
Education level	Majority of members of board and committees carry PhD degree in economy and law, Aviation Institute	Majority of members of board and committees carry bachelor degree in economy and law, and MBA, Mechanical Engineering.
Experiences	Professors in universities, banks, Russian government, and related companies and institutions.	Banks, consultant, and related companies and institutions, Romanian government.
Women's advancement	5 members	1 member the CEO
Ethics codes	More reflect Russian values.	More reflect European-Austrian values and U.N
State sharing percentage	55.002% (other reason; codes reflects Russian value)	20.64% hold by Romanian Ministry of Economy
Foreign sharing percentage	26.955% (American Depositary Receipt: ADR)	51.01% (OMV group)
Accounting Standards	IFRS	IFRS
Remuneration	Based on members' contracts and other health and social benefits based on members' performance.	Based on members' contracts, market and giving shares.
Independence directors	Acceptable level (state influence)	High level

4. Efficiency of these models

Romania and Russia have achieved a good progress in the field of corporate governance but additional work must be completed in the next few years to achieve a proper functioning of the governance mechanisms. Switching from a planned economy to a market economy was attempted without a well prepared plan. According to www.doingbusiness.org (the chart below) shows the ranks of businesses in Eastern Europe and some former communist countries

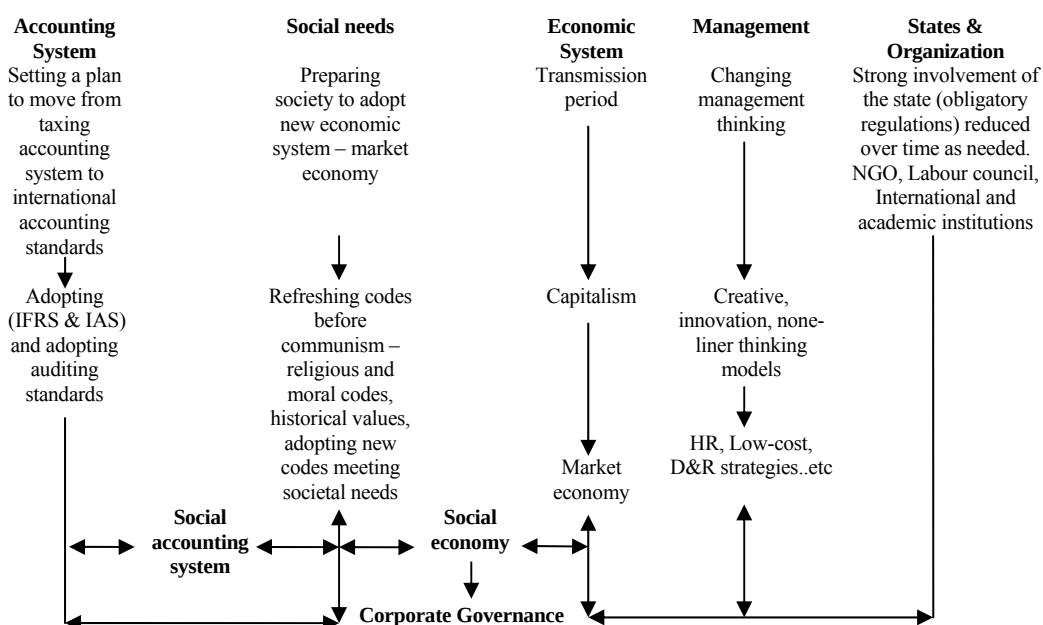


Source: doingbusiness.org/ranking excel sheet transferred to a chart by author.

Romania and Russia succeeded in attracting new investors through new governmental regulations. This enriched the national economy and rebuilt the management system based on Western models. Romania was ranked at number 15 and Russia was ranked at number 21 in doing business. To its credit, Romania ranked at number 5 and Russia ranked at number 22 which confirms that the adoption of the Western model was beneficial for the economy. However, other former countries have performed even better. This change encouraged them to adopt certain models that facilitate foreign investments. The main objective of adopting OECD corporate governance principles was to facilitate companies in starting a business but huge challenges were faced which is why Romania ranked at 73 and Russia at 92. High corruption is one of these challenges. Because of missing moral and religious rules, stemming from communism, the adoption of international standards was not as effective as it should have been. In Petrom-OMV, governance law was taken from OMV Austrian law without considering Romanian cultural principles. Russia adopted the international standards to make Russian companies well known globally by keeping Russian tradition a core part of corporate governance. Protecting investors and paying taxes are linked together. Romanian investors are evading taxes and take advantage of loopholes in the regulations. In Russia the state is directly involved which leads to changes in the capital structure of the company. That explains the higher number of forced contracts in Russia than in Romania, in which Russia is ranked at No.1 and Romania is ranked at No.16. In paying taxes, Russia is ranked at No.9 and Romania is ranked at No.20. One reason for Russia's high rank is due to its accounting system, which is based on tax purposes. Politicians also have an overall impact on governance. In Russia, governance is used to increase popularity of politicians. In Romania, foreign investors are seen as a chance for the improvement of the national economy, whereas in Russia they are considered a serious threat to the independent decision making process. One of the main reasons behind the adoption of international accounting standards is the push for the globalization of the Russian economy, to gain profits from international activities and to be a tool to help control other economies. The eco-political relationship between Russia and Ukraine is an example of this. Due to the lack of communication between the groups of stakeholders and the absence of ethical programs, the implementation of a governance code is not fully effective. In Petrom's executive board, the only Romanian is the chief. All other members come from different countries causing a huge loss in translation not just in language but also in background, which can reflect the company negatively. In Gazprom, all members are Russian. However, their main objective is to benefit politicians, which also reflects the company in a negative way. These reasons may additionally affect social and national perspectives of these companies.

5. Conclusions

Many needs must be met in order to build an effective model of corporate governance, like understanding the concerns of politicians, societies, investors and other stakeholders. Due to this lack of understanding, the market economy cannot be used as a controlling mechanism. Being open to other models without considering the sensitivity of the society can cause a negative turn on the perspective of the whole country. During communism, the role of the state was strong in social and economic aspects. There was a high level of enforcement of the law and a planned economy. These principles should be re-adapted but with slight modifications. There is a need to refresh certain principles such as religious and traditional codes, which were lost during communism. That can provide a golden opportunity to utilize human and national resources. To rebuild an active corporate governance in former communist countries, the following structure can be presented:



Source: Created by author.

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Study on the competitiveness of Small and Medium-sized Enterprises (SMEs) in Vâlcea County

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Abstract. *Small and medium-sized enterprises represent an essential economic agent, on whose activity and performance depend large segments of the population and of the economy. To study the competitiveness of SMEs were pursued issues in these areas: management of the company, marketing, strategic planning, company's products/services, labor, activity on international market. The research was based on direct interviews, conducted with managers of companies through questionnaires. Information was collected during February-March 2012, the sample consisting of 348 small and medium enterprises in Vâlcea County. The study summarizes the responses of managers on issues that characterize the company's competitiveness.*

Keywords: competitiveness, small and medium enterprises, competition, market, Vâlcea County.

JEL Classification: L19, O10, L11.

REL Classification: 18B, 14A.

1. Introduction

Competitiveness is a complex concept, long debated in the worldwide specialized literature. There are noticed many ways in which there is defined competitiveness of the company, but no definition is universally accepted.

Being inseparable from the notion of competition, the concept expresses at general level, the ability of individuals, companies, economies, regions etc. to remain in the internal and/or international competition and to obtain economic benefits from it. For the company, the competitiveness concerns its ability to increase profits in market shares where it operates, context in which firms seek strategies to adapt to business environment and try to identify their competitiveness factors: improving quality standards, developing new products and production processes, adopting modern technologies etc.

As interior feature of an economic entity, the competitiveness is defined by company's potential and occurs in relation with the environment in which it operates. Competitiveness means, essentially, "the liability and skill for market contention and the skill for position gain and permanent commitment that are indicated especially by expansion of business successfulness, market share and profitability" (Markovics, 2005).

Competitiveness is "determined by productivity, and depends on firms strategies, it is partially, the result of relationship between firms and local business environment, depends on social and economic objectives synergy and is influenced by factors from external environment" (Porter and Ketels, 2003).

Labor productivity is "one of the most important synthetic indicators of the enterprise economic activity efficiency which reflects the effectiveness or the fruitfulness of labor expended in production", and its growth represents "the most important factor to increase output, reduce production costs and increase profitability and product competitiveness on domestic and foreign market" (Bondoc and Hagiu, 2011).

Enterprises competitiveness is "the ability to sustain a market position by supplying quality products on time and at competitive prices". This ability is reflected by "acquiring the flexibility to respond quickly to changes in demand and by successfully managing product differentiation by building up innovative capacity and an effective marketing system" (UNCTAD, 2005).

Since the company has to face both domestic/indigenous competitors and foreign/international ones in each market where penetrates, an analysis is needed to identify the behavior of these competitors of the company and in this context, a more accurate assessment of their potential. Clearly, the number, size and quality of competitors influence the firm's ability to enter and compete profitably in a

particular market and its competitiveness requires strengthening of its activity in a particular market, the existence of a strategy to maintain or increase market share through marketing elements which allow maximizing the strengths that distinguish it from the other competitors.

2. SMEs competitiveness

Lately, the importance of competitiveness has increased more and more both as force and magnitude. In the context in which the European Union strategic guidelines give priority to competitiveness and require the mobilization of all national and community resources, SMEs have the freedom to develop a basis of resources and to gain a competitive position, competitiveness roots being found, generally, in the environment in which they operate. In the long run, Europe, as a whole, is faced with the population decline (from 730 millions in present to 632 millions in 2050) and with an emphasized aging process (persons aged over 60 up come to have a share of 32% in 2050), problems that affect its competitiveness.

With the global economic crisis, uncompetitive firms are disappearing or are forced to undergo drastic restructuring. The current development of business environment has produced already considerable losses to the small and medium enterprises.

Within the Cohesion Policy, it is „particularly important to support SMEs in times of economic crisis. SMEs provide about two-thirds of all private sector jobs and most of jobs in creation activities. The success of the Europe 2020 Strategy for growth and jobs is critically linked to SMEs. In 2007-2013, within the Cohesion Policy were invested approximately 70 billion EUR in business support – most of this being dedicated to SMEs” (European Commission, 2012).

Small and medium-sized enterprises form „the backbone of the EU economy, because they are representing about 98.9 percent of non-financial enterprises in 2012” (Ecorys, 2012).

The latest Annual Report of the European Commission (2011/2012) emphasizes that “the best performing countries have a relatively high proportion of SMEs in high-tech and medium high-tech manufacturing and knowledge-intensive services”. It also shows that “universities have an important role in stimulating the research activity of the knowledge-intensive and high-tech SMEs and creation of a bridge between the public-sector research and the business world”.

Regarding the company's competitiveness strategy, it configures the reorganization of the firm's portfolio of foreign markets. In light of this, “the firm will always look to concentrate on those markets that allow gaining and maintain

its competitive advantages. These competitive advantages allow firms to maintain the gained market position and to have a solid foundation in the competitive battle” (Ciochină et al., 2011).

Competitiveness strategy is characterized by the following instruments: “price; quality; technological advance; complexity of the offer; packaging; timeliness of deliveries; terms of payment; advertising and sales’ promotion; frequency of launching new products; distribution network adapted to client; range of services; quality of services; price of services; terms of warranty; brand of product” (Nisipeanu, 2013).

„The challenge of the 21st century for SMEs is global competitiveness”, which means that „customers need to be provided with constant and reliable products and services having a recognized quality, while the market environment is characterized by global competition. SMEs are able to cope with the global challenge only if they are carrying out reliable, balanced and high-standard operations within their businesses” (Kadocsa and Borbás, 2010).

Development of SMEs requires a determined effort to reduce the gap between their productivity and the productivity of large companies. In this context, it is indicated “to move forward in four interrelated areas of support: innovation to strengthen productive and managerial capacities, market access, production linkages and cooperation between companies and access to financing for implementing the first three policy areas. Along with the identification of the priorities, it is necessary also the consensus of public and private powers and responsibilities that must oversee the defining and the implementation of the policies. It is extremely important that the institutional system to respond to the characteristics and level of development of the country” (Bárcena et al., 2013).

„The external environment’s influence on SMEs is very strong. The world is changing, the environment is more uncertain, the competition is strong, and the protective regulations are more restrictive. All this require rapid, efficient and effective answers. Firm’s competitiveness must be shown like a part of territorial, local competitiveness. Economic development is a cooperation process between government, local administration, firms, research institutes and education” (Bibu et al., 2009).

“Governments are responsible for establishing an environment that contributes to the competitiveness of SMEs. This can result in policies that reinforce commercial environment. Policies that encourage the development of SMEs include: consulting services for business insurance, the simplification of the registrations and other legal processes, implementation of a favorable income tax, implementation of a favorable trade policy, support linkages between SMEs and the large companies, ensuring the SMEs’ funding” (Uden, 2007).

Into another paper (Mandl and Dorr, 2007) there are studied the implications of corporate social responsibility (understood as “voluntary initiatives of private or public organizations going beyond legislative requirements and contractual obligations for the benefit of one or several specific target groups while, at the same time, not disadvantaging other groups) over the SMEs’ competitiveness. The report shows that corporate social responsibility (CSR) “positively contributes to SMEs’ competitiveness as it leads to a competitive advantage, particularly by improving the company’s image, increasing its customers’ loyalty and stimulating the employees’ motivation and workplace satisfaction. Nowadays, SMEs do not take full advantage of the economic potential inherent in CSR”.

In order to study the competitiveness of regions or states, composite indices are calculated. In a recent paper (IRECSON, 2012), in order to assess the competitiveness of the regions of our country, there were calculated the competitiveness indices of those regions based on the analysis of 171 indicators.

When we talk about the firms’ competitiveness, particularly the SMEs, things are different. We cannot measure competitiveness based on a set of indicators because this complex concept involves a lot of aspects that can be measurable only partially or not at all. Also, even if we consider certain indicators for which we have the values, aggregating them (in a certain way), we obtain a value that does not tell us much, since we must consider that the company acts on several markets where it competes with other companies.

3. Research methodology

The research method was based on direct interviews with managers of companies using questionnaires containing questions from the following sections:

- Management of the company;
- Marketing;
- Strategic planning;
- Products/services of the firm;
- Labor;
- Activity on international market.

Data collection was performed on a sample of 348 small and medium enterprises from Vâlcea County, during February-March 2012. The general collectivity surveyed was represented by the small and medium companies, active (with at least one employee), in Vâlcea County, accounting for 5374.

The study has the following objectives related to the firm’s competitiveness: knowledge of the extent to which the owner/owners of the company provides the management; knowledge level of training and experience in leading positions of

the company's manager (management of the firm); determining the percentage of the firms which have a marketing department in all SMEs, knowledge of the extent to which firms perform marketing research, identification of information sources of the company related to: market conditions, competitors, the change in the structure of consumers segments, in the external environment of the company (marketing); determining the percentage of firms that have a business plan, determining the percentage of firms that have a strategic plan (strategic planning); knowledge of company's satisfaction level related to the current level of its range of products/services, determining the percentage of firms that have a research and development department (products/services of the company), determining the share of firms that have problems in finding employees, determining the percentage of firms which are training the personnel (labor); determining the exporting firms' percentage in all SMEs, identifying the main problems faced by exporters, identification of information sources about foreign market development (activity on international market).

The main hypotheses tested were: most managers are the business owners, the vast majority of managers graduated an institute of higher education, most SMEs don't have a marketing department or they've been having it for no more than 5 years, most companies do not perform marketing research (in their own department or with help of a specialized company), most firms have a business plan, most companies develop a strategic plan, most SMEs' managers consider that the range of products/services should be improved, most SMEs do not have research and development department, most companies had difficulties in finding employees, the vast majority of companies trained the personnel, most companies have no export activities.

Sample representativeness, essential for any selective survey depends significantly on population characteristics, sample size, sampling procedure or technique selection, quality of the sampling framework, final non-responses (Săvoiu et al., 2004: pp. 88-89). Sizing samples must incorporate a compromise between two aspects: representativeness and efforts (Manole, 2007: pp. 165-166).

For the sampling without replacement, (the units drawn from the reference population are not reintroduced back, so they can not be drawn again), to dimension a sample we use the formula (Manole, 2007: pp.167-168):

$$n = \frac{z_{\alpha/2}^2 \hat{p}(1 - \hat{p})N}{(N - 1)\hat{p}^2 + z_{\alpha/2}^2 \hat{p}(1 - \hat{p})} \quad (1)$$

where

n – the sample size;

N – the overall population size;

Δ – error limit;

α – significance threshold;

$z_{\alpha/2}$ – the critical value corresponding to a given significance level α ;

$\hat{p}$ – estimator of an alternative feature's share

For sampling with replacement, in determining the sample size it is used the formula (Manole, 2007: pp. 167-168):

$$n = \frac{z_{\alpha/2}^2 \hat{p}(1 - \hat{p})}{\Delta^2} \quad (2)$$

When the overall population size is large, as in the present case, the formulas (1) and (2) provide very close results. Therefore, for sizing the sample, we can choose the most convenient one, namely (2).

The estimator of an alternative feature's share $\hat{p}$ is the proportion of an alternative feature obtained from a previous selective survey. As in a previous similar study developed using a survey basis, having the reference population the SMEs in Vâlcea County, in which the questions addressed to managers had inserted also the assumptions made above, the lowest value of the share (related to these assumptions) was 70.2% (Manole et al., 2008), we have $\hat{p} = 0.702$.

Also, we choose the significance threshold $\alpha = 0.05$, which means that the sample will be representative with a probability of $1 - \alpha = 95\%$. The critical value $z_{\alpha/2}$ is α - bilateral quantile of standard normal distribution and for $\alpha = 0.05$ we find $z_{0.05/2} = 1.96$. For error limit, we choose a value equal to 5%, namely $\alpha = 0.05$.

Using the formula (2), we obtain:

$$n = \frac{1.96^2 \times 0.702 \times (1 - 0.702)}{0.05^2} = 321.46 \quad (3)$$

Taking into account the non-responses we have to increase the value previously determined. Thus, considering a non-responses' rate of 8%, we have:

$$n = 322 \times (1 + 0.08) = 347.76 \quad (4)$$

which justifies the choice of sample size $n = 348$, to ensure its representativeness for small and medium enterprises active from Vâlcea County.

It was also intended that the sample of small and medium-sized enterprises to be representative in terms of: ownership, field of activity/industry and company size. Thus, the structure of the sample was: a) by ownership: private enterprises: 96.3%, public enterprises: 2.2%, companies with mixed public – private capital:

1.5%; b) by company's size: microenterprises: 84.8%, small companies: 13.2%, medium-sized companies: 2.0%; c) by field of activity/industry: mining and manufacturing industry: 12.8%, electricity and heating, gas: 0.2%, construction: 12.7%, wholesale and retail trade, repairing and maintenance of motor vehicles and motorcycles and of personal and household goods: 46.1%, hotels and restaurants: 8.1%, transport, storage and communications: 13.1%, real estate 2.3%, education 0.6%, health and social care: 1.6%, other activities of the national economy: 2.5%.

Active small and medium-sized enterprises from Vâlcea County were placed into several groups according to the criteria outlined above, in order to develop a stratified sampling. Then there was picked up randomly without replacement a certain number of companies. Nevertheless, approximating this survey with the simple random sampling in order to use formula (2), we made a pretty small error so the representativeness of the sample is maintained.

4. The results of the research

4.1. Management of the company

Management is a key factor of the competitiveness of small and medium enterprises. When we talk about this factor, we should consider its two functions: the tactical and strategic management. These two functions must operate simultaneously, even if they require different qualities from the manager. Therefore, a good manager must have the pragmatism necessary for optimal solutions to current problems of the company, but also to have the vision needed to solve the strategic development problems (Kadocsa and Borbás, 2010).

Company's management is provided, most often, by the owner. Thus, for 85.7% of the firms from the sample, the owner is also manager and only for 13.1% of them, the manager is a person employed in this function.

Another issue of interest is the level of education of the company's manager. In this respect, the situation is as follows: 27.2% of managers have even post-university degrees, 63.8% have higher education and only 6.5% have secondary education (Figure 1).

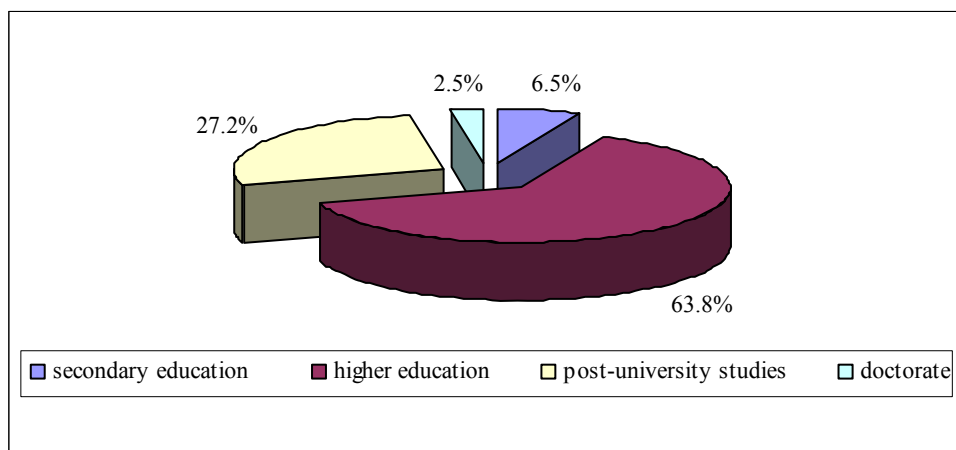


Figure 1. *The level of education of companies' managers*

Regarding managers' experience in leading functions, the situation varies significantly from one firm to another (Figure 2). However, we can say that most managers benefit from such an experience, because 67% of them have more than 10 years in management. However, 12% of them have been in management positions for a period of maximum 5 years.

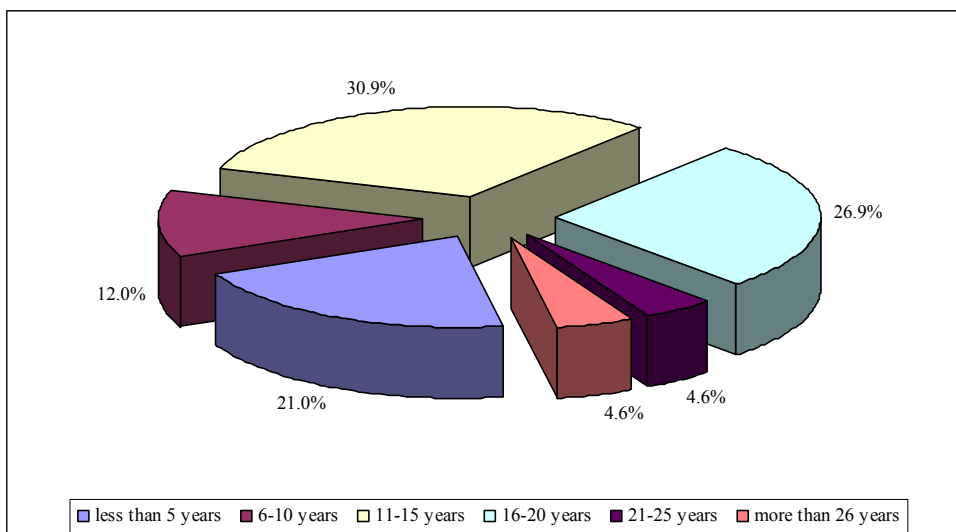


Figure 2. *Manager's experience in leading functions*

4.2. Marketing

Related to this field, we are interested if there is anyone – for a small firm or a department – for a large company dealing with marketing activity. Also, we pursue if the company performs marketing researches to obtain information about market conditions, competitors, changes in the structure of the consumers segments and in the external environment of the firm.

According to the research, only 46.9% of the companies surveyed have a marketing department. This shows that more than half of SMEs consider marketing, namely management of the market activities, very important. The focus of these companies on marketing activities is explained by the direct use of market activities oriented primarily towards advertising and sales incentives.

In addition, most companies have been holding a marketing department, for a short or relatively short time (Figure 3). Thus, this department has been functioning for more than 5 years in 60.5% of cases and for more than 10 years only in 17.1% of cases (related to companies that have a marketing department).

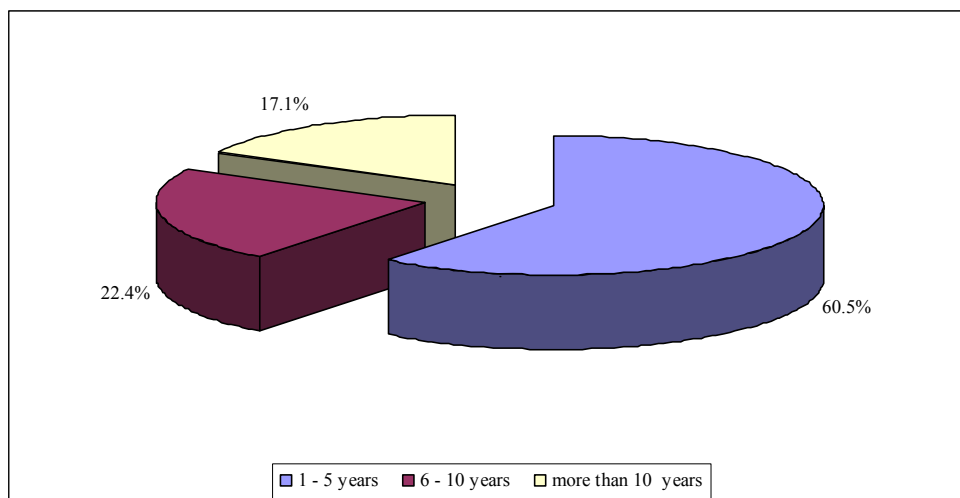


Figure 3. *Time of existence of marketing department*

Thus, it can be noticed that 81.5% of SMEs don't have a marketing department or they have been holding it for less than 5 years, which confirms one of the hypotheses formulated above and shows that the vast majority of managers are not interested in marketing or, if they are, this is a matter of recent date. The low rate of interest in marketing for many companies in the county could be explained by the fact that they operate in local markets, where they are known and do not intend to enter on other markets and therefore they spend less on advertising, image.

Marketing researches don't represent common activities for companies, since 70% of them haven't pursued them. Firms can proceed marketing researches on their own in the marketing departments (if there are specialists), or can appeal to specialized companies. As the costs for a complex marketing research are quite high, companies cannot afford to spend money for this purpose.

Analyzing the results for company's information sources related to the market situation, competitors, changes of customers segments' structure, and of the external environment of the firm, we find that, somehow surprisingly, the direct observation of these changes in the level of sales, without undertaking a research activity is used by more than half of the companies (55.6%). Also, only 25.9% of companies perform market studies and only 28.7% of them use as source of information the studies and articles published in specialized magazines.

4.3. Strategic planning

Planning is analyzed on the basis of strategic planning and of business planning. After processing the results, we find that 85.5% of the small and medium enterprises surveyed have a business plan, and 83.3% have a strategic plan. For both aspects business plan and strategic plan, the percentages are more than acceptable. The planning activity for many businesses analyzed is based on the belief that both the strategic plan and business plan are very useful for an enterprise, regardless the market share on which it operates.

At the same time, in most cases (93%), managers themselves have established the strategic plan (Figure 4).

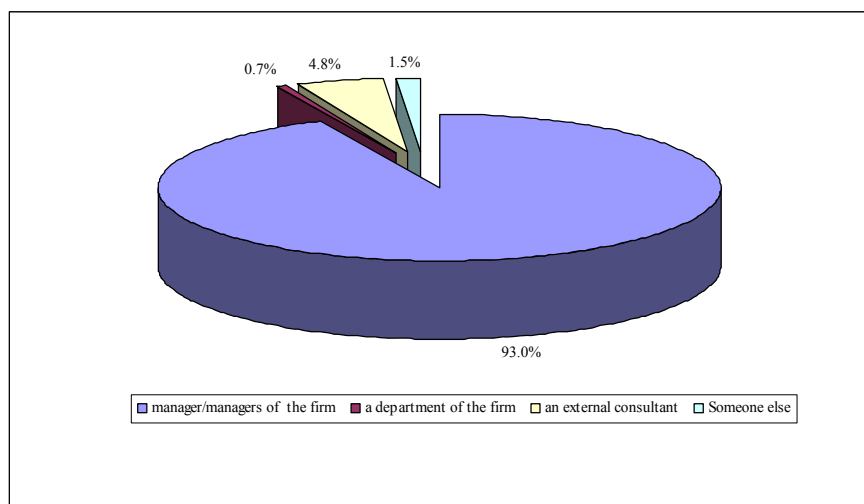


Figure 4. *Who is in charge of formulating the strategic plan*

4.4. Products/Services of the company

Quality of products/services of a company is an important instrument of competition (competitiveness strategy). The term quality is complex because in addition to the index of physical quality of the product it also includes other aspects, such as: product's availability, quality of after-sales services, quality of delivery, product's specificity etc. Broadly speaking, by quality of products/services we understand the satisfaction provided by these products.

Given the importance of the quality, managers were asked to comment upon the company's satisfaction related to the current level of their range of products/services. To this question, 22.2% of them considered this level as normal, while the others, 77.8% thought that the range of products/services should be improved.

The introduction and certification of quality management system brings important benefits to the company: improved quality awareness, improvement of the company's image, attracting new customers, facilitating participation in auctions, simplifying export procedures etc. Despite these considerations, only 77.2% of SMEs in the sample have implemented a quality management system of products/services.

Innovation is a capital factor of competitiveness. We consider not only technological innovation, but innovation in marketing, management, in organization, communication etc. SMEs compared to large firms have the advantage of "being more mobile" more receptive to changes, more able to capitalize on innovation.

The success of innovative activities undertaken by firms should be reflected both in markets' development by obtaining new or improved products and in improvements of specific organizational and technological products of the company, including distribution processes (Voiculescu, 2000: p. 23).

In terms of technological innovation, we note that starting with 2007, Managerial Agency for Scientific Research, Innovation and Technology Transfer (AMCSIT) - Politehnica launched the National Plan for Research - Development and Innovation 2007-2013, Program 5, which had as overall objective increasing the capacity of innovation, technological development and the assimilation in production of the research results to improve the national competitiveness. This program of research founding was targeted on research projects auctioned by a consortium and the coordinator was an enterprise. Unfortunately, in 2009 and 2010 weren't held competitions under this program. In 2011, the National Development and Innovation Council together with the Executive Unit for Financing Higher Education, Research, Development and Innovation launched the

competition for Applied Research Collaborative Projects – the Program Partnerships. By this funding instrument is aimed to support and promote applied research in priority areas, inter and trans-disciplinary relevant for improving competitiveness in research-development and innovation at national level, in line with global knowledge-based economy. However, only 12% of companies analyzed have research and development departments.

Participation to fairs and exhibitions with own products/services was one of the questions in the questionnaire. The results of the processed answers show that a percentage of 59.6% of the companies surveyed participated to fairs and exhibitions with own products/services and only 26.1% had periodic participations (Figure 5).

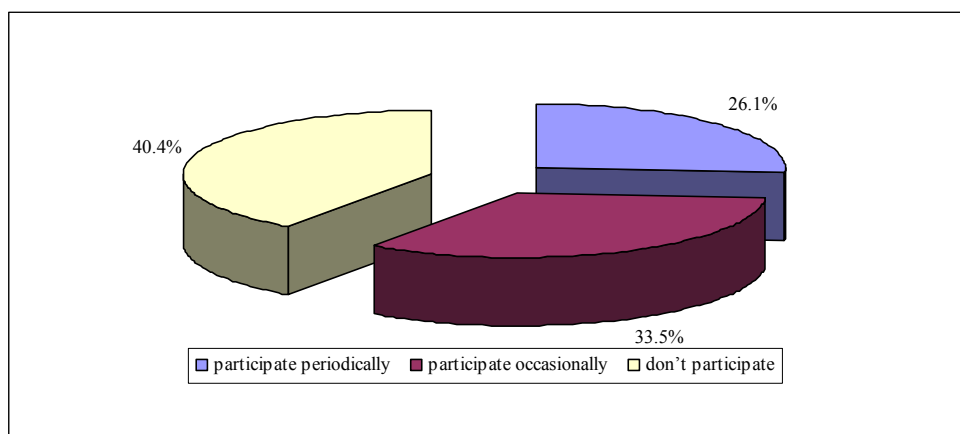


Figure 5. *Participation to fairs and exhibitions*

4.5. Labor

The labor force is an important production factor which, because of migration and of inadequate schooling, creates difficulties for firms. Despite layoffs caused by the economic crisis on the labor market for certain professions, there is a shortage of personnel. This statement is supported by the fact that three quarters of SMEs in the sample (exactly 74.7%) stated that they had difficulty in finding employees.

Respondents who had difficulty in finding employees were asked to specify the main (one) of the causes of the vacancy positions. According to the results, the main cause was the lack of qualified personnel in most cases (77.7%), followed by payroll for 10.7% (Figure 6). Lack of qualified personnel is caused by massive migration of people with higher education in certain fields (engineers, IT staff etc.) or by specialization of persons in certain occupations, by youngsters' orientation towards certain universities (law, economics) at the expense of others which after

graduation award specialization in fields of activity where wages are lower (some technical profiles), by the reduction of schooling number in vocational activities, by the salary level in Romania in many sectors etc.

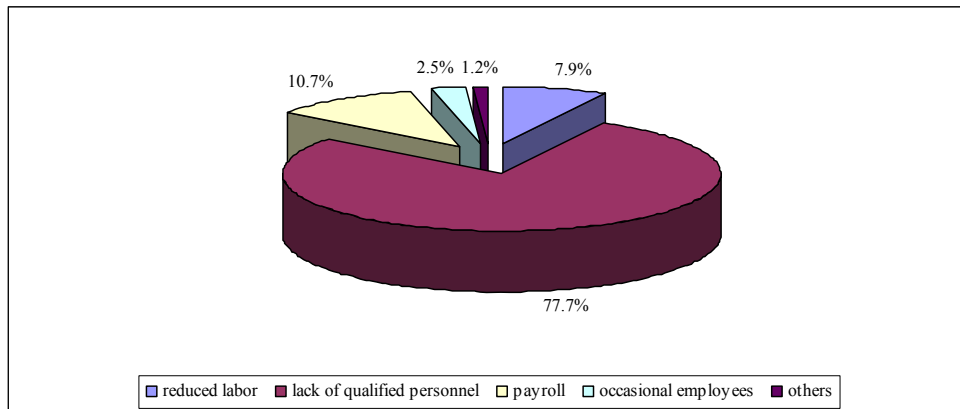


Figure 6. *The main cause of job vacancy*

Improvement of personnel training, which allow companies' employees to enrich their knowledge, methods, skills, abilities and behaviors in areas in which they already have a basic qualification in order to achieve at a higher level the objectives and their tasks, represent an important issue for the vast majority of the companies surveyed (92%). Thus, half of the companies surveyed organize the training for their personnel (51.9%), a percentage of 40.1% appeal to a specialized training company and only 8% are not interested in personnel training (Figure 7).

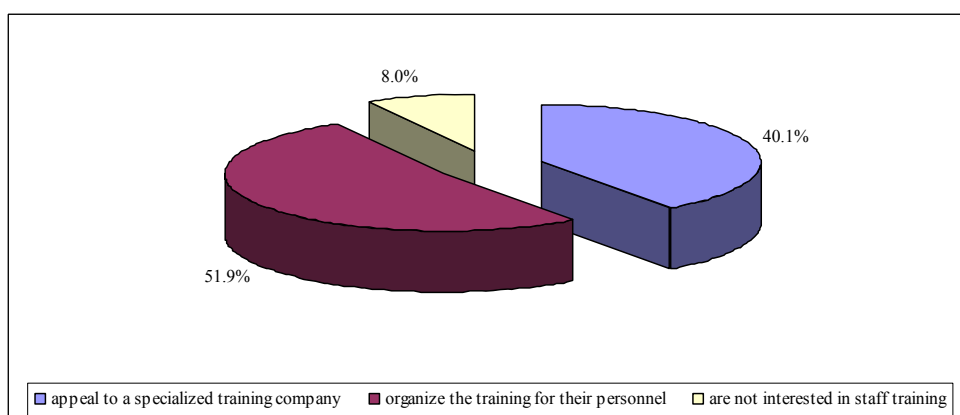


Figure 7. *Improvement of personnel training*

4.6. The activity on international market

Globalization, a recent process, tends to lead to the achievement of a global market. Thus, the distinction between domestic competition and the competition on foreign market becomes weaker, since foreign products enter into the domestic market. “The differentiation between competing on the home market and on the foreign market is particularly important when shaping an economic policy as the question arises whether exports should be supported with special means of the economic policy or treated in the same way as the output meant for the home market” (Gorynia, 2001).

Based on responses to the first requirement of this section of the questionnaire, it can be noticed that only 10.2% of small and medium-sized enterprises from Vâlcea County carry out export activity. We can also note that 45.5% of the exporting firms have the share of their exports in turnover of at least 81% and only 24.2% have this share of maximum 20% (Figure 8).

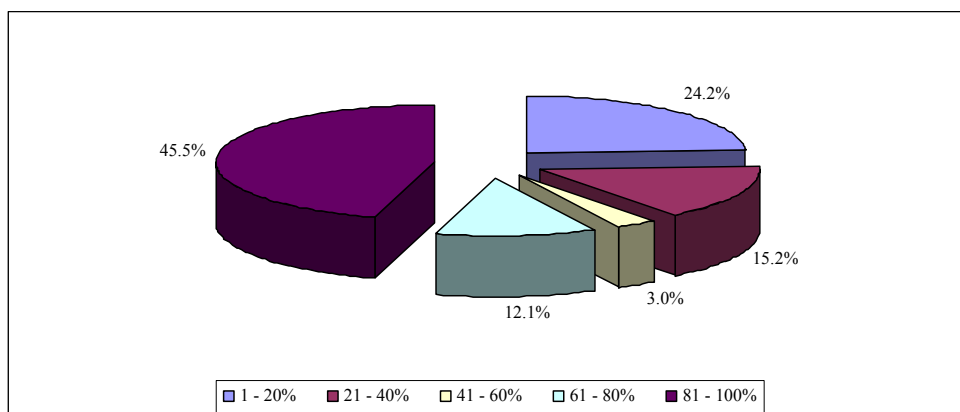


Figure 8. *Share of exports in turnover*

According to this study, the main problems faced by the exporting companies in their export activity are the next:

- difficulty in finding foreign partners - for 43.7% of them;
- foreign competition - for 42.5% of them;
- difficulty in finding funding - for 25.3% of them;
- lack of information related to foreign markets - for 23% of them.

At the same time, for information about foreign market development, were used the following sources:

- publications of various institutions in the country (ministries, Chamber of Commerce and Industry etc.) - for two-thirds of exporting companies;
- market reports purchased - for a third of exporting firms;
- articles in specialized journals - for a quarter of exporting companies

5. Conclusions

The research provides some aspects about the competitiveness of small and medium-sized enterprises from Vâlcea County. According to the study, all assumptions regarding SMEs from Vâlcea County proved to be true.

In the majority of cases (85.7%), manager of the company is the owner. Therefore, it can be said that in most cases, the owners can not afford or do not consider it necessary to hire managers or even would not be necessary. Also, the survey shows that the majority of managers (93.5%) has higher education degree. With reference to the experience in management, two thirds of respondents also have been occupying such positions for more than 10 years.

Marketing activities are less present in SMEs activities from the county. Besides, more than half of companies do not have a marketing department and 60.5% of companies have been holding such a department for less than 5 years. Many of the SMEs from Vâlcea (more than two-thirds) do not perform marketing researches and more than half of them use direct observation (from the sales level) to assess the changes in the external environment, without performing a research activity.

In a large extent, firms in the sample have business plan and strategic plan, and the last one in most cases is developed by the company's manager.

With reference to the current level of their range of products/services, more than three quarters of respondents believe that this should be improved. Also, around three quarters of SMEs has implemented a quality management system of products/services. On the other hand, only one eighth of SMEs has research and development departments. Also, around 60% of the companies participate to fairs and exhibitions with own products/services.

Nearly three quarters of companies had difficulties in finding employees and a little over three-quarters of them believe that the main cause of the vacancies is the lack of skilled personnel. More than nine-tenths of companies organize personnel training, but half of the companies surveyed do so with their own people.

Export activity is carried out by around a tenth of the companies, and almost half of the exporting firms has a high share of exports in turnover (over 81%).

The main source of information about foreign market developments consist in publications of various institutions in the country (for two-thirds of exporting companies).

The study shows that SMEs from Vâlcea County, although badly affected by the austerity period they passed through, they proved some strength and flexibility. To become the engine of the economy, small and medium enterprises need a dynamic business environment, competitive and full of ideas.

Research could be deepening by increasing the number of issues pursued in each section. Also, extensive development could be achieved by inserting new sections, such as: Financing of business activity and Participation of the company to public procurements.

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Relation between monetary announcement and Phillips Curve? An empirical study from Malaysia

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Abstract. *Macro economist over the years have camped their argument on the tradeoff between inflation and unemployment on an economy. As the monetary announcement of an economy has an important influence on both inflation and unemployment, this paper reviews the existing literature to find out the relation between inflation and unemployment rate in Malaysia with special emphasis given on the monetary announcement over a period of 1980-2011. This research not only looks into the tradeoff between inflation and unemployment but also look into the impact of the monetary announcement in an economy. This research tries to look into the shape of the Phillips curve in Malaysian economy and how monetary announcement of Malaysia influence on the Phillips curve. This study can help the policy makers to come up with realistic policy to manage country's inflation and unemployment rate with the support by monetary policy.*

Keywords: Phillips curve, inflation, unemployment, monetary announcements.

JEL Classification: E1, E24, E62.

REL Classification: 8J, 8F, 8G.

1. Introduction

The tradeoff between inflation and unemployment rate is a few decades old controversy in macroeconomics and it persists in economics because policy makers are required to take appropriate decision to fulfill the macro objectives of economy. The famous research by (Phillips, 1958) on the negative relation between inflation and unemployment in the United Kingdom encouraged researchers to test this interesting tradeoff between these variants persist in different countries. (Solow, 1969) supported and reconfirmed that the negative relation between inflation and unemployment existed in the United Kingdom. Later, (Gordon, 1970) went further and found the possibility of quantitative support in the short run and long run.

(Lucas, 1978) argued that tradeoff between inflation and unemployment was due to the identification problem existed and stated that it is “econometric failure on grand scale”. They found the higher average values of inflation and argued that increased persistence of inflation is associated with a decline in the estimate of the long-run tradeoff between unemployment and inflation. (Friedman, 1977; Phelps, 1967) pointed out that the controversy about the illicit relation between inflation and unemployment are enlaced with monetary, fiscal and other factors that affect aggregate demand. It is true that all these factors are interdependent and therefore it has a special role in the growth of an economy. Thus, there exist two schools of thought about the relationship between inflation rate and unemployment. One says the relation is negative and other concludes it is positive. (King & Watson, 1994) supported the argument of positive relations between inflation and unemployment with the clear evidence of structural change in the behaviour of US inflation and unemployment rate.

(Marika Karanassou, 2005) stated that the slope of the long-run Phillips curve is related to inflation persistence and unemployment persistence in the aftermath of monetary shocks. There is a lack of evidence in the literature about the influence of monetary policy on the Phillips curve. Macroeconomics theory clearly says that the monetary policy can be used to effect changes in either inflation or unemployment. (Meade & Thornton, 2012) Phillips curve was not considered in US to the formulation of monetary policy. Even though this study is not exploited the influence of monetary policy on employment and inflation of US economy. However, there is no evidence showing its impact on the traditional Phillips curve.

Bank Negara Malaysia (BNM) has the goal of a low inflation rate (Roberts, 1993) and Malaysia operate monetary policy an explicit inflation target. (Munir, Mansur, & Furuoka, 2009) found that there is a substantial change in economic

growth by keeping a low level of inflation in Malaysia. It shows that Malaysia should tradeoff employment for keeping low or stable inflation in its economy. In this aspect, we can expect that traditional Phillips curve has a role in the Malaysian economy. The main objective of this research is looking into the influence of monetary policy on inflation and unemployment and also to define the shape of the Phillips curve in Malaysia. There is no study done to find out the influence of monetary policy on Phillips curve and a clear evidence of the existence of a gap in research about the influence of monetary policy on the Phillips curve.

2. Literature Review

Phillips pointed out a smooth tradeoff between inflation and unemployment rate (Fig-1) and that is opposed by other emeritus economics like Lucas and Sargent etc. Friedman and Phelps debated firmly that there is no or “long term” trade-off between inflation and employment. The price stickiness could cause the trade off in the short run but can move opposite direction because of the structural break (Ball, 1988).

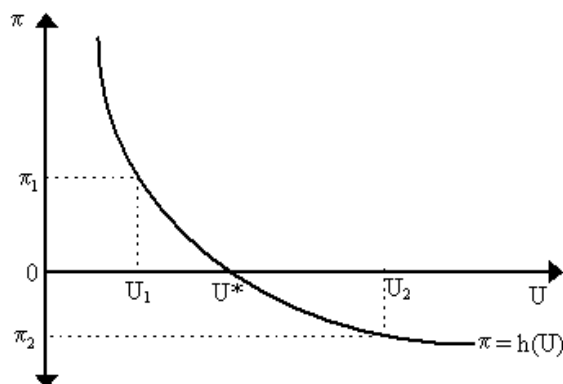


Figure 1. *Traditional Phillips curve*

(Ball, 1988) in his research noted that countries in Europe witnessed a larger increase in the natural rate of unemployment with larger decrease in inflation. In addition, in his other paper he linked these to monetary policy. He found that countries that implemented expansionary monetary policy experienced larger increases in natural rate unemployment. His subsequent research showed that fully credible disinflation could cause economic boom. However, there is inconsistency as he persists that disinflation cause booms in this model but in

reality it causes a recession. (Campbell, 1987) ascertained with support of US time series that the natural rate hypothesis is wrong. Mankiw states, *“The inflation-unemployment tradeoff is, at its heart, a statement about the effects of monetary policy. It is the claim that changes in monetary policy push these two variables in opposite directions.”* However, monetary policy causes a shift in unemployment and inflation. It is obvious that monetary changes or shocks affect unemployment and inflation. It is not proven in the literature that Malaysia has a traditional Phillips curve in both short run and long run as there are no major studies in this direction.

Even during the Asian financial crisis (Bhanthumnavin, 2002) found that tradeoff Phillips curve existed in Thailand. China witnessed trade off Phillips curve after the reformation (Scheibe, 2003). (Furuoka, 2007) found the causal relation between inflation and unemployment and it cointegrated in Malaysia. (Lean, 2007) explained that inflation and unemployment are cointegrated but their study has not given any information about the shape of the Phillips curve in Malaysia. The concluding remark of their study is that Phillips curve is alive and well in Malaysia. This study looks into the shape of the Phillips curve in Malaysia and how the monetary policy of Malaysia is influencing inflation and unemployment in Malaysia. This research will be given an idea for the policy makers when they take decision on monetary policy and its impact on inflation and unemployment.

3. Empirical Analysis

To examine the direct effect of monetary policy on the unemployment rate and inflation in Malaysia we used time series data over the period of 1980-2011 from IMF's International Monetary fund database and Bank Negara Malaysia's database. The inflation is measured as annual percentage; the unemployment is measured as a percentage of the labor force and base lending rate as a proxy for monetary policy. It is because changes in monetary policy have more impact on the base lending rate than the interest rate (Gamber & Hakes, 2005). In evaluating the fit of the models, three goodness-of-fit indices were used (GFI, CFI, RMSEA).

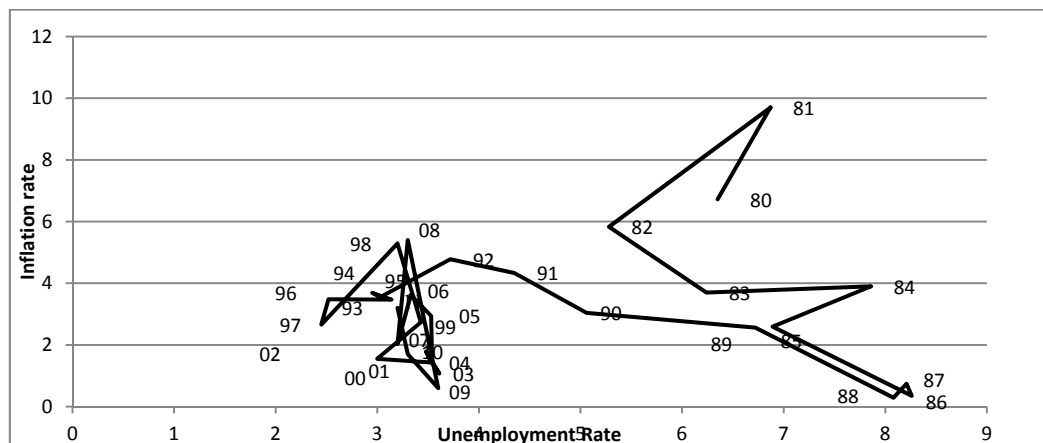


Figure 2. Long - run Phillips Curve Malaysia

The empirical result presented in this paper should be regarded as a first tentative in estimating the contemporaneous relationships between inflation and unemployment under more general conditions and without imposing any parameters of monetary policy. Figure-2 shows that the traditional consummate relationship between inflation and unemployment are established in the first period of observation. We can derive the short run Phillips curve during the period of 1980's. We can also observe that Malaysia has phenomena of the short run Phillips curve from 1987 to 1992. In 2000's the phenomena of short run Phillips curve are not deriving in the figure. During the period of 1996-98 the shape of the Phillips curve in Malaysia is a paradox to Phillips curve theory. This may be because the Malaysian economy faced drastic changes at that time of observation. But towards the end of the observation, the Malaysian economy is demonstrating the traditional theory of the Phillips curve.

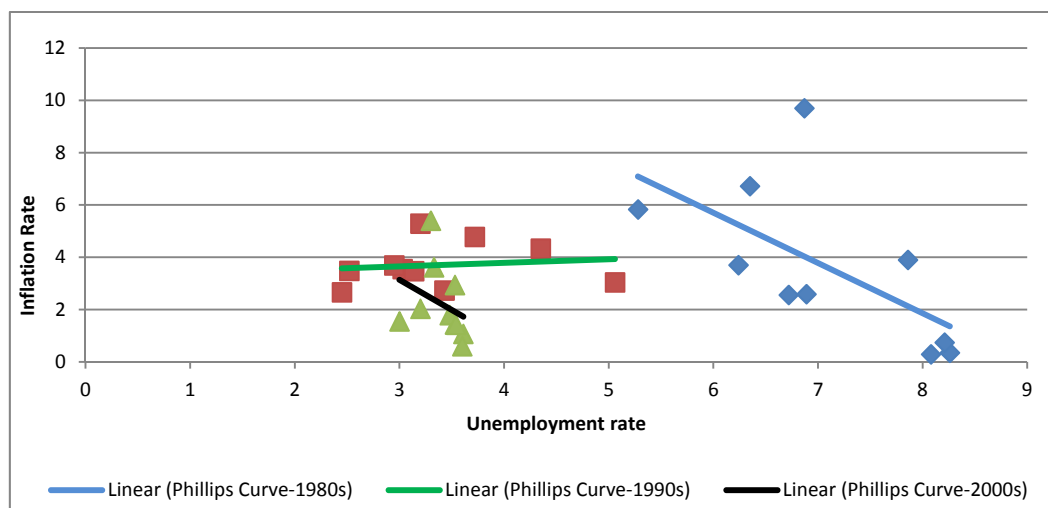


Figure 3. Long run Phillips curve

Figure-3 displays the short run Phillips curve presence in 1980's and 2000's. During 1990s', the Short run Phillips curve is parallel to the horizontal axis. It may be because during 1990's economy implemented more inflation targeted policy rather than employment targeted.

That shows that Phillips curve is very much relevant in the contemporary Malaysian economy in short runs of a period. But it is very difficult to obtain the long- run Phillips curve as the theory stated. It is now very interesting to know how monetary policy is affecting the Phillips curve or unemployment and inflation in Malaysia and Will monetary policy has more influence on unemployment or inflation. If monetary policy has more influence on employment, then policy makers can use monetary policy to create more employment. At the same time, if monetary policy has more influence on inflation as theory expect, then policy makers can stabilise the economy by using the monetary policy.

In this model regression of Granger causality or other regression will not be appropriate because we would like to know the influence of monetary policy in both inflation and unemployment in Malaysia. Structural equation models (SEMs), also known simultaneous equation models would be best fit to explain how monetary policy influencing both inflation and unemployment. The response variable in one regression equation in an SEM may seem as a predictor in some other equation; surely, variables in an SEM may influence one-another inversely, either directly or through other variables as intermediaries (Greene, 1993; Klein,

1950). These structural equations are meant to represent causal relationships among the variables in the model. Structural equation model is an extension of the regression model, used to test the fit of the correlation matrix against two or more causal models. But in the case of regression it is very difficult to find the influence of monetary policy on both inflation and unemployment. Therefore we can use structural equation model to find out the influence of monetary policy on these two variables.

To simplify the concept, path diagrams, structural equation in the form of a graph are used to determine the influence of monetary policy in both inflation and unemployment in Malaysia. (Blau, 1967) used path diagram in research to find out the occupational structure in America. There are number of social science researchers was utilised SEM in their research (Gartland, 2005; Hoepner, Kant, Scholtens, & Yu, 2012; Khan & Thorbecke, 1989; Stanley, Doucouliagos, & Jarrell, 2008).

Blau and Duncan's model is very similar to Klein's model

- Directly observable variables are enclosed in rectangular boxes.
- Unobservable variables are enclosed in circles (more generally, in ellipses); in this model, the only unobservable variables are the disturbances.
- Exogenous variables are represented by x's; endogenous variables by y's; and disturbances by ζ 's.
- Directed (i.e., single-headed) arrows represent structural parameters. The endogenous variables are distinguished from the exogenous variables by having directed arrows pointing towards them, while exogenous variables appear only at the tails of directed arrows.

The structural equations of the model may be read off the path diagram:

$$y_{1i} = \gamma_{10} + \gamma_{11}x_{1i} + \gamma_{12}x_{2i} + \zeta_{1i} \quad (2)$$

The variables in the model (2) have the following definitions:

y_{1i} = Monetary policy (the Base Lending rate has taken as a proxy for monetary policy (in year t))

x_{1i} = Inflation

x_{2i} = Unemployment rate

ζ_{1i} = Structural disturbances or errors in equations

Table 1. *Correlation Matrix*

Variable	1	2	3
Inflation	1		
Unemployment	.012 (.949)	1	
Monetary policy	.355* (.046)	.423* (.016)	1

a. $P < 0.05$. *. Correlation is significant at the 0.05 level (2-tailed).

Since three variables namely inflation, unemployment and monetary policy were identified as significant variables in this study, a correlation matrix was employed with these variables in a maximum-likelihood estimation procedure to test the fit of the hypothesized model. The correlation matrixes, as well as significance level were presented in Table-2. Inspection of correlation reveals that inflation and unemployment is not correlated each other as theory says and monetary policy has significantly correlated with unemployment and inflation.

In order to understand more the influence of monetary policy in unemployment and unemployment, the proposed path analysis was examined using the statistical package AMOS 20.

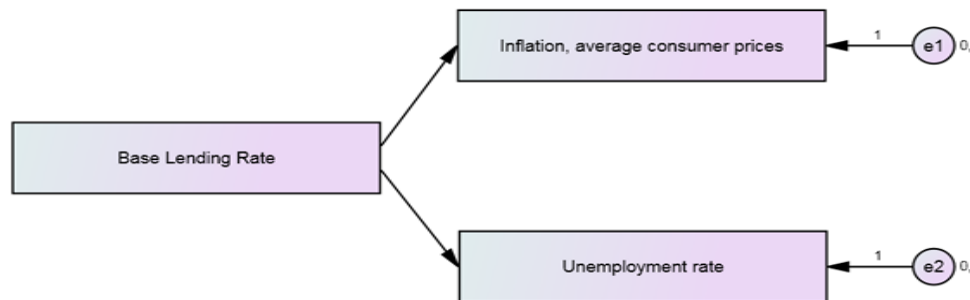


Figure 1. Basic stratification model

As recommended by (Loehlin, 2004; Thompson, 2004), a subset of these overall fit measures were examined: the chi-square, the normed fit index (NFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The Baseline comparisons indices, another set of goodness-of-fit statistics shown in Table-2, are used to support the fitness of the hypothesized model. (Hair, 2006) pointed that value of Normed Fit Index (NFI) and Comparative Fit Index (CFI) less than 0.9 are not usually associated with a model that fits well. Values of .9 or higher (some say .95 or higher) indicate good fit. In this case NFI and CFI values are , 0.97 and 1.00 respectively, are consistent in suggesting that the hypothesized model represented an adequate fit to the data.

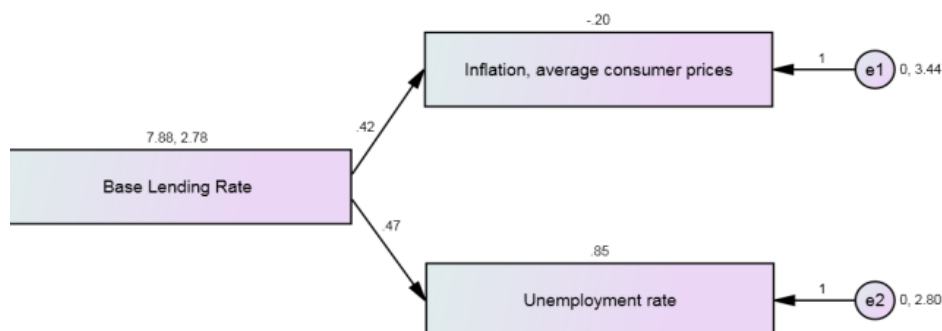
Table 2. Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.925	.549	1.016	1.193	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

The value of the root mean square error of the approximation (RMSEA), presented in Table 3, of 0.08 indicates a reasonable error of approximation implying that the model is accepts fit of the model (Steiger, 1980). Based on the above goodness-of-fit statistics, The Root Mean Square Error of Approximation (RMSEA) estimates lack of fit compared to the saturated model. RMSEA of .05 or less indicates good fit, and .08 or less adequate fit. LO 90 and HI 90 are the lower and upper ends of a 90% confidence interval for this estimate. (Browne MW 1993) stated that practical experience shows that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom.

Table 3. RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.452	.380
Independence model	.163	.000	.311	.113

**Figure 5. Basic Stratification Model****Table 4. Regression Weights: (Group number 1 - Default model)**

Variable			Estimate	S.E.	C.R.	P
UNEMPLY	←	MONETARY	.468	.180	2.598	.009*
INFLATION	←	MONETARY	.422	.200	2.112	.035*

parenthesis shows significant at the 0.05 level

When we examine the direct path in figure-5 from monetary policy to inflation is significantly influencing unemployment in Malaysia table -3 as well, we can observe that monetary policy has a good hold on both inflation and unemployment. When one percent changes in monetary policy lead to a 0.468 increase in unemployment and 0.422 increases in inflation as well. The p value

shows that both unemployment and inflation is significant at .05 per cent. Path analysis shows us that monetary policy has more comparative influence in the unemployment rate than inflation. This may be because economic policy makers would want to influence more on unemployment rather than inflation. Another policy suggestion that we can derive is that policy makers can influence more on employment by regulating or deregulating the monetary policy.

The path coefficient from monetary policy to the unemployment was 0.47, $p < .01$. Also, the path coefficient from monetary policy to the inflation was 0.42, $p < .05$. Thus, these results suggest that changes in monetary policy lead to changes in both inflation and unemployment rate in Malaysian in turn, these leads economy policy makers to stabilise the economy by adjusting monetary policy.

4. Conclusion

The trade-off between unemployment and inflation is an old age controversy, and we are trying to look at this controversy in Malaysian perspective by looking at the shape of the Phillips curve in Malaysia. This study also tries to find the influence of monetary policy on both inflation and unemployment. The SEM model used to find out the influence of monetary policy on inflation and unemployment in Malaysia. The analysis strongly confirms that there is an evidence of the short run Phillips curve in Malaysian economy when the data is separated into different segments. But there is no evidence of the long run Phillips curve in the Malaysian economy. This means that in long run unemployment cannot be kept constant as economic theory says, in case of the Malaysian economy. The path analysis gives us the influence of monetary policy in both unemployment and inflation in Malaysia. The analysis evidences that monetary policy is influenced both inflation and unemployment in Malaysia. But the influence of monetary policy affects unemployment more than inflation. This finding is questing the existing concept of monetary policy influence more on inflation than unemployment. Policy makers may be benefitted by targeting unemployment through monetary policy as the study shows its effect more on unemployment than on inflation in Malaysia. This is also points to the possibility of more studies in this area.

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Management priorities to increase labor force flexibility in the Romanian organizations

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Abstract. *The increase of flexibility for using the labor force in Romania's economy represents an economic policy priority at a macro and micro economic level. Romania is characterized by the existence of two labor markets: one in the urban area using the market economy requirements, and another one in the rural area, representing about 30% of the employed population of the country, where the legal provisions of the community acquis are found in a limited extent.*

The internal flexibility of using the labor force is analyzed through a series of indicators specific to the four fields of an organization: workplace and organization of work; work content and professional training; information and communication on the job level; flexible contractual relations of work.

The managerial priorities to increase the labor force flexibility is considering the four fields and may include a variety of activities related to: production management, Multi-qualification of workers, use of information technologies, job rotation, team work, continuous professional training of the employees, updating the job descriptions, expanding the practice of atypical employment contracts – fixed term work contracts, temporary work contracts, contracts for home employment, telework, etc.

Keywords: labor force flexibility, internal flexibility, production management, content of work, information and communication on the job level, atypical work contracts.

JEL Classification: O8.

REL Classification: 12E.

1. Promoting an economy with a high rate of employment – objective of the Europe 2020 strategy; management challenges for the Romanian organizations

After 23 years of political, economic and social transition, and 14 years after the beginning, in the year 2000, of the negotiations for the accession to the European Union - finalized in 2004, Romania succeeded to a considerable extent to meet the requirements of the community acquis on the establishment of the legal framework concerning the labor force – employment, professional training, work safety, competence development and of the professional careers, etc. Analyzing the practical reality on the use of the labor force in our country, compared to the community acquis requirements on the labor market, a number of violations that require appropriate measures at both macro and microeconomic level can be found, legally and managerially, leading to increased efficiency of the use of human resources.

Primarily, specific to our country is the existence of two labor markets, namely one urban and another one in the rural area; for the urban market one can speak of applying the legal requirements specific for the community acquis on labor force while on agriculture the economic regulations specific to the market economy are applied to a limited extent.

This reality becomes sizeable if mind that in 2011, of the total workforce of 9.138 thousands, in the fields of agriculture, forestry and fishery worked about 2.612 thousand people (28.58%) (NIS, 2012). At EU level, share of employment in agriculture is of approximately 5%; this level was reached after a long period of economic restructuring.

Although our country recorded a relatively low long-term unemployment (12 months and above), namely 7.4% in 2011, a relatively smaller percentage compared to the EU average (9.7%), explanation of this situation must also consider the labor migration to other countries, especially in the EU; by some estimates more than 3 million people. Under these circumstances, especially when economic growth already began to highlight certain shortcomings on qualified labor force necessary to the new industries, services, constructions, etc.

The situation of our economy also needs to be approached through the “Europe 2020” Strategy which states as a priority “promoting an economy with a high rate of employment, able to ensure social and territorial cohesion”; also “the increase to 75% of the employment rate of men and women aged between 20 and 60 years, including through a greater involvement of youth, older workers and low-skilled workers and through a better integration of the legal immigrants” (EUCO, 2010). A special role is played by the European Commission's initiative on “The agenda for new competences and jobs” targeting the modernizing of the labor markets, the increase of the autonomy of citizens through the development of their

competences throughout life in order to increase the labor market participation rate and an improvement in the correlation of demand and supply of the human resources, including through the professional manner.

In this context the recommendations of „Business Europe – The European Employers’ Confederation” should also be mentioned in order to improve and re-launch the EU labor market, especially on the “contractual arrangements that aim at increasing the number of jobs”.

2. Flexibility of using the labor force – priority requirement for the management of the Romanian organizations

Internal flexibility of using the labor force is in a direct dependence of the quality of management practiced in each organization – The existing organizational culture, methods and techniques of production and labor organization, the specific of the activities, the existent technology level, the proper use of the legal provisions of the Labor Code concerning the various opportunities for employment contracts, size of the organization, the relationship between managers and unions, respectively the representatives of the employees, etc.

In the EU countries there are regularly performed studies on the working conditions in the Member States, in particular by the European Foundation for the Improvement of Living and Working Conditions (European Foundation for the Improvement of Living and Working Conditions). To characterize the flexibility of using the labor force within each organization they use a number of indicators relating to the following areas:

- 1) workplace and work organization;
- 2) work content and professional training of workers;
- 3) information and communication at the workplace;
- 4) working time arrangements.

Labor force flexibility in terms of workplace, an organization of production and labor is conditioned by the Production Management practiced by various factors regarding: methods and techniques for organizing production and labor-production flow, job organization based on manufacturing cells or organization on homogeneous groups, etc.; the qualification level respectively the multi qualification of the workers; the usage of information technology notably on working using the computer or practicing telework; job rotation; practicing team work; the existence and size of the performance objectives set at different levels – workplace, work department, production and design chain link, etc.

In the light of the indicators related to labor content and professional training of the workers, the labor flexibility is dependent on both the level and complexity of activities performed by the workers in the positions they occupy and professional competences of their existing concerns for the ongoing training of employees. An important role in increasing the flexibility belongs to the learning process lifelong requested the inherent changes both in work content and status of the various professions as well as the emergence of new professions that require a high level of competences and qualifications.

The labor force flexibility in an organization is also conditioned by the degree of *information and communication at the workplaces level* on the organizational changes, in particular the organization of work, updating the job descriptions according to the new tasks, activities and responsibilities of those employees, informing the workers about the risks that arise both on the health at the occupied jobs as well as perspective of the existence of these jobs, etc.

The labor force flexibility indicators that take into consideration the *different working time arrangements take particular account of the flexibility of the contractual relations*. In the Romanian organizations, their managers opted on hiring employees predominantly for indefinite period employment contracts, full-time work; other arrangements, respectively the atypical employment contracts that can be used only if the managers are able to prove the existence of limiting situations as are prescribed by law, allow such contracts. Analyzing both the dynamics of individual employment contracts active between 2008-2013 and the structure of this contracts (tables no.1 and 2), we firstly find an absolute reduction in the total number of contracts, de la 6.054.865 in 2008 at 5.677.719 (November 2013), namely with 6.23%; is first explained by the reducing of average number of employees, from 5.046 thousands (in 2008) to 4.349 to (in 2011).

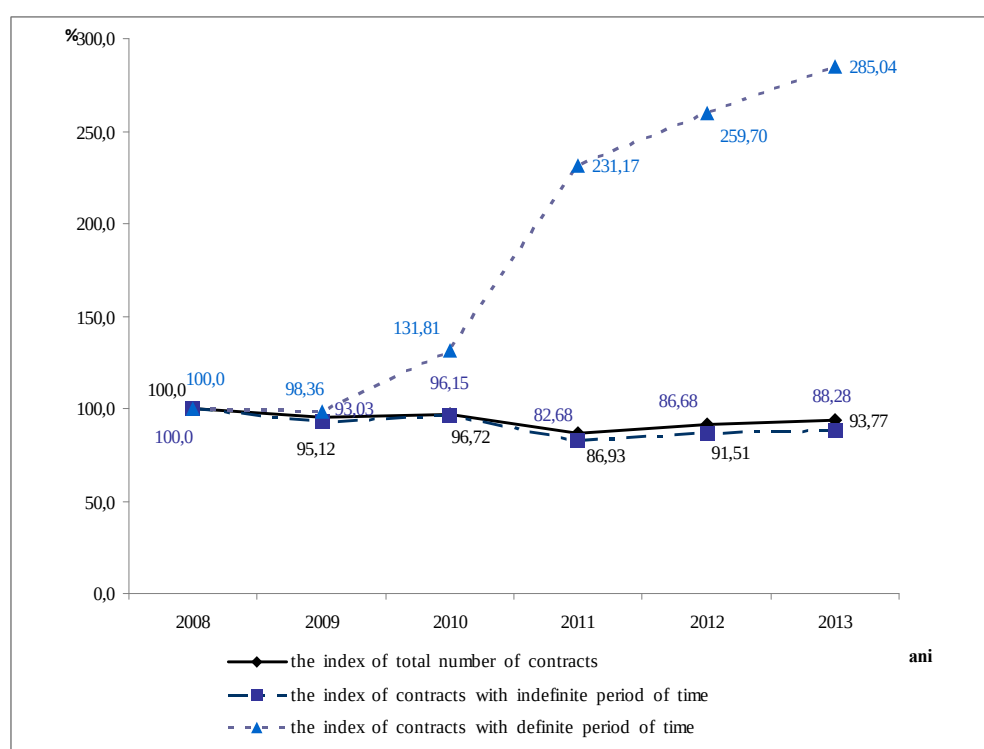
Table 1. *The number of active individual employment contracts*

Number of contracts \ Year	2008 (31 Dec.)	2009 (31 Dec.)	2010 (31 Dec.)	2011 (31 Dec.)	2012 (31 Dec.)	2013 (30 Nov.)
Total, of which	6.054.865	5.759.710	5.856.621	5.263.900	5.540.846	5.677.719
- indefinite period of time	5.885.946	5.593.549	5.633.960	4.873.401	5.102.151	5.196.231
- definite period of time	168.919	166.161	222.661	390.499	438.695	481.488

Source: Ministry of Labour, Family, Social Protection and Elderly, Labour Inspectorate, January 2014.

Table 2. *The structure of the number of active individual employment contracts*

Type of contract \ Year	2008 (31 Dec.)	2009 (31 Dec.)	2010 (31 Dec.)	2011 (31 Dec.)	2012 (31 Dec.)	2013 (30 Nov.)
Total, of which	100.00	100.00	100.00	100.00	100.00	100.00
- indefinite period of time	97.21	97.11	96.19	92.58	92.08	91.51
- definite period of time	2.79	2.89	3.81	7.42	7.92	8.49



Source: Indices calculated based on data in Tables 1 and 2.

Figure 1. *The evolution of the number of active individual employment contracts*

Important conclusions for the managers of the Romanian organizations also result in connection with the structure of the individual employment contracts; primarily we find the decisive share of the open-ended contracts, above 90% during 2008-2013. In practice, even if there has been an increase in the share of fixed-term contracts, from 2.79% in 2008 to 8.49% in November 2013, this situation is very modest in relation to the requirements of efficient use of the labor force, especially compared to the situation recorded in European countries – in 2005, on average for EU organizations, the fixed-term employment contracts account for

13.6% (Cazes and Nesporova, 2007). The low share of fixed-term contracts is explained, to a certain degree, through the restrictions provided by article 81 from the Labor Code (*Official Gazette*, 2011) on the conclusion of such contracts only in cases involving: replacement of an employee in case of suspension of the employment contract; the existence of seasonal activities; the occasional increase of the activity of the organization; other cases provided by law.

The still low share of the fixed-term employment contracts in the Romanian organizations is explained by the position of the trade unions, that within the negotiations on the line of the social dialogue insisted that this type of contract to represent the exception and therefore to ensure a certain stability to the employees beneficiaries of open-end contracts, and also the lack of concern from management units in order to properly identify activities, works, projects, etc., or limited periods, for which fixed-term employment contracts may be concluded. In terms of economic efficiency, an unreasonably large number of open-end contracts compared to the possibility of increasing the number of fixed term contracts, leads to overstaffed employees, reduced productivity, increasing of the employment costs etc. However, a number of business organizations, particularly in construction, agriculture, trade, etc., where the seasonal nature of some activities naturally intervenes and may result in an annual workload expressed by total workmanship man / hours, for which fixed-term contracts are concluded (Lefter et al., 2013).

Another possibility for increasing the flexibility of labor force use in the Romanian organizations is represented by *the temporary employment contract*. In some situations requests from organizations occur for the provision of temporary activities. For these activities, the managers of these organizations may require a company that has status authorized by the Ministry of Labor as temporary employment agent, to provide some temporary staff. End user organization concludes a contract with the temporary employment agent for providing certain employees (lease-contract) and in turn the temporary employment agent will conclude an individual work agreement with its temporary employee. In conclusion, the worker providing work at the user organization will not affect the average number of employees of this organization or at the unit level productivity.

Analyzing the data in Tables 3 and 4 and following the evolution of the number of temporary contracts in Figure 2, shows that in our country during 2008-2013, the situation is rather modest.

Table 3. *The number of active temporary employment contracts*

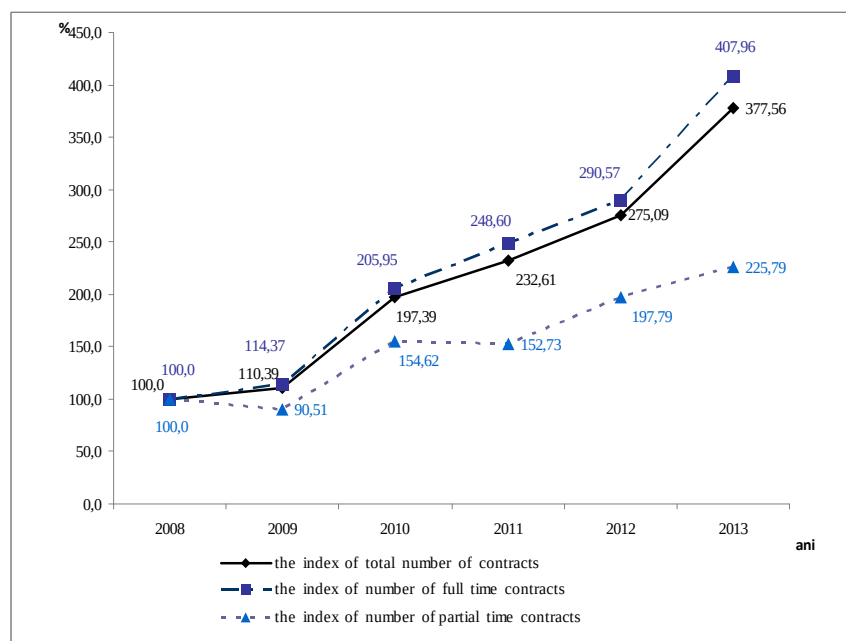
Year Number of contracts	2008 (31 Dec.)	2009 (31 Dec.)	2010 (31 Dec.)	2011 (31 Dec.)	2012 (31 Dec.)	2013 (30 Nov.)
Total, of which	7.899	8.720	15.592	18.374	21.730	29.824
- full time	6.581	7.527	13.554	16.361	19.123	26.848
- partial time	1.318	1.193	2.038	2.013	2.607	2.976

Source: Ministry of Labour, Family, Social Protection and Elderly, Labour Inspectorate, January 2014.

Table 4. *The structure of the number of active temporary employment contracts*

Year Type of contract	2008 (31 Dec.)	2009 (31 Dec.)	2010 (31 Dec.)	2011 (31 Dec.)	2012 (31 Dec.)	2013 (30 Nov.)
Total, of which	100.00	100.00	100.00	100.00	100.00	100.00
- full time	83.31	86.31	86.92	89.04	88.00	90.02
- partial time	16.69	13.69	13.08	10.96	12.00	9.98

—%



Source: Indices calculated based on data in Tables 3 and 4.

Figure 2. *The evolution of the number of active temporary employment contracts*

Although there is a significant dynamic of both the total number of active temporary contracts, namely 377.56% in 2013 as against 2008, as well as the number of full-time contracts (407.96%) respectively part-time (225.79%), still, this type of employment contracts holds a very small share, compared to the situation in the EU; in 2013, the 29.824 the active temporary labor contract in our country represented 0.52% as against 567.7719, the total number of individual labor contracts. When comparing with the fact that the EU countries between 2 and 10% of the working population benefiting from temporary contracts, results that there is a significant gap in our country on the effectiveness of the increase of labor force flexibility using this type of contract.

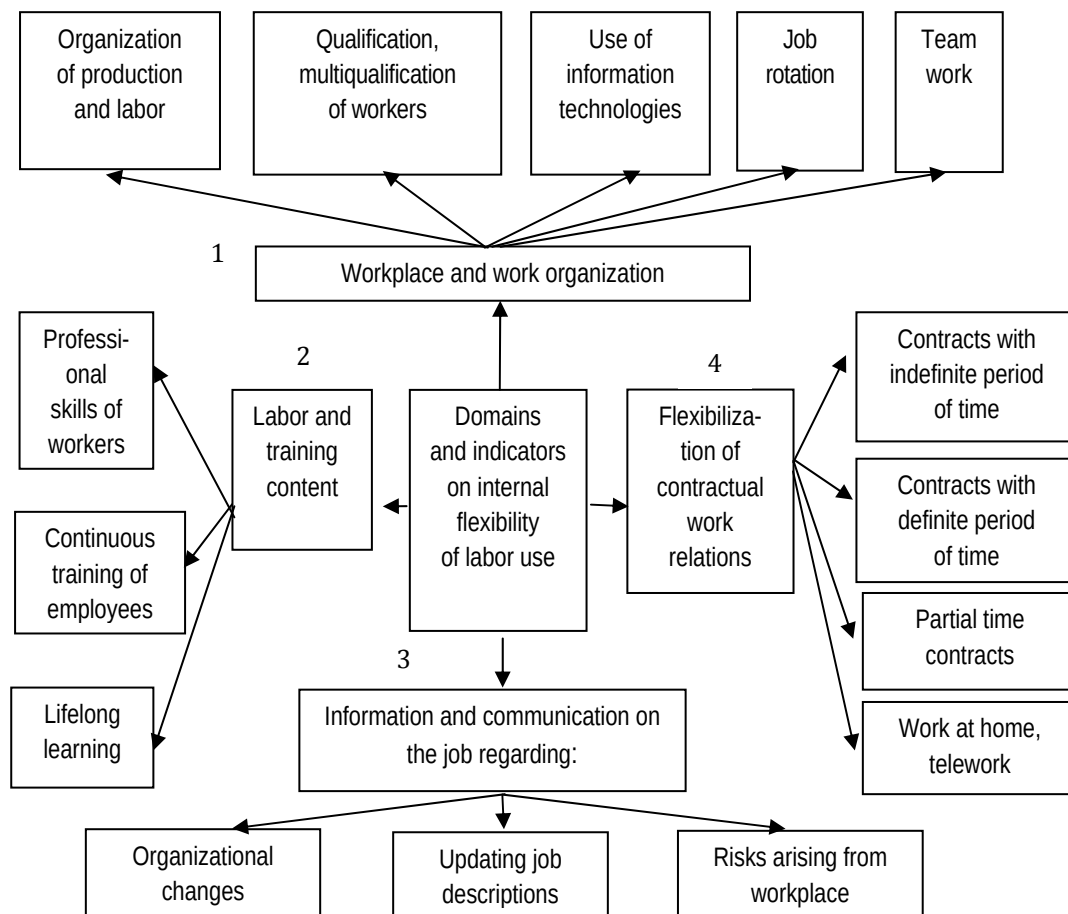


Figure 3. Domains and indicators on the internal flexibility of labor use

Within the different managerial opportunities to increase the flexibility of using the labor force in Romanian organizations also enrolls other atypical work contracts such as: contract for home employment and telework; the “on call” work contract; the “job-sharing” contract, etc. (European Institute of Romania, 2010). Such contracts, although with certain managerial advantages, with obvious consequences on the plan of the competitiveness of organizations, are very little known and used in practice in our country; therefore at the level of Labor Inspection from the Ministry of Labor, Family Social Protection and Elderly Persons are not reported and tracked separately.

In summary, the management of an organization may act to increase the flexibility of labor use in various ways that are specific to the four areas, as shown in Figure 3.

3. Conclusions

The relatively short period from Romania's integration in the EU is characterized by great efforts for restructuring the legal framework in our country in the field of labor force, so as to ensure compliance with the community acquis in this field. The adoption of Law no. 40/2011 for amending and completing Law no. 53/2003 – The Labor code enabled the managers of the organizations Romanian to benefit from the legal framework to increase the flexibility of the use of labor force and on this basis to be able to improve the effectiveness at the microeconomic level with direct influence of the macroeconomic front. But by analyzing the four indicators characterizing the internal flexibility of the work force in an organization, shows that there are still many opportunities to increase the effectiveness of using the human resources; This situation calls for the need of increased concerns from the managers of various organizations, and especially increase of the professional competence of the personnel in the human resources department. However, it requires further improvement of the legal framework from our country on labor force so as to provide the extended use of atypical work contracts and especially avoid the situation of considering as exception the fixed-term employment contracts.

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Behavioral finance: new research trends, socionomics and investor emotions

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Abstract. *The paper presents a critique of standard investment analysis, fundamental and technical, and develops an alternative more comprehensive approach that should include some of the tenets of behavioral finance. In the pursuit of understanding the behavior of the market player, the basic argument relies on the supposition that the risk appetite increases exactly at the worst moment - when the capacity to assume additional risk decreases significantly. People view a sample randomly drawn from a population as highly representative and quasi similar to the population in all its essential characteristics. They expect any two samples drawn from a particular population to be more similar to one another and to the population than is statistically justifiable. This behavior is different from the tenets of classic finance theory. The paper aims at demonstrating that investor psychological biases lead to investment performance to tilt to the mean in the long run and by following the trend, the financial market population does not enjoy significant sustainable benefits. As a reflection of the behavioral biases and influences, the statistical demonstration supports the conclusion that markets do not random walk.*

Keywords: psychology, biases, efficiency, individual investment.

JEL Classification: 5F, 5G, 5K, 7J, 7K, 7L, 10B, 10F.

REL Classification: G11, G12, G14.

Introduction

Behavioral finance does not eliminate but complements the standard evaluations approaches - fundamental, technical and markets analysis. It combines the findings of all valuation procedures with the investigation of social, psychological emotional aspects of the market, and relaxes the strict requirement of convergence between price and value. Since markets are always about high financial and social stakes, it is no wonder that most of the time the subjective emotions dominate the objective and logical approach.

Behavioral analysis considers the elements of human perception and evaluation of outside situation and events, and most importantly, the emotions associated, both *ex ante* and *ex post* with any financial decision. This new field of modern finance refers to neuroscience debate and assertion that the motivations, emotions, and feelings are indispensable to any human decision, including the financial ones; emotions are essential to any decision and course of action.

The investors interpret market data and events at two cognitive levels: the intellectual level of ordination, process and analysis of real factors (economic data), and the logical and rational level of understanding what this objective identifiable factors will influence the perception of the other players on the market. The information has investment value when is correlated with professional knowledge (human intellect) and interpersonal dynamics of market players (their emotions and sentiments). Due to uncertainty and continuous change in the game of the market, there is a strong interdependence between personal experiences (autobiographic memory) and rational expectations of the investors about the future, since their personal experiences influence the way they interpret and select available data.

Practically, behavioral finance complements but not replaces technical and fundamental analysis by the systematic analysis of the fundamentals of the market prices as a result of the correlation between investor experience and expectations and the market momentum. Slow changes in the market sentiment are not emotionally contagious, but they insinuate slowly in a market trend. Sudden moves, on the other side, are attributed to new strong evidence presented and disseminated by the market; these do not have a lasting effect, once the new resistance or support floor was established. In general, investors tend to accept with relative ease the market momentum that is imposed by the majority rather than adopt a contrarian investment strategy, since dissatisfaction of a negative result, after a contrarian decision, weighs significantly higher than the eventual satisfaction coming from a contrarian decision. Practically, the rational reasoning guides investor behavior based on the network of commercial interests and economic compromises (as unintentional consequences price formation auctions

of the market participants) and maintenance of a stable emotional status quo, lack of internal and external contradictions (emotional dissonance) that can sanction the intellect of the investor to form and implement an investment tactic that is feasible, easy to understand, amend and manage within the risk boundaries that are generally accepted.

Database for the paper

The sources of this data include Stock Market Confidence Indexes –as linked from Yale School of Management International Center for Finance as directed by the 2013 Nobel Prize in Economics Dr. Robert Shiller – the Investor Behavior Project. Additionally, S&P/Case-Shiller Home Price Indices is a key source of data.

Another, significant input of data is relatively easily downloadable from Shiller, R., U.S. Stock Price Data, Annual, with consumption, both short and long rates, and present value calculations. (<http://aida.wss.yale.edu/~shiller/data.htm>)

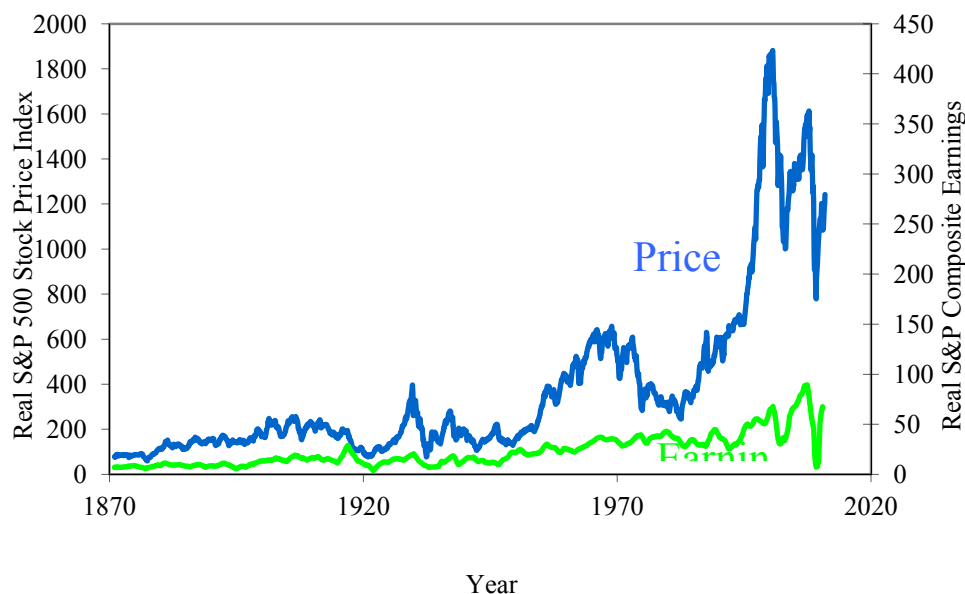
Nobel's inter-disciplinary connections

The 2013 Nobel has forced us further in the inter-disciplinary path where fundamentalists, statisticians, psychologists, physicists must work hand in hand to find new universal laws which can select. Somehow my inter-disciplinary mind registered Eugene faster than Fama. After all, Eugene Stanley, the father of econo-physics, could also get a Nobel. If psychologists could get the biggest award for economics, a physicist could have been there, too. But then the surprise became bigger, not because it was Fama not Stanley, but because Robert Shiller shared the award. When behavioral finance got the Nobel for economics in 2005, the Economist magazine carried an article pointing out how a new theory had junked 200-year old classical economics.

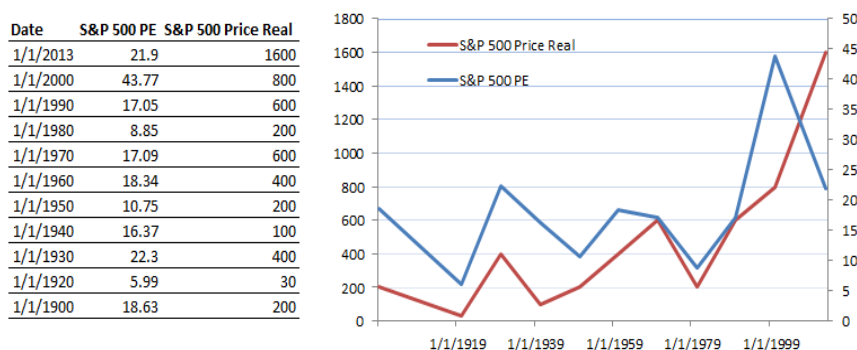
It was not just media, but even psychologists who were bent on burying classical economics. Efficient market hypothesis was presumed dead. It was considered deficient. But over the years, defending the underdog changed to understanding the new theories and then finally even questioning them (Shiller's exuberance, end of behavioral finance). It's a fight between perception and reality at a certain point of time, which of course is dynamic, leading to new perceptions and new realities at new points in time. Now that Fama has been acknowledged yet again, his tough stand against behavioral finance as stories of anomalies can be seen in milder light. After all, standing there with Shiller would definitely make him believe "even together we don't know all the truth". The blind men and the elephant metaphor remains a strong theme. 'My elephant is efficient while yours is inefficient' has been overruled by the Nobel committee which believes that the elephant is both efficient and inefficient sometimes.

On one side Shiller's exuberance is quite clear from the illustration above, how fundamental earnings diverge from real prices. But on the other side a two scale look (illustration below) shows some similarity in growth and decay seasonality among the two values. The seasonality aspect is not discussed in Shiller's work. The failure of behavioral finance to take it from the fundamentalists can be viewed as a victory of sorts, but it's still an illusion. The Nobel Prize bashers like Taleb also won't enjoy this as their randomness theories get weaker by the day. The committee needed Lars Peter Hansen to balance. What did Hansen do? Hansen says that both efficient and inefficient schools could be understood better with more testing as the economic system is not static, it's a dynamic system with multiple moments.

Is this not a step ahead toward assuming markets as natural systems? Are the laureates not struggling to understand divergence: why are markets not predictable in the short term and why are they predictable in the long term?



Source: Robert Shiller's plot of the S&P Composite Real Price Index, Earnings, Dividends, and Interest Rates, from *Irrational Exuberance*, 2nd edition, 2005.



Source: S&P Composite Real Price-Earnings Ratio and Interest Rates using data from irrationalexuberance.com/shiller_downloads/ie_data.xls

Today's volatile markets systematically complicated the decision making process, especially on the money management dilemmas. The stress hormones, adrenaline and cortisone, although highly efficient defense mechanism from an evolutionary perspective, can severely impair our ability to make clear-head decisions in the daily fragility and volatility of the stock market.

When we, as investors, are nervous and stressed, our ability to think clear diminishes and we become more pessimistic, lose our ability to think clearly and concisely, and become more impatient. Increased level of stress, in line with financial, professional and personal high stakes involved in our investment decisions, lead to biased information-processing mistakes, like overtrading, overconfidence or illusion of control. Our behavior biases and tendencies can harm the investment performance of our portfolio. We feel contented by the illusion of action. Subjected to stress, our brain would rather favor action than inaction, thinking and planning. Rational analysis mixes with up with our gut reaction and prejudices and we often forget that there are no short cuts to the places really worth going. Misses Market has no indulgence on our urge to make quick money.

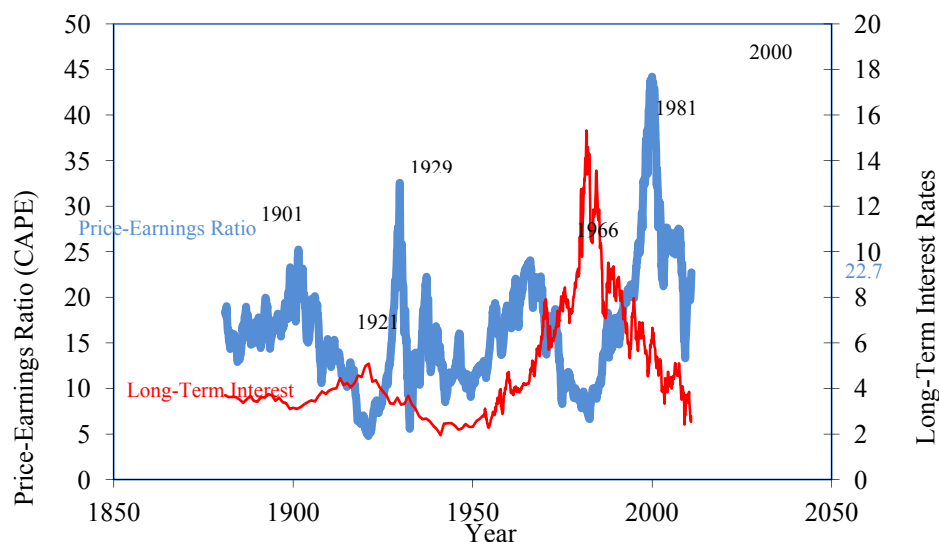
In the article „Emotional Intelligence and Investor Behavior” of John Ameriks, Tanja Wranik and Peter Salovey conducted a survey on private held portfolios. Investment performance correlates positively with high Emotional Intelligence (recognition and usage of one's emotions in a productive manner) scores. However, the main presupposition of intelligent investing is that a constant supply of counterparties trade in the market, probably less emotionally and financial intelligent. Common sense would relate investor emotional intelligence with a better ability for decision making, and consequently a more systematic and disciplined approach on managing financial affairs. A person with high emotional intelligence, is by definition, an individual that is able to identify, comprehend, and regulates her emotions in decision making and problem solving. Personality and emotional features of an individual have both destructive and destructive effects in

the financial decision making process. Investment decisions are often constrained by time pressure, social rules and regulations, and the continuous change and uncertainty of the market place. As such, monetary and financial decisions are significantly influenced by psychological factors.

The topics presented make reference to ideas and research of the great savants of modern finance. They range from Kahneman and Tversky (asymmetric predisposition of individuals response to losses and gains), Shefrin, Statman, Barber, Odean (selling winning investments too early and keeping the losing ones too much), Statman (theory of regret), Gilovich, Griffin, Kahneman (cognitive heuristics and biases) and others. One critical assumption is to consider the return distribution as normal or lognormal. In a normal distribution, return distribution intervals have a constant measure, in a lognormal distribution, the intervals value depends on the relative value of stock price. If stock price variations are independent, the return distribution is normal, and if log differences are independent and have a finite variance, the price distribution is lognormal. An efficient, fair market should preclude any investor to infer immediate evolution based on past evolution (Bodie et al., p. 342).

Robert Shiller's Paper on '*The Volatility of Stock markets Prices*' published in 1987 uses dividend data and real interest rates to seek evidence that true investment value changes through time sufficiently to justify the price changes. His paper concluded that most of the volatility of the stock market prices appears unexplained.

Shiller volatility or fluctuations prove that behavior of markets is not normal. Non normal distribution series is a widely followed proof of inefficiency in prices:



The mean reversion theory suggests that prices and returns eventually move back towards the mean or average. This mean or average can be the historical average of the price or return or another relevant average such as the growth in the economy or the average return of an industry.

This theory has led to many investing strategies involving the purchase or sale of stocks or other securities whose recent performance has greatly differed from their historical averages. However, a change in returns could be a sign that the company no longer has the same prospects it once did, in which case it is less likely that mean reversion will occur. Percent returns and prices are not the only measures seen as mean reverting; interest rates or even the price-earnings ratio of a company can be subject to this phenomenon.

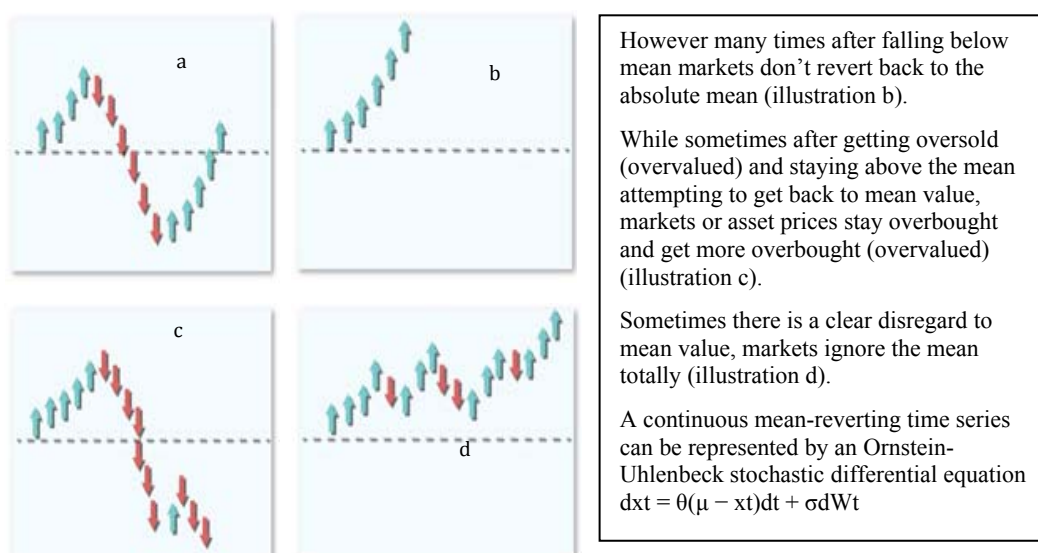


Figure 1. How markets pressure to mean reversion

Ideal mean reversion in illustration 'a' is how markets should express mean reversion. The overbought (overvalued) should push back to an absolute mean and vice versa). Where θ is the rate of reversion to the mean, μ is the mean value of the process, σ is the variance of the process and W_t is a Wiener Process or Brownian Motion. In a discrete setting the equation states that the change of the price series in the next time period is proportional to the difference between the mean price and the current price, with the addition of Gaussian noise. One critical assumption is to consider the return distribution as normal or lognormal. In a

normal distribution, return distribution intervals have a constant measure, in a lognormal distribution, the intervals value depends on the relative value of stock price. If stock price variations are independent, the return distribution is normal, and if log differences are independent and have a finite variance, the price distribution is lognormal.

An efficient, fair market should preclude any investor to infer immediate evolution based on past evolution (Bodie et al., p. 342). The local market research introduced also by the paper tests the random walk hypothesis to see if markets move at random and investors do not express any behavioral biases. To test daily return distribution and independence, a regression equation is introduced:

$$\ln(I_t) = \mu + \rho \ln(I_{t-1}) + \varepsilon_t$$

Where:

I_t is the index value (the most representative, BET Index) in day t and

ε_t is the residual. Next, to test the linear dependence, paper introduces the regression:

$$\varepsilon_t = \phi_0 + \phi_1 \varepsilon_{t-1}$$

If ϕ_1 proves to have statistical significance than we can conclude with the degree of confidence that the evolution is linear dependent, the market does not follow a random walk. Then, the nonlinear dependence is tested by GARCH models

ARCH general model (GARCH (p,q)):

$$r_t = \beta_0 + \beta L(r_t) + \varepsilon_t$$

$$\varepsilon_t \approx N(0, h_t)$$

$$h_t = \alpha_0 + \alpha(L)\varepsilon_t^2 + \gamma(L)h_t$$

Where:

r_t is an ARMA process (p',q')⁽¹⁾ (or AR(p') or MA(q'));

h_t is an ARCH(p) process and GARCH(q).

The anticipatory behavior of most investors, who would rather take into account the market developments rather than the financial and economic performance of a company, is predominant. We were excited by the idea, first introduced by the paper of Stancu and Stancu (2013), "Rationality versus Irrationality on the Romanian Capital Market", where the authors contend that: *"The shares of financial services companies confirm the second case, that of irrational, subjective behavior, not only at the level of the individual investor*

but also at the level of the community of stock exchange operators. The shares are traded mostly for short-term gains purpose. Their stock prices reflect investor expectations of the stock market development and not the issuer's financial performance. As a consequence, investors have the priori belief that these performances are greater than they are in reality. With that in mind, their concern is purely speculative". We have chosen to test BET and BETC as an interesting indicator of the investor over confidence in their prediction power.

The author's conclusion on real economy issuers vs. nominal economy companies: *"The share of successful manufacturing companies confirms the rational economic behavior, consistent with fundamental financial analysis. This conclusion is reinforced by the fact that these companies have evidently stable numbers of trade and significant volumes of sales on the stock market. Moreover, the financial results are obtained based on tangible products sales, which gives confidence in their stability. This is the result of long-term investments in their assets. Other companies in the manufacturing industry, characterized by large fluctuations in turnover and lower trading volumes on the stock exchange, reject the assumption of rational economic behavior. The investors sanction the instability of these companies financial activity and their volatility of the stock price volatility".* This academic path is interesting and a prime on behavioral finance literature: Not only personal and individual circumstances or market and contextual influence converge to an investment decision; a third factor can modify the investor perception, i.e., what type of company is the focus of investment analysis. Different sectors have different life cycles, but most important, sectors swap places in investor's scope from great interest (like) to complete disregard (dislike). These new dimensions add an informative angle to investment and behavioral portfolio management. For the locally available index BET⁽²⁾.

With the following specifications: r_t is AR (1), h_t is ARCH (1), GARCH (1) with asymmetry factor for lag 1, the result is TGARCH (1, 1, 1):

Dependent Variable: D_L_BET
 Method: ML - ARCH (Marquardt) - Generalized error distribution (GED)
 Sample (adjusted): 3 2721
 Included observations: 2719 after adjustments
 Convergence achieved after 17 iterations
 Variance backcast: ON
 $GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-1)^2*(RESID(-1)<0)$
 $+ C(6)*GARCH(-1)$

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000481	0.000191	2.520458	0.0117
D_L_BET(-1)	0.194777	0.019558	9.958822	0.0000
Variance Equation				
C	2.69E-05	3.67E-06	7.312937	0.0000
RESID(-1)^2	0.316145	0.039609	7.981630	0.0000
RESID(-1)^2*(RESID(-1)<0)	0.092534	0.057950	1.596802	0.1103
GARCH(-1)	0.557362	0.036212	15.39155	0.0000
GED PARAMETER	1.193076	0.033061	36.08695	0.0000
R-squared	0.027324	Mean dependent var		0.000142
Adjusted R-squared	0.025172	S.D. dependent var		0.015930
S.E. of regression	0.015728	Akaike info criterion		-5.908766
Sum squared resid	0.670881	Schwarz criterion		-5.893556
Log likelihood	8039.967	F-statistic		12.69742
Durbin-Watson stat	2.061150	Prob(F-statistic)		0.000000

This regression is statistically significant, so we can conclude that a significant nonlinear dependence exists between daily returns on that specific index, BET. We can confidently assume that index pattern evolution does not follow a random walk. The local market research introduced also by the paper tests the random walk hypothesis to see if markets move at random and investors do not express any behavioral biases. We can infer that there is linear dependence between daily returns, and the index series of BET does not follow a random walk pattern. Other factors could influence this evolution, and they are persistent and consistent. For a second index, more comprehensive/composite, BET C:

BETC⁽³⁾

Dependent Variable: D_L_BETC

Method: ML - ARCH (Marquardt) - Generalized error distribution (GED)

Sample (adjusted): 3 2721,

Included observations: 2719 after adjustments

Convergence achieved after 14 iterations

Variance backcast: ON

GED parameter fixed at 1.5

$$\text{GARCH} = C(3) + C(4)*\text{RESID}(-1)^2 + C(5)*\text{RESID}(-1)^2*(\text{RESID}(-1)<0) \\ + C(6)*\text{GARCH}(-1)$$

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000521	0.000217	2.400159	0.0164
D_L_BETC(-1)	0.200854	0.020807	9.653185	0.0000

Variance Equation

C	2.86E-05	2.67E-06	10.68003	0.0000
RESID(-1)^2	0.308604	0.028024	11.01231	0.0000
RESID(-1)^2*(RESID(-1)<0)	0.090202	0.043393	2.078745	0.0376
GARCH(-1)	0.537597	0.027784	19.34889	0.0000

R-squared	0.026846	Mean dependent var	0.000142
Adjusted R-squared	0.025053	S.D. dependent var	0.015930
S.E. of regression	0.015729	Akaike info criterion	-5.891979
Sum squared resid	0.671210	Schwarz criterion	-5.878942
Log likelihood	8016.145	F-statistic	14.96863
Durbin-Watson stat	2.073197	Prob(F-statistic)	0.000000

For this index also we can construe that this regression is statistically significant, so we can conclude that a significant nonlinear dependence exists between daily returns on that specific index, BETC. We can confidently assume that index pattern evolution does not follow a random walk. We can infer that there is linear dependence between daily returns, and the index series of BETC does not follow a random walk pattern. Other factors could influence this evolution, and they are persistent and consistent. For this nonlinear dependence, the model specifications were: r_t is AR (1), h_t is ARCH (1), GARCH (1) with asymmetry factor for lag 1, the result is 1, 1, 1). We can confidently assume that BETC index pattern evolution does not follow a random walk.

Conclusions

Research in behavioral finance has important practical and academic applications. The research can help guide investment portfolio allocation decisions, both by helping the understanding the kinds of errors that investors tend to make in managing their portfolios, and also by allowing us to understand better how to allocate assets and locate profit opportunities for investment managers.

Understanding the psychological foundation of human behavior in financial markets facilitates the formulation of investment policy statements for individual investors. Methods that originate in psychology are used as research tools, along with traditional finance research methods. Over these years, the academic and practitioners world of finance have seen the blossoming of behavioral finance into a significant body of knowledge. The combination of theoretical and empirical work has allowed us to see the relevance of the basic psychological theories to many financial phenomena. The newly developed body of knowledge is an important addition to the theory and practice of modern finance. People tend to discount the eventual implications of low probability- high negative impact events, but these events, due to their apparent low probability, seem to happen less often than anticipated. The most expected outcome of these possible yet less probable events can have, however, disastrous effects on the prospect value of investor portfolio. High emotional impact events, although rare, have a major, indelible impact on the emotional registry of a person. Any subsequent decision is affected by historical record of successes and failures. In general, investor that succeeds and survives on the long term, makes small gains systematically (or wins more and more times than they lose). Their investment success is not a simple luck of result of a continuous stream of rational and correct material decisions but of a disciplined and focused approach, prime access to information and ability to assemble on time and correctly the available data, coupled with the ability for innovation and adaptation to the continuous change and challenge of the market game. Investment managers have to prove their repeatable professional ability and sustainable value-adding capability on a continuous basis to their employers, employees, and investment public. Although the business of managing investment assets is much more complicated, competitive, rewarding and challenging than ever, and investors are increasingly sophisticated, their emotional attributes remain as simple as always - fear of losses and desire to make money. Mental cognitive errors are frequently caused by heuristic simplifications - logical shortcuts by which decision makers use simple rules to solve complex problems. When this approach is used inappropriately for complex problems solving, investors' biases could lead to systematic mental mistakes. The paper advances the idea that the investor psychological biases lead to investment performance to tilt to the mean in the long run and by following the trend, the financial market population do not enjoy significant sustainable benefits. As a reflection of the behavioral biases and influences, the statistical demonstration supports the conclusion that markets do not random walk.

The article reviews some psychological concepts relevant and used in the study, in an interdisciplinary effort of understanding the correlation or causality between

psychology and finance. The paper aims at demonstrating whether investor psychological biases lead to investment performance to tilt to the mean in the long run. As a reflection of the behavioral biases and influences, the statistical demonstration supports the conclusion that markets do not random walk. By following the trend, the financial market populations do not enjoy significant sustainable benefits. In the research reported here investigated the market pattern zigzag to see any predilections or biases or a random walk. Analyzing the data for this study leads to the interesting conclusion that individual psychological biases and differences should not be confounded with noise within econometric models but rather manifest a solid influential role on the dependent variable – investment outcome. Data base source for the article shows that psychological characteristics have salient relationships with various aspects of investment decision making process making and the transactional activity of the individual investor.

The statistical interrogation describes the sampling methodology, the frequency of data and the empirical methodology that lead to analysis of the results and concluding remarks. The study provides details on raw statistical test scores, regression results and analysis. In this study, I evaluate the association between investors' behavior and her portfolio results. The findings suggest that psychological biases can have an impact on risk return optimization, asset allocation on investment portfolios and finally on investment outcome. The sources of investor biases that lead to investor finance errors the investment management industry can apply the data for the development of products and services (automated pilot investing) that may help save investors from sabotaging their financial standing and future prospects.

Also, new behavioral portfolio construction methods should combine evidently classic finance math with rigorously quantified psychological metrics to improve models for operators use in giving financial advice and create investor portfolios that enhance investors chances for reaching their life time financial goals.

The future research

Students of Behavioral Finance still have much to research on influence of psychological profile dissimilarities between individuals and how these dissimilarities manifest in real financial investment decision and behavior. Personality and other individual circumstances and differences systematically influence investment decisions.

Notes

- (1) General format of an AR process with a finite number of p variables contribute to the current level of y variable: $y_t = a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_p y_{t-p} + \varepsilon_t$, where a_i are the coefficients to be estimated and ε represents the random residual in a classical regression equation. $\varepsilon_t = y_t(1 - a_1 L^1 + a_2 L^2 + \dots + a_p L^p)$. L^i is a lag operator that for the value of the variable for the period and for the current period. The MA process of a q ranking can be arranged as follows: $y_t = \varepsilon_t - \sum_{i=1}^q b_i \varepsilon_{t-i}$ and also can be expressed based on time lag: *ARMA process*: $y_t(1 - b_1 L^1 + b_2 L^2 + \dots + b_q L^q) = \varepsilon_t(1 - a_1 L^1 + a_2 L^2 + \dots + a_p L^p)$.
- (2) BET index public data: Apr. 1998 – Jan. 2012.
- (3) BET index public data: Apr. 1998 – Jan. 2012.

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