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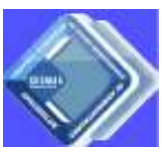

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A PRACTICAL APPROACH TO MODEL BANKING RISKS USING LOSS DISTRIBUTION APPROACH (LDA) IN BASEL II FRAMEWORK

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Abstract:
In Basel II Capital Accord, the Advanced Measurement Approaches (AMA) is stated as one of the pillar stone methods for calculating corporate risk reserves. One of the common yet cumbersome methods is the one known as loss distribution approach (cf. [Chernobai A S, Rachev S T and Fabozzi F J, (2007)]. In this article, we present an easy to implement scheme through electronic means and discuss some of the mathematical problems we encountered in the process together with proposed solution methods and further sought on the issues.

Keywords: loss distribution approach, corporate risk, Basel II principles

JEL Classification: C, P

1 Introduction

In Basel II Capital Accord, the use of top-down or bottom-up method to calculate risks provisions are recommended as the ways to model and compute corporate risk value (VaR - values at risk). The top down approach relies on general business income/cash flow side of the business, for example, a percentage of the total net cash managed. The bottom up approach relies on gathering loss data from within the company and carry out statistical analysis of these data to arrive at a figure. Bottom-up methods are regarded as more refined. Once bottom-up methods are adopted, it is no longer permitted to retreat to top-down approach.

Within the bottom-up approach, there are process based models, actuarial models and proprietary models.

The process based model splits banking activities into simple business steps, the management evaluates the situation according to these steps to identify risks. This is mainly a time series type of model. Regressional analysis tools are often used when there are multi-factors in the problem (cf. [Alexander and Pezier, (2001); Allen, Boudoukh and Saunders, (2004); Giudici, (2004); Marshall, (2001), and Neil and Tranham, (2002)].

The actuarial models or statistics models are generally parametric statistical models. Various statistical fitting techniques are used (see extensive discussions in [Chernobai, Rachev and Fabozzi, (2007)]. In this article, we present an efficient, direct way for this approach and we also discuss some of the technical difficulties that need to be solved. The implementation of this method is based on a carefully designed algorithm. In places where mathematics computations encounter difficulty, management judgement is requested in the form of inputting parameters in programmed interfaces. We also set default should management is unwilling to make judgments. These default settings are carefully set with discussion with management before implementation.

The advantage of our actuarial model is that once it is set, the model itself will give results very close to historic expected total loss. It is also possible to carry out extensive Monte-Carlo disturbance to the multi-parameter model on various levels of the organization and simulate a complicated business operation. It can also incorporate features such as management control impact on reduction of losses. We only discuss the general philosophy of algorithm design but not the details of how to implement various technical control issues. Our final program operates in the world-wide-web environment. A free test version can found by opening a trial account through www.care-web.co.uk. The background programming is in C.

The proprietary models in risk management are mainly developed by major financial service companies. The approach involves a variety of bottom-up, top-down and qualitative analysis schemes. It is mainly spreadsheets based. It was mentioned in [Chernobai, Rachev and Fabozzi, (2007)] that the currently available proprietary software include Algo OpVantage by Algorithmics Inc, Six Sigma by

Citigroup and GE Capital, and Horizon by JP Morgan Chase and Ernest & Young. Interested readers should go to the internet search engines to obtain more information.

Our model is different from the existing ones as we incorporated a much more flexible adjustment mechanism and the aims of the prediction are very concentrated. In the following, we will discuss step by step the various features of the program and the mathematical thinking behind. We are required by a management consultancy firm to implement these details. We believe that although it makes the running of the program more technical (there is a large data file to prepare), but it does have more features and give more flexibility in modelling and predicting the VaR.

The content of this paper is as follows:

1) Description of the modelling approach and algorithm (see Section 2)
2) How to give different weight to different year's data (see Section 3).
3) How to deal with insufficient number observations (see Section 4).
4) How to deal with near misses (see Section 5).
5) Incorporating [excluding] high impact, lower probability events when they are not in [already in] the data table (see Section 6).
6) Management intervention and cost/improvement comparison (see Section 7)
7) Problems arising from designing Monte-Carlo simulations (see Section 8).

THE KNOWLEDGE MANAGEMENT – NECESSITY FOR THE MODERNIZATION OF THE ORGANIZATIONS

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Abstract

If individuals and technologies can harmonize their intelligence under various forms, only the intelligent organizations will have the capacity to transform and coordinate these abilities for their own advantage by using informational technologies, by combining the most advanced software technologies with the newest management instruments in order to produce extremely efficient organizations.

The information excess is a chronic phenomenon for the modern organization, so that the lack of the capacity to filter and use relevant information is a consequence of the inefficiency to manage the knowledge fund, of the lack of a clear strategy with a common purpose for personnel and team. Today, almost the intelligent organizations must manage and apply the entire knowledge fund, they must use instruments and technologies in order to build an informational architecture, having as a purpose the competitiveness in a turbulent and changing environment. The apportion of the information and knowledge of the organization, the exchange of information between employees, departments and even other companies are facilitated by the information and communication technology. Not all information are valuable, but in order to establish what information respond to the questions What? Where? How? When? and Why? instruments of knowledge management are needed in order to determine what knowledge is qualified to be intellectually active.

Within the organization of Romania the information still circulates on unclear routes, it is considered a good which should be restrained for certain employees. The rigid, bureaucratic structure and the closed communicational system must be excluded from the perspective of the organization modernization. The best solution is the collaboration and transversal communication between employees, the apportion of information using the new technologies which could allow the accumulation, stocking and finding again the information at the adequate moment. The Internet and the new technologies will allow the knowledge exchange, the information filtering, the improvement of communication, and the professional instruction of employees, will increase the knowledge availability, the autonomy level at the level of the employee, modifying at decisional level the communication opportunity. The intelligent organization is an open system that uses decision support systems, collaborative networks, innovation, social networks, knowledge management and intelligent instruments to accomplish the managerial performance (business intelligence) in order to manage the accumulated information and knowledge, the current and past operations for the prediction of future business operations.

Keywords: knowledge, knowledge management, intelligent organization, informational technologies, knowledge exchange, collaborative networks, apportion intelligent instruments.

JEL Classification: D83

1. Introduction

Usually, intelligence is a characteristic of the individual and of the individual action, but in an ever more complex world, it becomes a value of the public space, without it performance cannot be taken in discussion without the „organizational intelligence" and the „intelligent organization".

In the world we live in, which is in a changing of depth and extremely rapid, organizations evolve in a turbulent social environment, so that the adjusting capacity of the organizations through innovation and creation remains the only way of development. The innovative, creative, intelligent management is really performant, the organizations become communicative and basically they are intelligent organizations.

Thus, the source of "organizational intelligence" can be refound in the communication degree of organizations, and communication between entitites becomes facile and efficient if it takes place in a virtual environment.

COMPETITON AND GROWTH IN AN ENDOGENOUS GROWTH MODEL WITH EXPANDING PRODUCT VARIETY WITHOUT SCALE EFFECTS REVISITED[1]

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Abstract:

This paper shows that the results of Bianco (2006) depend critically on the assumption that there are no difference between the intermediate goods share in final output, the returns of specialization and the degree of market power of monopolistic competitors. In this paper, we disentangle the market power parameter from the intermediate goods share in final output and the returns to specialization. The main result of this paper is the death of the inverted-U shape relationship between competition and growth. Indeed, we find a decreasing relationship between competition and growth which is due to the composition of two negative effects on growth : resource allocation and Schumpeterian effects.

Keywords: endogenous growth, horizontal differentiation, technological change, imperfect competition.

JEL Classification: 031, 041

1. Introduction

Bianco (2006) studies the impact of competition in the intermediate goods sector on growth. He uses the Gancia and Zilibotti (2005) model in which he introduces a different assumption concerning the production of intermediate goods. Indeed, unlike Gancia and Zilibotti (2005) which assumes that one need one unit of final good to produce one unit of intermediate good, Bianco (2006) does the hypothesis that the firm has to use one unit of labor. This assumption which is called "resource allocation effect" implies that labor can be allocated between three sectors: final good, intermediate goods and research. The interplay between this effect and the traditional Schumpeterian effect allows us to obtain an interesting result. Indeed, Bianco (2006) finds an inverted-U relationship between competition and growth. For low value of competition, more competition is beneficial to growth since it allows a better allocation of resource without hampering that much innovation incentives. In this

[1] I would like to thank, without implicating R. Dos Santos Ferreira, J-L. Gaffard, C. Le Van, P. Musso and L. Punzo for useful suggestions and comments on an earlier draft of this paper. This article is a part of my Phd thesis. The usual disclaimer applies.

case, the resource allocation effect is bigger than the profit incentive effect. On the other hand, for high value of competition, more competition reduces strongly growth because of the reduction of profit. In this case, the profit incentive effect is bigger than the resource allocation effect.

Among the assumptions used by Bianco (2006) to derive this result is that there are no differences between the intermediate goods share in final output, the returns to specialization and the degree of market power of monopolistic competitors. This leads to the natural question whether making such a difference to the model changes its predictions. In this note, we show that including this difference into the model developed by Bianco (2006) eliminates the result mentioned above.

FIRM'S FINANCING AND INDUSTRIAL STRUCTURE IN THE LESS DEVELOPED REGIONS OF THE SOUTH ITALY

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Abstract

The paper shows that there is a relationship between firm's financial condition and the industrial specialization model of the Italian Mezzogiorno, that is the least developed area of the country. In order to analyze the financial status of the firms, the approach of the theory of the finance is adopted. The empirical model proposed by the Gibrat law literature is used to produce the estimates of the relationship between firms' growth and cash flow. Then, the indices measuring the "financial dependence" on the internal finance or the "financial constraints" to the firm growth of the Mezzogiorno's industries are compared to those of the other Italian regions. Finally, the analysis of the between the emerging financial condition of the firms and both the firm side distribution of the individual industries and the composition of the manufacturing of the South Italy is proposed. Our econometric analyses, carried out on a representative sample of manufacturing firms, confirm that there is a robust relationship between financial status of the firms and the specialisation model of manufacturing of the Italian Mezzogiorno.

Keywords: financial constraints, internal finance, growth-*cash flow* relationship.

JEL Classification: L20, G31, G32

1. Introduction

The aim of the paper is to show that in the Southern regions of Italy, that is in the so called *Mezzogiorno*, the least developed area of the country, in which financial markets are not properly developed, firm's growth is highly dependent on internal finance since access to external financial resources is more difficult and its cost higher. Moreover, a nexus may be found between the development of the financial system and the industrial structure; this could explain the lower rate of firms' growth in the *Mezzogiorno* and the high, persistent level of specialization in traditional industries.

The theory of finance, especially the analysis of firm's growth related to its financing sources, provides the main theoretical reference to the present work. It is well known that this stream of literature revolves around the implications of the Modigliani-Miller propositions. Generally, the empirical literature seeks to verify whether there is a significant relationship between firms' growth and internal finance and, in particular, whether investment is sensitive to cash flow: a significant relationship indicates that firm's growth is "financial dependent" on resources produced by the same firm. Alternatively, one could say that the growth faces financial constraints since growth is strictly subordinated to firm's capacity to internally supply the financial resources. In order to test this relationship, we use the empirical model proposed by Gibrat's law, instead of the standard models of the investment function based on the q function or Euler's equation. In our paper, the model of Gibrat's law will be enriched through the introduction of a variable representing internal finance. For firms belonging to the various manufacturing industries, this will enable us to verify whether growth is significantly correlated to internal finance, and hence appreciate the different degree of "financial dependence" on internal resources.

The model is used to measure the contribution of *cash flow* to growth in Southern Italian firms compared to firms localized in other Italian regions in order to identify the industries in which the growth-internal finance relationship differs in the South from that of other regions of Italy. Then, the industrial composition is compared to the firm size distribution and to the industrial specialisation of the Southern manufacturing. The paper uses data of a representative sample of Italian manufacturing small and medium sized enterprises.

MODELLING THE EVOLUTION OF REAL GDP PER CAPITA DURING THE TRANSITION FROM A SOCIALIST TO CAPITALIST ECONOMIC SYSTEM

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Abstract

The transition of former socialist countries to capitalist economic system is modelled. The transition is entirely defined by three empirical parameters and the model describes only the evolution of real GDP per capita since the start of the disintegration of socialism. It is found that the transition has practically finished in many Central and Eastern European countries and their economic evolution is driven by forces associated with capitalist system. In the long run, the future evolution of the former socialist countries has to follow the same path as observed in other developed countries in the past. Even in the case of perfect economic performance, the studied countries will never catch up the most advanced countries. In Russia and some countries of the Former Soviet Union, the transition process has not been completed.

Key words: socialism, capitalism, transition, economic modelling, GDP per capita.

JEL Classification: O12, P10, P27

1. Introduction

Several Central and East European countries joined the European Union in 2004 and some in 2007. These countries had an almost 40 year history of economic development governed by rules of socialist system. The countries of the Former Soviet Union (FSU) had an even longer period of socialism reigning in economic life. From the point of view of economics, it is of theoretical and practical interest to understand qualitatively and quantitatively what happened during these socialist years and during the transformation from socialism to current state. How far are these countries from a pure capitalist state and do they still bear some (economic) elements of socialism?

The socialist system has been disintegrating since 1989. This period is often referred to as the transition from socialism to capitalism and is characterized by some specific features, qualitative and quantitative, different from those observed in pure socialist or pure capitalist social systems. At any moment between the start of the process and its end, current social state is not just a mechanical sum of the socialist and capitalist portions. Economy is an important and inevitable component of modern society. Obviously, the isolation of economic behavior from other social phenomena and processes is not entirely feasible. Nevertheless, some quantitative relationships can show a high level of statistical reliability and, thus, be useful for the description of the sophisticated transition process. Moreover, any reliable relation might serve as a framework for quantitative and qualitative analysis and a solid basis for wider discussions and interpretations.

This paper demonstrates that such measured macroeconomic variable as real GDP per capita can be represented as a straight sum of two independent components: socialist and capitalist ones. In other words, one can predict separately the input of socialist and capitalist sub-systems to the overall GDP per capita. Unlike in phase transition processes observed in physics, for example, ice/water transition at $0C^{o}$, where the behavior of components is pre-determined by mass and energy conservation laws, the transition from socialism to capitalism permits a degree of freedom for both

sub-systems. There must be some interaction and coordination between the processes of the socialist system disintegration and the construction of capitalism. Undoubtedly, pleasant features of capitalism attract people still living under the socialist economic rules of income earning; we consider personal income distribution as one of the most important, but likely not the only, process defining the difference between the economic systems; and force them to "jump off the cliff" into free market. On the other hand, some cumulated social guarantees and benefits provided by the old socialist system often prevail, and some people are very reluctant to drop out of the system of social care. Therefore, one can expect different types of individual and social behavior. Quantitatively, there is an absolute barrier between the systems in a given country: the number of people who have left the socialist system must not be *less* than the number of people who have entered the capitalist one. Our model obeys this "conservation" law.

The understanding of specific features and relationships created by the (unique in the history of the mankind) process of the socialism/capitalism economic transition is a big challenge to economics as a science. One has to describe the observed processes and to introduce new terms and relationships, when necessary. The principal question is - Whether it is possible to quantitatively predict the evolution of measured macro-variables during the transition process, i.e. to express the evolution in a functional form, or whether the transition is fully stochastic and can be described only in statistical terms?

The main goal of this study is to develop a quantitative model of the transition based on simple assumptions about the economic state during the transition period, and to predict the behavior of real GDP per capita during the last 20 years and in the future. Apparently, the transition period in many former socialist countries (FSC) has been not completed. We use data from major, and likely reliable, statistical agencies and databases, which provide original measurement of population and GDP.

The transition process has attracted attention of many economists and practitioners from the very beginning. In 1992, Brada and King [Brada, King, (1992)] argued that Czechoslovakia, Hungary, and Poland did not demonstrate commonly expected J-curve phenomenon, as induced by the initial decrease in economic performance and following gradual improvement due to the growth of the new system. They explained contemporary economic behavior by exogenous shocks to the balance of trade, to investments and to autonomous consumption. We think that this conclusion was premature and all FSC have demonstrated the J-curve behavior with a varying depth of the downturn.

Bezemer with co-authors [Bezemer, Dulleck, Frijters, (2003)] simulated the performance of the socialist and capitalist economic system using the difference in creation and destruction of contacts. Their general equilibrium model described the development of the technological gap between two systems and the transition process to capitalism. The authors also discussed how insider privatization and a civil society may impact on transition paths. The impact of foreign direct investment in post-communist society on economic performance was investigated by King [Kitov, (2005)] on the example of Hungary. Biegelbauer [Biegelbauer, (1996)] suggested some measures aimed at proper usage of industrial R&D for full realization of economic potential of Hungary. In general, we do agree that transition paths differ between the former socialist countries and this effect can be related to various exogenous and endogenous forces. However, we would like to stress again that no of these forces can disturb the form of defining equations, only relevant coefficients are different.

Hoelscher (2006) studied the evolution of income distribution and inequality during the transition change from socialism to capitalism and its effect on the overall performance. The following countries had been chosen: the Czech Republic, Hungary, Poland, and Russia with Germany taken as a benchmark. For the former three countries, income distribution remained relatively stable before and throughout the transition. Russia is characterized by a sharp increase in income inequality. In view of the importance of income distribution for the definition of economic system claimed above, this observation is in overall agreement with the behavior of real GDP per capita. Russia has been suffering a much deeper GDP downturn and a larger change in income distribution than that observed in Central European countries.

We have developed a microeconomic model for personal income distribution in developed countries and its evolution over time [Kitov, (2005)]. When aggregated over the population above 15 years of age, the model transforms into a macroeconomic model describing evolution of GDP and per capita GDP. The macroeconomic model characterizes the capitalist system which has no artificial limit to personal income. The limitation on personal income is a characteristic feature of socialist economic

system and might indicate the source of its relatively lower GDP growth rate compared to that in the capitalist system [Kitov, (2006)].

Nonlinear dynamic analysis carried out in [Barkley Rosser, Vcherashnaya Rosser, (2004)] partially describes several episodes of discontinuity and turbulence during the transition process. We also observe some deviations of actual GDP trajectories from those predicted by our model. Apparently, these discrepancies need quantitative and qualitative explanation in a wider economic and social context. However, the deviations are measured relative to the predicted curves and it is the model what provides a reference. On the over hand, no model can pretend to exact prediction. The purpose of any model is to reduce the discrepancy to the lowermost possible level.

In this paper, we develop and validate a quantitative self-consistent model of the transition from a socialist to capitalist economic system. The model is comprehensive and describes the evolution of only one measured macroeconomic variable – real GDP per capita. Accordingly, at the given level of aggregation, the model disregards the influence of any other micro and macro- economic parameters: financial, institutional, social, demographic, and any other type of forces and/or processes on the evolution of GDP. However, empirical coefficients obtained during the modelling are country-dependent. This allows further interpretation of the coefficients as related to the parameters and processes. The functional form of the model, i.e. the set of defining equations, is the same for all former socialist countries. The development and validation of these equations is the principal target. Therefore, any interpretation of relevant coefficient in terms not related to the model is avoided. Nevertheless, we permit some brief discussion of the most prominent differences between the coefficients.

THE INVOLVEMENT OF INFORMATION TECHNOLOGY IN THE OPTIMAL FUNCTIONING OF ELECTRIC DRIVE SYSTEMS

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Abstract:

The implementation of sustainable development in Romania and the abrupt increase of prices for fussil fuels have imposed more serious activies for the examination of the energy consumption in different industrial sectors. Here, the asynchronous electric motors represent the main loads; therefore the energy consumption in electrical drives has to be careffuly watched. The achievement of various procedures to improve energy efficiency, compulsory imposes an energy balance who aims to illustrate the existent profile of energy consumption .

The study presents an industry case study about estimation of operating systems functioning that use variable speed motors, highlighting the necessity and appropriateness of using informatic instruments that provide calculations needed to elaborate energy balance and by that, to determine the measures to increase energetic efficiency.

Keywords: energy efficiency, electric drive, energy balance, power factor, informatic instruments.

Jel Classification: M15

1. Energy and Sustainable Development

Along with complex phenomena such as the explosive rate at which the world`s population continues to increase, the associated and inevitable increase in energy consumption and the reality of the environment`s decline, humanity is faced with three very perilous problems:– Economic Growth, Energy and Resource consumption, and Protecting the environment– in other words, the world is faced with an unprecedented dilemma.

For the world consumption of primary energy forecast, several important studies have been done in the last years by prestigious world organizations in developed countries.

An example of such a study is that conducted by the World Energy Council (WEC) and named Energy for Tomorrow`s World. Within this study, at which specialists and organizations of tens of

countries took place, were analyzed four scenarios of world primary energy consumption evolution until 2020, compared to the situation of 1960 and 1990, both on a global level, and geographical areas.

MODELING RISK OF INTERNATIONAL COUNTRY RELATIONS

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Abstract:
In this article we consider the modeling principles and model for estimation of tension of international relations of a country with other countries. We use the tension of international relations as partial indicator of international political-economical country-risk. The model bases on estimation of coincidences and contradictions of views of countries concerning decision of political, economic, military, domestic and international problems and projects. The model aggregates detailed estimations of separate problems into composite estimation of relations tension with using of fuzzy measures and integrals. The model allows receiving quantitative estimations of tension of international relations which are necessary for making investment decisions. We use this model for estimation of international political-economical risk of Ukraine.

Keywords: Model, International relations, Fuzzy measure, Political-economical risks.

JEL Classification: C63, D81, F21, F59, H56

1. Introduction

The dependence of investments risk into country from its international relations appreciably rises in conditions of globalization. The stability of international relations is especially important factor for investment into export-oriented industries of developed and post-soviet countries. The tense relations with neighboring states or states - world leaders in policy sphere or in safety sphere very often negatively influence export-import streams. Therefore the detailed studying and analysis of structure of international relations is today especially topical.

The analysts evaluate the risk of investments into country by means of country-risk. The well-known researches consider various aspects of country-risk. In [Bourke and Shanmugam, (1990)], for example, the authors consider the country-risk as the risk that the country will be unable to service its external debt due to an inability to generate sufficient foreign exchange. The country risk model [www:\\riskmodel.eiu.com] calculates the country-risk as additive convolution along hierarchical system of financial, economic and political risk-categories: debt structure, fiscal policy, liquidity, political stability and others. This model includes the indicator <international relations> into category <political stability> only as one parameter. In many publications [Andrade and Kuhl, (2004); Simpson, (1997); Arin, Molchanov and Reich, (2007); Hammer, Kogan and Lejeune, (2004, 2007); Erdogdu, (2006)] authors reveal the dependences between various risk-indicators (including political). Moser, Nestmann and Wedow (2006) reveal the dependence of necessary governmental guarantees of exporter-country and of political risks of importer-country. Lensink, Hermes and Murinde (2000) investigate the dependence between capital outflow and political risks in developing countries. Brewer and Rivoli (1997) consider the dependence of domestic political relations and country-risk. At the same time many papers point out on role increase of international relations at evaluation of country-risk.

The well-known researches consider mainly the risks of domestic economic policy of country: government stability, social and economic conditions, corruption and so on [International Country Risk Guide]. These researches do not give due attention to the risks which arise because of negative international relations. For example, Misztal (2007) considers the international competitiveness of Polish economy only in context of macroeconomic indexes: GDP, unemployment, inflation and so on.

However the investments efficiency into export-oriented industries greatly depends on relations conditions of exporter-country and importers-countries. For example, not looking at favorable domestic economic conditions for foreign investors, there is a big investments risk into metallurgy of country which has the tense relations with country - large metallurgical importer because there is

decline possibility of export markets. For other example, it is gas warfare between Russia and Ukraine which arouses on background of exacerbation of interstate contradictions. Such situations often arise in post-soviet countries which haven't of stable political traditions and also haven't of interests balance in international relations. Moreover the generalized risk-rating of country not always adequately estimates investments risk because of details lack. For investor it is important to know about detailed structure of problems in international country relations to have a tentative estimation of possibility of critical situations on foreign markets.

The International Country Risk Guide estimates the political risk along several weighed components (government stability, internal and external conflicts, ethnic tension and others). The risk components can have subcomponents. The Guide measures the components values and subcomponents in points. The experts assign the values according to prescribed scales. Such technique has two shortcomings.

1. This technique propose to the expert to answer questions, for example: evaluate the level of political relations between Ukraine and Russia. But the person cannot evaluate simultaneously more than 5-7 factors. The limited opportunities of the person are a source of the most widespread errors in problems of expert evaluations. Saaty (1980) draws this conclusion in researches. Moreover the high level of questions generalization often doesn't allow the expert to give exact answer. For example, it is complex to give an unequivocal estimation for international ethnic relations if these relations with one state develop positively, but with another they develop negatively.

2. This technique uses linear convolution with weight coefficients for calculation of composite evaluation of country risk on the basis of partial evaluations. This linear convolution is an additive measure and has properties of probability measure. As is well known, the main shortcoming of additive measure is smoothing and the independence requirement of partial evaluations. Smoothing leads to loss of method sensitivity. Researchers do not recommend using such measures at generalization more than 5-7 factors. If these factors are dependent among themselves, linear convolution cannot be used at all. In case of factors dependence inevitably arise a systematic errors. It is necessary to use special methods for exception of correlations influence. We emphasize that the international relations greatly depend from each other. Compromises in relations are mutual concessions along different problems. Besides, additive measures do not allow modelling the threshold phenomena in the international relations, when quantitative changes after accumulation provoke the qualitative changes of relations.

Therefore we propose the new model for estimation of international relations which has no these shortcomings.

SIMILARITIES AND DIFFERENCES BETWEEN FEMALE AND MALE ENTREPRENEURS IN A TRANSITION CONTEXT: EVIDENCE FROM BULGARIA

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Abstract

The aim of this paper is to examine similarities and differences between Bulgarian female and male entrepreneurs with regard to a number of personal characteristics, characteristics of their ventures, and characteristics of the environmental context, in which they operate. A sample of 501 companies (282 male-owned and 219 female-owned) with a single owner is used in the present study. Data have been analyzed using a binary logistic regression. The differences in entrepreneurship identified in this paper are strikingly similar to those reported in the literature in Western countries. This could be explained with the presence of similar gender inequalities and deeply structured processes of female subordination in capitalist, command and transition economies.

Key words: gender, entrepreneurship, women, Bulgaria.

JEL Classification: M1

1. Introduction

During the last decades, the research on female entrepreneurs and their ventures has increased significantly [Carter et al., (2001)]. This literature provided valuable descriptions of female entrepreneurs when the mainstream research had focused predominantly on male entrepreneurs (Carter, 2000) and thus made female entrepreneurs more "visible" [Berg, (1997:259)]. However, despite the growing number and sophistication of the studies on female entrepreneurship [Ahl, (2002)], most of this research has been conducted mainly in Anglo-Saxon countries [Ahl, (2002)] and there is a need for more theory-based, heterogeneous, and cumulative studies [Carter et al., (2001), Bruin et al., (2006)]. Female entrepreneurship in transition economies in CEE is a new phenomenon and therefore has not attracted much research interest [Isakova et al., (2006)]. The purpose of this study is to examine whether Bulgarian female and male entrepreneurs are the same or different with regard to a number of personal characteristics (age, education level, start-up motivation, management training/skills, growth intentions, personality traits, management style), characteristics of their ventures (firm age, size, initial resources, legal form), and characteristics of environmental context, in which their ventures operate (sector and support from family and friends).