ROMANIAN ECONOMIC AND BUSINESS REVIEW

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Author Information

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2008 - SOME GLOBAL ISSUES AND THEIR IMPACT ON THE PROSPECTS OF FURTHER EUROPEAN UNION INTEGRATION

Florin Bonciu[1]

Abstract

The paper analyzes the implications of some global trends and developments on the prospects of further European Union integration. The transfer of attributes from member states to community institutions is a long term process which has been confronted with numerous set-backs and re-launches. The hypothesis discussed in this paper refers to the fact that current developments in the global arena are requesting fast decision making mechanisms involving very sensitive issues and these developments tend to shift the balance more towards member states institutions.

Keywords: global issues, european integration, climate change, technological trends

Both terms of the title of this paper (i.e. global issues and EU integration) are very broad and they imply a lot of things but it is from their interaction that the trends in the EU institutions and mechanisms for the next decade results in an objective manner. Globalization and technological change have already determined ever higher connection among all participants in the world economy and the rise of prices for such elementary inputs as foods and energy put the issue of balance of power on the global arena in a new (and at the same time old) perspective. This is a time of change and this change will influence to a large extent the architecture of European Union.

In this context, European integration seen as a deepening of the transfer of national decision making prerogatives towards community institutions has, in our view, much smaller prospects than a decade ago. In the following analysis we shall try to substantiate this statement and offer it for debate.

Without any intent at covering all major issues of the world economy as of mid 2008, we can list anyway some of the essential ones[23]. After a brief presentation of these issues an assessment of their impact on further European Union integration will be made.

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[2] Irwin Stelzer, Prepare for Change as World Tilts to the East, Sunday Times, June 22, 2008.

The trends perceived as having the greatest impact on today's world are:

- Globalization and the need to deal with more competition and conflict;
- High energy prices;
- High food prices;
- Significant transfer of wealth to the Middle East and Pacific area;
- Need for a change in Western domestic policies;
- Need for a new approach regarding banking sector;
- Climate change;
- Technological trends and their implication for business.

Globalization and the need to deal with more competition and conflict

As result of some events which accentuated since the beginning of this decade (such as the impact of US foreign policy in certain areas, the economic rise of China and India, the increase of energy prices, the re-consolidation of Russian Federation status in the global arena, etc.) the world is more and more shifting towards a multi-polar structure characterized by international competition (almost in all respects) among great powers.

This new multi-polar structure brings about not only an economic competition but also a competition among ideologies. If at the beginning of the '90s, with the collapse of the centrally planned economic systems, free market, minimal state and free enterprise appeared to become the only options tested and validated by practice, now, towards the end of the first decade of the 21st century, one can notice a diversity of approaches: liberalism, isolationism, nationalism and even autocracy in a modern sense (for instance in specific forms in Russia and China and, maybe, in much different way, in Venezuela).

An issue which was much less present in the early '90s is also the need of the Western countries to deal with radical Islam in the global arena.

A new development as of beginning of fall 2008 is the mentioning for the first time in decades of the possibility of a new "cold war" between Russian Federation and the Western world. Even if the concept is currently mentioned only as a remote possibility, the very fact that it was used is a serious event in itself.

Dealing in an efficient and effective way with all these developments and trends require more and more fast decision making mechanisms, strategic thinking and unity of command. If such features can be found with existing European Union institutions and mechanisms is questionable only if one thinks about the reactions vis-à-vis the conflicts in former Yugoslavia some years ago or in

Georgia in 2008, the positions vis-à-vis Iraq or Iran and the reactions towards Russian Federation in the energy supply context of today.

The apparent conclusion from the above is that a trend towards a multi-polar world, with more competition and conflicts tends to strengthen the national governments approach and make less relevant community positions, therefore such global evolutions are not supporting, at least for the time being, a deepening of European integration. This conclusion can be further supported by the fact that the developments in the world arena have often a different impact on the European Union member countries and therefore the national interests and reactions may not converge in all cases.

On a contrary note, one may say that the rise of serious threats (like cold war, energy issues or climate change) may determine European Union member states to look more carefully at being more unite as a block but our perception is that this situation will determine more consultations among member states and more decisions at the national state level. It may seem paradoxical but this may mean more individual decisions (that is less integration) but decisions made with more awareness on the position of the other member states (that is more integration in communication, negotiation, dialogue).

High energy prices

The year 2008 has been particularly characterized by steep increases in energy prices although remarks and comments referring to the possibility of such trends have been made already in 2007. This trend towards higher and higher energy prices has, in the medium and long term, an objective component as classic fuels are limited in quantity and their reasonable availability is decreasing fast.

But, at the same time, if we refer to current evolutions, there is a lot of subjective influence, be it from speculators or from implications of evolutions in the Middle East, Russian Federation or Venezuela, or even some meteorological phenomena that influence oil production.

This rise in energy prices puts also in question the structure of energy prices for end-users, particularly for oil, in most developed economies, particularly in the European Union. The increase of energy prices brought about a very sensitive discussion on the percentage of taxes in fuel prices. Because if in the EU an average of more than 60 % of the prices paid by car drivers to the pump goes to taxes (compared to about 29 % in the US) is that a market economy anymore ?[4] To be more precise, the taxes vary from 76 % in Great Britain, to 74 % in France, 73 % in Germany and 63 % in Spain. And can we speak about high prices when more than 60 % of the prices are not the result of the classic supply and demand

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[4] Data valid as of June 2008 according to www.gaspricewatch.com

ratio? [5] To go along with these questions would imply to question the very foundations of modern economies finances but it is not unlikely that this unpleasant exercise would have to be done quite soon.

Till then higher energy prices have an impact on the automotive industry, on air transport, but also on accelerating research on new energy sources as well as on information technology & communication technology (by increasing the trend towards tele-conferencing and tele-working) and on management which has to rethink whole economic processes in order to accommodate the higher energy prices.

Higher energy prices mean sensitive issues with both industrialists and population and therefore an increase of the role of local and national politicians. This trend is not supporting at least for the moment further European integration. Higher energy prices affect also farmers and from this point of view again the European Union member states present very different situations and therefore different positions.

An interesting observation is that higher energy prices may have as effect the increase of regional trade vs. global trade (a phenomenon which also took place in the '70s when US trade with Latin America increased due to higher transport costs) as well as an increase in the number of conflicts[6]. The rise of energy prices may lead to a redistribution of wealth, to more competition on resources including in military form and to an increase of nation state decision-making mechanisms.

High food prices

The increase in food prices, particularly in 2008, were on the one hand due to temporary problems in Australia, Ukraine, and some other places, but, on the other hand were due to long term problems such as: unequal rise of income in developing countries, increase demand for bio-fuels, trade/export restrictions on foods, etc[7].

A particular point refers to the impact of the support provided for stimulation of production of technical plants used for bio fuels (an area championed by the EU) on the production of foods. According to several studies prepared in the last 2 years by international organizations the biggest long term cause of increases food prices is the use of agricultural products to make fossil fuel substitutes[8],[9]. While it is difficult to exactly quantify the contribution of this decision to increase of food

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[5] Peter Ford, Gas prices too high? Try Europe, The Christian Science Monitor, August 26, 2005.
[6] Rana Foroohar, The Coming Energy Wars, Newsweek 09-Jun-2008.
[7] High food prices: Impact and recommendations, Paper prepared by FAO, IFAD and WFP for the meeting of the Chief Executives Board for Coordination on 28-29 April 2008, Berne, Switzerland.
[8] OECD-FAO AGRICULTURAL OUTLOOK 2007-2016, edited by OECD/FAO 2007.
[9] Rising food prices: Policy options and World Bank response, paper prepared in April 2008, www. siteresources.worldbank.org

prices, the role of the EU in generating this issue is important and the lesson is that such decisions may require more careful consideration in the future. Till then, a reaction can be of less relying on European Community wide decisions and rather try to adapt them to specific conditions of each member country,

At the same time, at a global level, this situation requires better policies in developing countries and better international cooperation. This in turn may resume debates on the issue of world population and migration as the demographic trends are so different in developed and developing countries. And last but not least the high food prices may put into a new perspective the issue of genetically modified organisms (GMOs) which were opposed for a long time by various EU institutions but which may represent a solution for fast increase of agricultural output in high population countries.

Significant transfer of wealth to the Middle East and Pacific area

Globalization and the rise of new economic powers, as well as the revenues generated after the increase in price of energy and raw materials have determined major shifts in the money flows world wide. This also determined the rise of sovereign wealth funds which originate to a large extent in oil countries and represent the interests of the national governments. As these funds own more and more of the debt and assets of Western countries they have a higher say in decision making and this adds a global (and very different) dimension to policies which is difficult to control and assess[10].

In 2008 there is more money transferred to oil/energy producing countries. At the same time there is more money generated and directed towards transnational corporations from China, India, Russian Federation and some other countries, as well as more investors from these new economic powers into Western economies, higher competition on resources with these new developed states and a much more complex situation in international negotiations and politics[11].

The key word regarding the above developments is diversification (of economic powers, of origin of transnational corporations, and in essence, of interests). The diversification of centers of economic power and their implications on a global scale may also lead to the wide spreading of ideologies and values which are different than Western ones and which may require more tailor made approaches to various situations than a decade ago.

Diversification in the global power centers and in interests is likely to bring about diversification and not centralization of decision centers. Such a trend is, in our opinion, very likely to be less supportive for European integration.

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[10] Nadeem Walayat, Sovereign Wealth Funds - Saviours or Harbingers of Economic Apocalypse?, January 7, 2008, http://www.marketoracle.co.uk
[11] Enrique Portaluppi, The Globalization Security Dilemma: How Globalization will Renew Great Power Competition, September 02, 2008, American Chronicle.

Need for a change in domestic policies of most Western countries

The realities of 2008 (economic slowdown, banking sector crisis, high energy prices, demographic trends, etc.) and most presumably of the coming years require from the part of governments some long delayed and difficult actions.

In the spring of 2008 the perception in the EU Commission was that Europe finds itself at a crucial crossroads, confronting both internal and

external pressures and there is an urgent need to prepare European societies and economies[12]:

- for an economy based on knowledge rather than manufacturing;
- for an ageing and declining population;
- and for an intensely integrated and competitive global arena in which natural resources are declining.

As result of this situation changes are required in several areas. Among them, there is a need for:

- a new approach to taxation (that will encourage investment and will discourage consumption);
- a new approach to transport of commodities in favor of less energy intensive means of transport;
- a new approach to incentives for research directed to bringing energy efficient technologies to large scale use;
- and last but not least, a new approach to education (as response to a need for a better educated work force as well as for a more energy and environment cautions generation).

As these necessary changes are to be decided and applied within the national contexts (which are different as level of development, structure of economies, levels and structure of taxation systems, etc.) One may expect a tendency towards a diversification of reactions and approaches which will not eliminate common position but rather be in favor of nuances and differentiation.

Need for a new approach regarding banking sector

The crisis in the banking sector that started in the US and dissipated gradually in the global banking network require some actions as result of the lesson learnt: not only commercial banks have to be more regulated, but also investment banks.

This new situation is characterized by the fact that the days of very high returns are over. At the same time, the presence of foreign investors will raise. And the banks will have to look for stability in a period of change.

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[12] Joaquín Almunia, European Commissioner for Economic and Monetary Policy, Structural economic policy priorities for Europe, OECD Conference on Structural Reform in Europe Paris, 17 March 2008

This trend is not affecting European Union in a particular way, but because the banking and financing sectors are so integrated at a global level the impact is felt in all countries and the new regulations will have to be applied everywhere[13]. The major aspects in the years to come are related to both increase of concentration (particularly for large intermediaries) and increase of presence of non-EU financial institutions as result of globalization and emergence of new economic powers.

The existence of the Euro zone and the gradual increase of the number of participating countries will determine an increase of integration but this will refer mostly to the relations between European Central Bank and Central Banks of the participating member states rather than to other EU institutions.

Climate change

According to the United Nations Framework Convention on Climate Change (UNFCCC), climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

The risks posed by climate change are real and more and more people have felt its impacts already. As a proof of the reality of this risk the United Nations Organization estimates that all but one of its emergency appeals for humanitarian aid in 2007 were climate related. As result in 2007 the UN Security Council held its first debate on climate change and its implications for international security.

In its Fourth Assessment Report (AR4)[14], published in 2007, the Intergovernmental Panel on Climate Change (IPCC) projects that, without further action to reduce greenhouse gas emissions, the global average surface temperature is likely to rise by a further 1.8-4.0°C this century, and by up to 6.4°C in the worst case scenario. Even the lower end of this range would take the temperature increase since pre-industrial times above 2°C - the threshold beyond which irreversible and possibly catastrophic changes become far more likely.

Climate change is often perceived as a threat multiplier which exacerbates existing trends, tensions and instability. The core challenge is that climate change

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[13] The new challenges for the European banking system, Speech by Gabriel Quirós on behalf of Eugenio Domingo Solans, Member of the Executive Board of the European Central Bank, at a seminar organized by Ambrosetti and Getronics, Vienna, 12 April 2002.
[14] Climate Change 2007, IPCC Fourth Assessment Report, http://www.ipcc.ch/ipccreports/ar4-syr.htm

threatens to overburden states and regions which are already fragile and conflict prone. The main types of threats determined by climate change are[15]:

- Conflict over resources;
- Economic damage and risk to coastal cities and critical infrastructure;
- Loss of territory and border disputes;
- Environmentally-induced migration;
- Situations of fragility and radicalization;
- Tension over energy supply;
- Pressure on international governance.

Despite a number of evident effects in the area of climate change there is a need for a more consistent understanding of phenomenon and for a better evaluation of the implications on food, health, economy, territory, etc. In this respect it is to be noted that some authors are more moderate in their evaluation mentioning the existence of alternative sources of energy, the possibility of energy conservation and the numerous measures already taken to alleviate the effects[16].

The financial and budgetary implications of climate change have been the subject of numerous studies, all characterized by complexity and great uncertainty. Such financial implications are related to average annual cost estimates ranging from 0.6% to 1.6% of total gross domestic product worldwide – or between about €230 and €614 billion annually (based on global GDP for 2006). The estimated share of the EU in global costs is estimated to be at around €60 billion annually, and reaches up to €194 billion in the high-cost scenarios[17].

The active role of the EU in the international climate change debates and negotiations has been significant up to now. Thus EU is committed to reducing its overall emissions to at least 20% below 1990 levels by 2020, and is ready to scale up this reduction to as much as 30% under a new global climate change agreement when other developed countries make comparable efforts. It has also set itself the target of increasing the share of renewable in energy use to 20% by 2020.

Due to its far reaching implications, in our opinion climate change is one of the factors that may increase both consultations and common actions from the part of the EU member states and therefore it is a factor to support integration. The issue is more sensitive than may appear at first sight because the initiatives taken up to now determined both food price increases and negative reactions from the

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[15] CLIMATE CHANGE AND INTERNATIONAL SECURITY, Paper from the High Representative and the European Commission to the European Council, Paper S113/08 14 March 2008.

[16] Roy W. Spencer, Climate Confusion, Encounter Books, New York – London 2008.

[17] Arno Behrens, Jorge Núñez Ferrer, Christian Egenhofer - Financial Impacts of Climate Change: Implications for the EU Budget, CEPS Working Document No. 300/August 2008

part of automotive industry but also spurred research in energy conservation and renewable energy.

Technological trends and their implication for business

The current global economic arena is re-shaped by some megatrends which manifests in technology. In fact these trends are so comprehensive that they include all points discussed above and impact all components of economic, social and political life.

Among these trends that will shape the world well into the next decade there are[18],[19],[20]:

1. A new level of technological connectivity wherein knowledge is increasingly available and, at the same time, increasingly specialized. Knowledge production itself is growing: worldwide patent applications, for example, rose from 1990 to 2004 at a rate of 20 percent annually. The most obvious manifestation of this trend is the rise of search engines (such as Google), which make an almost infinite amount of information available instantaneously. New models of knowledge production, access, distribution, and ownership are emerging. Due to the rise of open-source approaches to knowledge development communities, not individuals, become responsible for innovations.

2. New global industry structures are emerging. In response to changing market regulation and the advent of new technologies, nontraditional business models are flourishing, often coexisting in the same market and sector space. In many industries the new structures have a few big companies on top, very few in the middle, and a large base of smaller, fast-moving companies at the bottom. Corporate borders are becoming less clear cut and replaced by networks of suppliers, producers, and customers.

3. A global battle for skilled labor characterized by a change from the migration of jobs to low-wage countries to a global competition for high skilled labor.

The impact of these trends on the EU is complex because it creates a fuzzier picture in which both national and community structures are eroded and replaced by an informational, knowledge-based metastructure with a continuously variable geometry. Against this technological background EU institutions and mechanisms may regulate more and become less and less relevant.

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[18] Ian Davis, Elizabeth Stephenson, Ten trends to watch in 2006, The McKinsey Quarterly, January 2006.
[19] New IBM Report Identifies Six Megatrends Reshaping Governments and Societies Around the World, Market Wire, June 2008.
[20] The future of global government – global mega-trends, eGovernment thoughts and speculations from an Australian perspective, July 22, 2008.

Although these trends are all well beyond the control of the EU, they can be influenced by the EU to a certain extent, only if EU succeeds to manifest as a coherent economic actor.

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www.gaspricewatch.com

THE COMPLIANCE OF THE NATIONAL LEGISLATION WITH THE REGULATIONS OF THE EUROPEAN UNION

Florea Măgureanu and George Măgureanu[*]

Abstract

Romania's Integration in the European Union has triggered the compliance of the national legislation with the communitarian regulations, as a natural necessity of the capacity to undertake the duties as a member of the European Union, which imply the responsibility to have a complete transfer of the communitarian acquis to the national legislation, both before the accession date and afterwards, within the forthcoming regulations.

Consequently, it is believed that most normative acts represent a new legislation, made according to the new Constitution and in accordance with the communitarian spirit and the old ones were changed to comply with the communitarian regulations of the respective field, or with the modern regulations of the communitarian states.

As for the education, there is a need for an intensification of the measures to insure the mutual acknowledgement of the professional qualifications and degrees, as well as the introduction of the necessary administrative structures and of the educational programs in accordance with the new requirements.

Keywords: communitarian regulations, communitarian acquis, communitarian law

As a major objective for any state that accesses the European Union, the compliance of the national legislation with the communitarian regulations, must be found in the accession strategy of any candidate state to the quality of member of the European Union. A binding measure for the accession, formulated by the European Council in Copenhagen from June 1993, is the capacity to undertake the obligations as a member of the European Union, that engender the responsibility to have a complete transfer of the communitarian acquis in the Romanian legislation.

As a consequence, in June 1995 The National Strategy for the accession was adopted at Snagov, in 1996 the National Program for legislative compliance was

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drawn up and in December 1997 the Romanian Government adopted The National Program for the Adoption of the Communitarian Acquis, creating administrative institutions and structures to insure the implementation of the new legislation.

The process of complying with the communitarian acquis means its acquisition, its assimilation by the legislator and its organic integration in the respective system of law, the absence of which makes it impossible for the communitarian acquis to be actually enforced[21].

A constant effort has been made so that the initiators could draw up normative acts that are in compliance with the essential instruments of the European Union, even though a complete compliance with the Romanian realities hasn't yet been possible in all domains.

The Communitarian Law represents a coherent set of norms, coherence that must be present within our whole system of law, that is the legal norm in the law in compliance with the communitarian one, must be transposed appropriately in the inferior normative acts up to the normative orders of the Ministers or the local regulations.

The compliance of the legislation is a continuous process that develops within the context of the actual European accession, the compliance with the communitarian acquis implying its thorough knowledge, its compliance with the Romanian realities and the insurance of a coherence for the new complied legislation or for the one issued after the accession.

Meanwhile, it is a necessity triggered by Romania's option for the reforms it has undertaken and the creation of a market economy, an obligation undertaken through the Agreement signed by our country with the European Union, an agreement ratified by Act 20/1993[22].

Ever since the official launch of the accession to the European Union request, in June 1995, Romania has undertaken the obligation to carry out the criteria established by the European Union as necessary for the integration in the European structures.

In May 2000 The National Program for Romania's Accession to the European Union (PNAR) was adopted, through the consensus of all the political forces, it was updated in June 2001 for 2001-2004. During 2000 the National Strategy for Romania's mid-term Economic Development was adopted.

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[21] See Act 24/2000 concerning the norms of legislative technique for the elaboration of the normative acts, republished in the Official Monitory, Part I no. 777 of 25/08/2004, that provides specifically that the presentation of the motives and the fundament notes must include a special mentioning about the compliance of the normative acts with the communitarian regulations and, if necessary, the future measures of compliance that need to be taken.

[22] See Chapter III from Title V in the Agreement signed by Romania with the European Union, which is entirely concerned with the compliance of the legislation.

There are tree large departments within the European Integration Ministry, set up in 2001, as a specialized body for the central public administration that has insured the fundament and coordination of the process of preparation for Romania's accession to the European Union: the preparation of the accession, the compliance of the Romanian legislation with the communitarian regulations, the negotiation for the accession.

The compliance of the domestic legislation with the communitarian regulations has been a complex process that implies a close cooperation and even solidarity between all the bodies concerned with the European accession.

Within the transfer of the directives in the national legislation, there must be a special attention paid to their assimilation in the substance of the specific for law of each associated state, so as the communitarian provisions be transposed accordingly, in the terminology specific to our system of law through the identification of those terms corresponding to the natural meaning of the Romanian language.

The process of the compliance of the national legislation with the communitarian one, as well as the process of European accession, has been a complex, long, and actually irreversible process.

The compliance of the national legislation with the communitarian regulations implies the Knowledge, understanding and broad casting of the European regulations, to know the communitarian acquis and Romania's role in an enlarged European Union.

The compliance is checked on the occasion of the approval of the normative acts, and according to the issues the Executive is concerned with, there is the need for agreement between the experts in the Ministry of European Integration and those in the Ministries that initiate measures for the identification of the best solutions to comply the legislation with the communitarian regulations.

The documents drawn up by the Ministry of European Integration showed that substantial progress has been registered in the compliance of the Romanian legislation with the communitarian one, the degree of transfer of the acquis to the domestic market being of about, while there are domains where the progress is larger, up to 100%, as is the case of the commercial law, competition law, labor law.

The Legislative Council and the Executive have adopted many measures to reexamine the 6.000 and more normative acts existing before the accession moment, so that the only unmodified normative acts are those whose application is not an anachronism and does not affect in any way the state of law (about 300 drawn up in 1864-1989). The undertaken studies showed that actually the whole present legislation is a new one, based on the new Constitution and according to the communitarian spirit.

In order to have the national legislation comply with the world regulations, Romania has also ratified some instruments of some regional organizations such

as the European Council or with a universal vocation – the Organization of the United Nations or the International Labor Organization. For example: The revised Law for the Ratification of the Social Cart or the Law for Romania's Accession to the European Convention concerning the elaboration of a Ministry of European Farmacopia, of the Ordinance concerning Romania's accession to the Convention of 1990 about the preparation, reaction and cooperation in case of hydrocarbon pollution, and so on.

According to art. 70 of the Agreement, the compliance of the legislation will pursue mainly the following domains: customs law, company law, bank law, company accounts and taxes, intellectual property, labor force and jobs protection, social security, financial services, competition rules, health and life protection, consumer's protection, indirect taxation, technical standards and norms, laws and regulation for the nuclear field, environment and transportation, actually all the fields of the economic and social life.

As for the chapter free *circulation of the persons* some progress has been made with the labor permits for the foreign citizens. On the other hand, there was no significant evolution for the coordination of the social security systems, in this sense a development being necessary for the administrative structures and the training of the necessary personnel.

There is the need for an intensification of the measures to insure the mutual acknowledgement of the professional degrees and diplomas, as well as for the introduction of the necessary administrative structures and of the adequate educational and training programs.

As for the free *circulation of goods*, the compliance with the communitarian acquis has been considerably limited by the lack of the frame legislation based on the principles of the New Approach and of the Global Approach, which has come against the progress of the specific legislation sector, normative acts being recently adopted to introduce these principles in the domestic law.

As for the development of Romania's administrative capacity for the implementation of the horizontal and procedural measures and of the specific legislation sector, the Romanian body for accreditation (RENAR) has signed a lot of multilateral acknowledgement agreements and the Romanian standardization institution (ASRO) has transferred most of the complying European standards.

A significant progress with the legislative compliance has been made with the normative act adopted in May 2001 concerning public acquisitions, modified several times. There has been a great challenge for the management of all these institutions to get used to the new system and make sure that the legislation is correctly and adequately applied, within the whole country.

As for the *free circulation of services*, The National Bank of Romania has issued a series of regulations in accordance with the communitarian acquis, regulations concerning the accounting norms, the minimum social capital, the personal funds and the level of the assets, progress being made in the

implementation of the legislation concerning the spreading of the prudential supervision on the credit companies.

Significant progress has also been made with the investment and real estate services, the new law of the real estate market supervision being still debated at the Parliament and in the absence of a proper legal frame, the National Commission can only bring marginal improvement to a situation that has lately triggered major crisis all over the world, an adequate legislative frame being necessary to prevent the crisis in other countries.[23]

One should also notice the adaptation of the law concerning the electronic signature and its methodological norms, being a first step in the insurance of the necessary legal frame for the development of the operations concerning the electronic trade, as well as the adaptation of the law for the protection of the persons regarding the processing of the personal data and the free circulation of these data, of the law concerning the processing of the personal data and the protection of the private life in the telecommunication sector and of the law concerning the ratification of the Convention for the protection of the persons against the automatic processing of the personal data, adopted at January 28, 1981.

As for the chapter the *free circulation of the capitals*, the only modification introduced in the foreign currency regulation was the permission awarded to the residents to purchase foreign currency in order to pay other residents, but only for the transactions within the free areas.

The preparations for the creation of a new system of inter-banking payment and back payment is still at the beginning, although in June 2001 the TransFonD S.A. was set up, thus creating the legal frame to externalize the transfer of inter-banking funds from the National Bank of Romania. Considerable efforts still have to be made to transfer the acquis concerning the payment system (including the introduction of some appropriate and efficient procedures to regulate the disputes between banks and clients) and the improvement of the payments infrastructures.[24].

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[23] See the numerous normative documents in this respect, among which: Law no. 7/1996 Cadaster Law and real estate publicity, published in the Official Monitor, Part I no. 201 from 03/03/2006, Law no. 34/2006 for modifying and completing Law no. 190/1999 regarding the mortgage credit for real estate investments, published in the Official Monitor, Part I no. 200 from 03/03/2006; Order of Minister of Finances no. 1706/2008 regarding the approval of procedures for establishing, paying and ratifying the revenue tax on tranfer of real estate properties from personal patrimony and of the model and contents of forms provided at title III from Law no. 571/2003 regarding the fiscal Code, with the subsequent modifications and completions, published in the Official Monitor, Part I no. 533 from 15/07/2008

[24] Law no. 297/2004 regarding the capital market, published in the Official Monitor, Part I no. 571 from 29/06/2004 and modified from Law no. 208/2005 for modifying art. 285 from Law no. 297/2004 regarding the capital market, published in the Official Monitor, Part I no. 578 from 05/07/2005 and the last one modified several times.

In the domain of the prevention of money laundry, the National Office for the Prevention of Money Laundry has adopted important measures concerning the obligations for reporting of the financial institutions, but there is a need for the revision of the existing legal frame concerning the civil responsibility of the Office during the Investigations.[25].

Regarding the communitarian documents from *accountancy*, elaboration of the content of the 4th Directive continued, Romanian current legislation providing the legal framework for consistent application of Complied Accountancy Regulations.

Legislation in the industrial and intellectual property rights is generally compatible with the communitarian acquis; it is necessary to continue the process of compliance with the directive regarding copyright in IT society and the directive regarding copyright re-sale, as well as the one regarding copyright protection.

As far as the *anti-trust* legislation is concerned, national legislation largely complied with communitarian legislation and covers a large part of its provisions; however adoption of secondary legislation in this domain is necessary.

As far as state aid is concerned, the actual normative documents cover the basic principles of state aid control, România haing to rapidly adopt the necessary secondary legislation in this domain, and this is a pre-requisition for any activity of efficient legislative application. Progress was also prominent in elaborating the *acquis* chapter which regulates *agriculture*, especially in the fito-sanitary sector.

As for *agriculture,* the adoption of the legislation regarding plants health, the control of pesticide waste products and harming bodies in the veterinerian sector, by improving laboratory infrastructures for plants health control, they made important progress, most of the norms complying with the ones of the European Union[26]. The agricultural lands market has extended more than it was expected in

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[25] See the normative documents and the agreements concluded by Romania with other contries regarding money-laundry and acts of terrorism, among which: Government Decision no. 907/2008 for approving the Memorandum of ageement between expert autorities in Romania and Norway in the domain of financial information exchange which is related to money-laundry and terrorism financing, signed in Seul on 28th May 2008, published in the Official Monitor, Part I no. 629 from 29/08/2008; Government Decision no. 906/2008 for approving the Memorandum of ageement between National Office of Money –Laundry Prevention and Fight in Romania and the Nigerian Financial Information Unit from Nigeria Federal Republic regarding the cooperation in the domain of financial information exchange related to money-laundry and terrorism financing signed in Seul on 28th May 2008, published in the Official Monitor, Part I no. 629 from 29/08/2008; Memorandum of ageement between expert autorities in Romania and Norway in the domain of financial information exchange which is related to money-laundry and terrorism financing from 28/05/2008, published in the Official Monitor, Part I no. 629 from 29/08/2008 etc.
[26] As for agriculture, see also COUNCIL REGULATION (CE) no. 1782/2003 from 29th September 2003 for establishing common norms for direct support schemes in the common agricultural policy and establishing support schemes for farmers and Regulations modifying (CEE) no. 2019/93, (CE) no. 1452/2001, (CE) no. 1453/2001, (CE) no. 1454/2001, (CE) no. 1868/94,

center statistic estimates; today in Romania there are significant sale-purchase transactions, not only renting transactions.

Regarding Common Market Organizations, they adoped new communitarian documents regarding the evaluation system of quality and deposit receipts, and regarding the SAPARD program they created the necessary legislative framework for its implemention, and set up SAPARD Agency.

In the agricultural domain thera still a lot of unsolved issues at the communitarian level, the agricultural reform rhythm and elaboration of the communitarian *acquis* relevant for Common Agricultural Policy not being up to expectations. As a result, one cannot see improvement of organized market and price-monitoring. Their lack as well as the lack of price-monitoring market instruments, together with the lack of competitive trading opportunities weaken the decision-taking process at the governmental level and the effort of legislative compliance.

Regarding the elaboration the environmental *acquis*, Romania has registered progress especially in ratifying internaționalconventions, elaborating action plans for communitarian legislation compliance and the adoption of some *acquis* elements. As far as horizontal legislation is concerned, Romania has ratified Espoo Convention on the evalutation of the environmental impact in transfrontier framework and the Kyoto Protocol concerning climate changes. Meanwhile, a series of important normative documents have been adopted for legislative compliance regarding air quality, waste product management, water quality, nature protection, chemicals and genetically-modified bodies. For, legislative compliance in the field of industrial pollution control and risk management represents a priority.

In commercial companies' law, legislative developments have included the introduction, starting from May 2001, of simplified procedure, unique for registering and authorizing traders. Meanwhile, in June 2001, they have adopted a law which provides a rapid procedure for commercial companies for which the minimum social capital is the one indicated. At the same time, it is necessary to go on complying with the dispositions regarding commercial companies registration for the Economic Interest Group, too and the provisions regarding the jurisdiction and application of foreign decisions in civil and commercial law[27].

(CE) no. 1251/1999, (CE) no. 1254/1999, (CE) no. 1673/2000, (CEE) no. 2358/71 şi (CE) no. 2529/2001.

[27] See: Law no. 191/2007 for approving Urgent Government Ordinance no. 119/2006 regarding some necessary measures for communitarian regulation application at the date of Romania's accession to the European Union, published in the Official Monitor, Part I no. 425 from 26/06/2007. Also see Urgent Ordinance no. 119/2006, published in the Official Monitor, Part I no. 1036 from 28/12/2006; Regulation (CE) no. 805/2004 of the European Parliament and Council from 21st April 2004 regarding the creation of a European writ of execution for non-contested debts and the Council Regulation (CE) no. 44/2001 from 22nd December 2000 regarding competence, acknowledgement and execution of decisions in civil and commercial matter. Also

Cooperation in the justice and internal affairs domain also represents an important domain whrere Romania made significant progress, a model of visa application form being introduced compatible with the Schengen model. At the same time, in April 2001, it was adopted the Governmental Decision regarding the exchange of current passports with a new passport type which contains supplementary security characteristics. In this respect, they have achieved important results in complying with the acquis in the domain of external frontier control, Frontier Police being reorganized and modernized, trying to reinforce the control and to take measures against antisocial and terrorist conduct.

In so far as foreigners' treatment, in May 2001 a new law on foreigners was adopted, establishing the access and stay regime in Romania as well as foreigners' expulsion regime, including application norms of the respective law, and the law regarding refugees has considerably improved legislative compliance with the asylum legislation.

They have also adopted methodological application norms of Agreements between Romanian Government and Hungarian Republic Government, on the one hand, and between Romanian Government and Luxemburg Great Ducat Government regarding the exchange of season and probation workers. It was also signed and ratified the Agreement between Romanian Government and Portugese Republic Government regarding temporary stay on the purpose of employing Romanian workers on the territory of Portuguese Republic. Meanwhile, they have adopted doctor's, dentist's and chemist's status as well as the status of graduates from the medicine, stomatology and pharmacy faculties with minimum one year's practical training, as well as the law regarding nurse job practice, setting up, organizing and functioning of the Order of Nurses in Romania.

Romania is a part of all internaţional conventions enumerated in the communitarian *acquis* in drug-dealing, except the agreement in 1995 regarding the illegal trafficking on sea, and in December 2000 they adopted the secondary legislation for the application of the Law concerning the fight against drug-dealing and drug-taking.

Regarding foreign investment, the law for their promotion has had a direct and significant impact in economy, law which persues the guarantee of stability and coherence of the legislative framework for foreign investments and the application of international conventions in this domain.[28] We also have to

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see the modifications of the Regulation through Regulation (CE) no. 1496/2002 of the Commission (JO L 225, 22.8.2002, p. 13). Also see Fl. Măgureanu, G. Măgureanu, *European Writs of Execution*, Forced Execution Magazine no. 11/2007, p. 12 and the rest.

[28] See in this respect: Ordinance no. 66/1997 regarding foreign investment regime in Romania, realized by state titles purchase, published in the Official Monitor, Part I no. 928 from 18/10/2005, modified through Law no. 46/2006, published in the Official Monitorul, Part I no. 238 from 16/03/2006. Also see the agreements concluded by Romania with numerous countries, among which the following examples: agreement Memorandum with a view to billateral

mention the fact that Romania continued to comply with the external policy of the European Union and constructively participated in the Common Security and External Policy *(PESC),* showing that it does not have difficulties in complying with the domain acquis.

As a consequence of the facts herein presented, Romania has largely performed its pre- and post-accession tasks regarding legislative compliance with the communitarian regulations, an important issue in this period being the effort of the so-established norms application and creating the agents and institutions for practical compliance with the new harmonized legislation.

We consider that European Union does not have to evaluate a country according to the number of directives complied with through internal normative documents, but according to the quality of the national legislation compliance with the communitarian regulatons, according to the effort regarding correct and whole application of the harmonized provisions.

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Some Relevant Econophysics' Moments of History, Definitions, Methods, Models and New Trends

Gheorghe Săvoiu and Ion Iorga–Simăn[*]

Abstract

New models result from a new way of thinking or from the trans-disciplinary methods used in new domains. Econophysics improve the quality of the classical research of Economics through its original models and methods. As a new or very young science Econophysics means either a new domain for physicists or new methods and ways of thinking for economists in the modern world. Physicists have recently established careers in the banking, financial, life insurance and marketing more easily than we could imagine only because their appetite for data and new laws of economic realities. After a brief historical background of the last three decades, a new section is defining what Econophysics is, and others underline significant methods, models, results, and trends. A final remark is inspired by the needs of globalize economies.

Keywords: Econophysics, Statistical Physics, Econophysics model, Quantum Statistics, power law, diffusion.

1. Introduction

Econophysics has become an attractive field of research over the last three decades, despite the controversies between economists and physicists and due to its potential used for understanding the economic phenomena.

Josiah Willard Gibbs (1839-1903) was not only a pioneer in physical research, but most of all, *the father* of *Statistical Mechanics*. J. W. Gibbs inspired his remarkable student Irving Fisher (1867–1947), another father of American mathematical Economics in its neoclassical form and Statistical Theory of Index Numbers. After eighty years, J.W. Gibbs inspired Paul A. Samuelson's famous piece of work, *Foundations of Economic Analysis* (1947), one of the grand tomes that helped revive *Neoclassical economics* and relaunched the era of the mathematization of Economics. After more than one hundred years, methods and models of Statistical Mechanics or Quantum Statistics can be successfully applied to economic problems.

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The great experience of physicists in working with experimental data gives them certain advantage to uncover quantitative laws in the statistical data available in Economics.

2. A brief history of econophysics

For the new Econophysics, its first applications involved have been almost invariably to financial markets and certainly comprised many different interacting actors, with the interactions occurring relatively frequently. Statistical mechanics or physics was developed in the second half of the XIXth century by James Clerk Maxwell, Ludwig Boltzmann, and Josiah Willard Gibbs. These physicists developed mathematical methods for describing the atoms statistical properties: the probability distribution of velocities of molecules in a gas (the Maxwell-Boltzmann distribution), and the general probability distribution of states with different energies (the Boltzmann–Gibbs distribution).

The role of physics models as the foundations for the standard neoclassical model that current econophysicists seek to displace is much older than two centuries:

- Canard N-F wrote, in 1801, that supply and demand were ontologically like contradicting physical forces;

- Léon Walras was deeply influenced by the physicist Louis Poinsot in his formulation of this central concept of general equilibrium theory in economics;

- Irving Fisher, father of American mathematical economics in its neoclassical form, was a student of the father of statistical mechanics, J. Willard Gibbs.

The interest of physicists in financial and economic systems has roots that date back to 1936, when Majorana wrote a pioneering paper, published in 1942 and entitled *Il valore delle leggi statistiche nella fisica e nelle scienze sociali*, on the essential analogy between statistical laws in physics and social sciences. Many years later a statistical physicist Elliott Montroll coauthored with Badger W.W, in 1974, the book *Introduction to Quantitative Aspects of Social Phenomena.*

The application of concepts as power-law distributions, correlations, scaling, unpredictable time series and random processes to financial markets was possible during the past two or three decades years, not only physicists have achieved important results in statistical mechanics, nonlinear dynamics, and disordered systems, but due to other significant statistical investigations and mathematical formalizations.

First mathematical formalization of a random walk was published by Louis Bachelier in his doctoral thesis entitled *Théorie de la speculation,* at the Academy of Paris, on 29 March 1900, in which Bachelier determined the probability of price changes. The first description of a random walk made by a physicist was performed in 1905 by Albert Einstein and the mathematics of the random walk was made more rigorous by Norbert Wiener. Bachelier's original proposal of

Gaussian distributed price changes was soon replaced by a lot of alternative models, from which the most appreciated was a geometric Brownian motion, where the differences of the logarithms of prices are Gaussian distributed [1].

Since the 1970s, a series of significant changes has taken place in the world of finance that finally will be born the new scientific field of Econophysics. One key year was 1973, when currencies began to be traded in financial markets, and it was published the first paper that presented a rational option-pricing formula [2].

A second revolution began in the 1980s, when electronic trading was adapted to the foreign exchange market and the result have became a huge amount of electronically stored financial data readily available. Since the same 1980s it has been recognized in the physical sciences that unpredictable time series and stochastic processes are not synonymous. The chaos theory has shown that unpredictable time series can arise from deterministic nonlinear economic systems and theoretical and empirical studies have investigated whether the time evolution of asset prices in financial markets might indeed be due to underlying nonlinear deterministic dynamics of a relative limited number of variables. Since the 1990s, a growing number of physicists have attempted to analyze and model financial markets and, more generally, economic systems, new interdisciplinary journals have been published, new conferences have been organized, and a lot of new potentially scientific fields, areas, themes and applications have been identified. The researches of Econophysics deal with the distributions of returns in financial markets, the time correlation of a financial series, the analogies and differences between price dynamics in a financial market and physical processes as turbulence or ecological systems, the distribution of economic stocks and growth rate variations, the distribution of firm sizes and growth rates, the distribution of city sizes, the distribution of scientific discoveries, the presence of a higher-order correlation in price changes motivated by the reconsideration of some beliefs, the distribution of income and wealth, the studies of the income distribution of firms and studies of the statistical properties of their growth rates.

The statistical properties of the economic performances of complex organizations such as universities, regions or countries have also been investigated in Econophysics. The new real characteristics of the Econophysics on medium and long term, will be a result of its new research like rural-urban migration or growth of cities, etc. The real criticism of Econophysics is the absence of age variable, because models of Econophysics consider immortal agents who live forever, like atoms, in spite of evolution of income and wealth as functions of age, that are studied in economics using the so-called overlapping-generations models. Even with the time, both physics and economics became more formal and rigid in their specializations, and the social origin of statistical physics was forgotten, the future is perhaps a common one. On the computer econophysicists have established a niche of their own by making models much simpler than most economists now choose to consider even using possible

connection between financial or economical terms and *critical points* in statistical mechanics, where the response of a physical system to a small external perturbation becomes infinite because all the subparts of the system respond cooperatively, or the concept of "noise" in spite of the fact that some economists even claim that it is an insult to the intelligence of the market to invoke the presence of a noise term… Many different methods and techniques from physics and the other sciences have been explored by econophysicists, including chaos theory, neural networks and pattern recognition.

Econophysics means also a scientific approach to quantitative economy using ideas, models, conceptual and computational methods of statistical physics. In recent years many of physical theories like theory of turbulence, scaling, random matrix theory or renormalization group were successfully applied to economy giving a boost to modern computational techniques of data analysis, risk management, artificial markets, macro-economy [3]. And thus Econophysics became a regular discipline covering a large spectrum of problems of modern economy.

But even today in this new era of Econophysics still remains a negative impact of physics with economics for which both physicists and economists are in part responsible, because of the failure of economists to deal properly with certain empirical regularities and a lot of economists still have a mind set which is unusually closed, or it is caused by the fact that many physicists cannot understand even the simplest supply-and-demand model, or by the fact that physicists and economists belong to the distinct categories of physical or natural (hard) science and social (soft) etc. Science or financial markets are only a very small part of economic theory and some physicists naively believe and search for universal empirical regularities in economics that probably do not exist and seem to have been reluctant to work in areas where data sets are short and unreliable, but this characterizes a great deal of data in the social sciences and economics.

3. Definitional issues of econophysics

The study of Economics and Economic phenomena with physical methods has experienced a surge of interest over the last decade for this great attention paid to Econophysics and its huge amount of high quality data made available by the internet technologies. Econophysics was from the beginning the application of the principles of Physics to the study of financial markets, under the hypothesis that economic world behaves like a collection of electrons or a group of water molecules that interact with each other, and the econophysicists are always considered that, with new tools of statistical Physics, and the recent breakthroughs in understanding chaotic systems, they are making a controversial start at tearing up some perplexing Economics and reducing them to a few elegant general

principles with the help of some serious mathematics borrowed from the study of disordered materials.

The term *Econophysics* was introduced by analogy with similar terms which describe applications of Physics to different fields, such as Astrophysics, Geophysics, and Biophysics. Econophysics was first introduced by the prominent theoretical physicist Eugene Stanley in 1995, at the conference Dynamics of Complex Systems, which was held in Calcutta, later known as Kolkata, as a satellite meeting to the Statphys–19 conference in China [4]. The multidisciplinary field of Econophysics uses theory of probabilities and mathematical methods developed in statistical Physics to study statistical properties of complex economic systems consisting of a large number of complex units or population (firms, families, households) made of simple units or humans. Particularly important in defining Econophysics is the distinctly difference between statistical Physics and mathematical statistics in its focus, methods, and results.

Rosario Mantegna and Eugene H. Stanley have proposed the first definition of Econophysics as a multidisciplinary field or "the activities of physicists who are working on Economics problems to test a variety of new conceptual approaches deriving from the physical sciences" [1]. "Economics is a pure subject in statistical mechanics," says Stanley. "It's not the case that one needs to master the field of Economics to study this."

It is a sociological definition, based on physicists who are doing the working on Economics problems. Why is Econophysicsan interdisciplinary and not multidisciplinary? Multidisciplinary suggests distinct disciplines discussing as with an economist and a physicist talking to each other. Interdisciplinary suggests a narrow specialty created out of elements of each separate discipline, such as a "water economist" who knows some Hydrology and Economics. The more usual way to define a multidisciplinary discipline is to do so in terms of the ideas or methods that it deals with as for example political economy or bioPhysics. However, transdisciplinary suggests a deeper synthesis of approaches and ideas from the disciplines involved, and is the term favored by the ecological Economics for what they are trying to develop.Another definition more relevant and synthetic considers Econophysics an "interdisciplinary research field applying methods of statistical Physics to problems in Economics and finance"[4].

Between Econophysics and Sociophysics are some important differences: while the first focuses on the narrower subject of economic behavior of humans, where more quantitative data is available, whereas the second studies a broader range of social issues. But generally speaking, the boundary between Econophysics and Sociophysics is not sharp, and the two fields enjoy a good rapport.

Econophysics is still a new word, even after twelve years, used to describe work being done by physicists in which financial and economic systems are

treated as complex systems. Thus, for physicists, studying the economy means studying a wealth of data on a well-defined complex system.

The contemporary way to define Econophysics is to do so in terms of the ideas that it involves in effect physicists doing Economics with theories from Physics, this raises the question of how the two disciplines relate to each other and it explains interest rates and fluctuations of stock market prices, these theories draw analogies to earthquakes, turbulence, sand piles, fractals, radioactivity, energy states in nuclei, and the composition of elementary particles (Bouchaud).

On the computer econophysicists have established a niche of their own by making models much simpler than most economists now choose to consider even using possible connection between financial or economical terms and *critical points* in statistical mechanics, where the response of a physical system to a small external perturbation becomes infinite because all the subparts of the system respond cooperatively, or the concept of "noise" in spite of the fact that some economists even claim that it is an insult to the intelligence of the market to invoke the presence of a noise term. Many different methods and techniques from Physics and the other sciences have been explored by econophysicists, sometimes frantically, including chaos theory, neural networks and pattern recognition. Another interesting and modern definition considers Econophysics a scientific approach to quantitative economy using ideas, models, conceptual and computational methods of statistical Physics. In recent years many of physical theories like theory of turbulence, scaling, random matrix theory or renormalization group were successfully applied to economy giving a boost to modern computational techniques of data analysis, risk management, artificial markets, macro-economy [3]. And thus Econophysics became a regular discipline covering a large spectrum of problems of modern economy. A large definition of Econophysics describes it like a new area developed by the cooperation between physicists, economists, mathematicians, which applies idea, method and models in Statistical Physics and Complexity to analyze data from economical phenomena [5].

Econophysics is actually nothing more than the composition of the words Physics and Economics, a link between the two completely separate disciplines that lies within the characteristic behaviour exhibited by financial markets similar to other known physical systems. The aim of Econophysics is to understand the universal behaviours of a market. (Alessio Farhadi). There are some different types of Econophysics, too: an experimental or observational type, trying to analyze real data from real markets and to make sense of them, and a theoretical type trying to find microscopic models which give for some quantities good agreement with the experimental facts (Bertrand Roehner, a theoretical physicist based at the University of Paris). First Econophysics models published by physicists in a Physics journal were those of Mantegna, (1991) and Takayasu (1992), though developed a few years earlier. But a Monte Carlo simulation of a

market was already published in 1964 by Stigler from the Chicago Economics School [6]. Nobel laureate of Economics, H.M. Markowitz published too with Kim a model for the 1987, about the crash on Wall Street, with two types of investors similar to many later models of physicists [7].

After 2000, Econophysics has matured enough to allow generalized applications, their field being called sometimes Econo-engineering.

Without being similarly defined, Econophysics remains the science that uses models taken especially from statistical Physics to describe some economic phenomena, an interdisciplinary research field, applying theories and methods originally developed by physicists in order to solve problems in Economics, usually those including uncertainty or stochastic elements and nonlinear dynamics.

Basic tools of Econophysics are probabilistic and statistical methods often taken from Statistical Physics or Quantum Statistics. Most Econophysics approaches, models and papers that have written so far refer to the economic processes including systems with large number of elements such as financial or banking markets, stock markets, incomes, production or product's sales, individual incomes etc., where statistical Physics methods are mainly applied.

4. Some relevant econophysics' methods

The contemporary Econophysics involves in effect physicists doing economics with theories and methods from physics, and this raises the question of how the two disciplines relate to each other and it explains interest rates and fluctuations of stock market prices, these theories draw analogies to earthquakes, turbulence, sand piles, fractals, radioactivity, energy states in nuclei, and the composition of elementary particles (Bouchaud). Today it becomes possible for methods and concepts of Statistical Physics and Quantum Statistics to have real influence in economic thought, but it is also possible that economical, mathematical, econometrical methods and concepts can influence Physics thought too. The methods of Econophysics define its main goal in applying Statistical Physics, Quantum Statistics, etc. and other methods used in Physics to economic data and economic processes. Why the methods and techniques from Physics can be successfully applied to economical and financial problems? Could be this the result of the great experience of physicists in working with experimental data gives them a unique advantage to uncover quantitative laws in the statistical data available in Economics? Is indeed Econophysics bringing new insights and new perspectives, which are likely to revolutionize the classical economics?

The study of dynamical systems is mostly based in expressing them in terms of (partial) differential equations which are further solved by analytic methods (or numerically). But this is somehow against our intuitions: we never meet in our life density distributions of our friends, cars, utility functions etc. We have converted

integers into a real numbers by averaging over certain areas. This can be done either by averaging over large enough volumes or over long period of times. Statistical physics is a framework that allows systems consisting of many heterogeneous particles to be rigorously analyzed. Inside Econophysics these techniques are applied to economic particles, namely investors, traders, consumers, and so on. Markets are then viewed as (macroscopic) complex systems with an internal microscopic) structure consisting of many of these particles interacting so as to generate the systemic properties (the microstructural components being reactive in this case, as mentioned already, thus resulting in an adaptive complex system).When the first physicists tried to analyze financial markets applying method of statistical physics they did not view these markets as particularly fine examples of complex systems, as cases of complexity in action. Some of them have even believed they are discovering laws or some stability evidence in the form of the scaling laws that Pareto first investigated (but that have been found in a much wider variety of economic observables). In truth, the stability evidence discovered or the empirical distribution is not a stable or definitive one (a conclusive one), because all the markets are characterized by non-stationarity, that is a general feature of adaptive complex systems: "the empirical distribution is not fixed once and for all by any law of nature [but] is also subject to change with agents' collective behaviour" [8]. Theory confirms that characteristics of complex systems involve three necessary conditions:

- complex system must contain many subunits (the exact number being left vague).

- subunits must be interdependent (at least some of the time).

- interactions between the subunits must be nonlinear (at least some of the time).

These properties are said to be emergent when they amount to new complex or systemic structure and an adaptive complex system add the following condition:

- individual subunits modify their properties and behaviour with respect to a changing environment resulting in the generation of new systemic properties.

Finally the organizing adaptive complex system also add an important condition:

- individual subunits modify their own properties and behaviour with respect to the properties and behaviour of the unit system they jointly determine (Latora & Marchiori, 2004)

In a comparison to classical statistical thought, Econophysics have revealed that heterogeneous in reality must be explained with homogeneous in theory. And this is the main role of method of statistical physics to unify and simplify economics. Science or financial markets are only a very small part of economic theory and some physicists naively believe and search for universal empirical regularities in Economics that probably do not exist and seem to have been

reluctant to work in areas where data sets are short and unreliable, but this characterizes a great deal of data in Economics.

In Econophysics, the activities of research focused on economic phenomena but are analyzed by concept, method and model of physics. Here three typical examples are:

a) the derivation of a price's distribution in the stock market (the change in the price "*x*" of stock market could be considered a random among dealers, then can derive a diffusion equation as a Brownian motion, for distribution *f(x,t)* of price in the stock market) [9]:

$$\frac{\partial f(x,t)}{\partial t} = \frac{1}{k} \times \frac{\partial^2 f(x,t)}{\partial x^2}$$

b) distributions of the form that follows a *power law* as: $\ln p(x) = -\alpha \ln x + C$, where the constant α is called exponent of the power law, and C is constant and mostly uninteresting (once α is fixed, it is determined by the requirement of normalisation to 1), or in the case of taking the exponential of both sides, this is equivalent to: $p(x) = Cx^{-\alpha}$ (a power-law distribution occurs in an extraordinarily diverse range of phenomena such as Finance, Macroeconomics, Demography's urbanism) [10]

c) a fractal and chaos analysis originating as Benoite Mandelbrot pointed out that the change in the price of the stock market has a fractal structure for certain range of time interval [11,12], and characterized as a self-similar structure expressed as: $x(t) = Ct^D$, where D is a fractal dimension, calculated by the box counting method. (The fractal structure is special case of a chaos and chaotic behavior is very common in a non-linear system as for an economic system; whether the process is chaotic or not can be determined by sign of Lyapunov index λ defined as: $\lambda = 1/n \, \Sigma \log |F'(t)|$, and when λ is positive (negative) then the process is chaotic (non- chaotic). [9]

Modern Econophysics has developed a new learning system for econophysicists, a system consisting of several methodological parts:

1)Basic Mathematics' methods,
2)Basic Econometrics'methods,
3)Echonophysics' methods, including chaos' methods and fractals' methods,
4)Virtual market's methods.

reviewing classical methods and concepts concerning to each part: Mathematical representation and analysis of the economic data for basic Econometrics; the chaos and fractal including the Lyapunov index and the fractal dimension for Econophysics; the Sato-Takayasu model and simulation for virtual market. [9]

5. Some results and new trends

From the perspective of the authors (an economist and a physicist), the two main elements of Econophysics for an update review are the results and the new domains in refereed literature. But in fact it is really difficult to do it properly without two significant opinions. Both are from the most important representatives of American school of Econophysics.

A. First opinion belongs to Eugene H. Stanley, the well-known father of the new science (physicist to Boston University, Department of Physics), and it was written during a scientific talk about recent applications of correlated randomness to economics for which statistical physics is proving to be particularly useful:

1. Traditional economic theory does not predict outliers, but recent analysis of truly huge quantities of empirical data suggests that statistical physics do not fail for it.

2. In classical Economics, neither the existence of power laws nor the exact exponents have any accepted theoretical basis, but the method of Econophysics does it.

3. Some economic phenomena are described by power law tails has been recognized for over one hundred years, but it becomes a scientific reality due to statistical physics.

4. Nowadays, the concepts of scaling and universality provide the conceptual framework for understanding the geometric problem of percolation frequently used in Econophysics.

5. Since economic systems are comprised of a large number of interacting units has the potential of displaying power-law behavior, it is perhaps not unreasonable to examine economic phenomena within the conceptual framework of scaling and universality.

6. The massing of empirical facts led to find laws in statistical physics, but finding them is only the first or empirical part of Econophysics task, and the second or theoretical part generates more difficulties because it means understanding new laws.

7. While the primary function of a market is to provide a venue where buyers and sellers can transact, the more the buyers and sellers at any time, the more efficient the market is in matching buyers and sellers, so a desirable feature of a competitive market becomes liquidity. Quantifying the fluctuations that reflects the underlying liquidity for a particular stock, offers a way of understanding the dynamics of market liquidity.

8. One supplementary reason the Economics is of interest to statistical physicists is the system made up of many subunits (Ising Econophysics model in which subunits are called spins, nothing else but buyers and sellers). The orientation of whether we buy or sell is influenced not only by our neighbors but also by news (bad news, means to sell). So the state of any subunit is a function of

the states of all the other subunits and of a field parameter. One of the most important things Econophysics had to do was quantify demand. And Econophysics did this by analyzing huge databases comprising every stock bought or sold, which gives not only the selling price and buying price, but also the asking price and the offer price.

9. The cross-correlation is another important problem that Econophysics has been studying, and that means how the fluctuations of one stock price correlate with those of another.

10. The first Econophysics' model was unifying the power laws (large movements in stock market activity arise from the trades of the large participants).

11. No one can predict future trends, but approximate inequalities are sometimes predictable. Econophysics, where physicists collaborate with economists and the result is more probable to be useful and responsible, has benefited from collaborations with top-quality energetic economists.

12. Econophysics realize its contribution of most utility in Economics is nothing else but the novelty of thinking about and analyzing data, especially since many methods from Mathematics and Statistics are not focused on handling the strange behavior of non-stationary functions that obey scale invariance, over a limited region of the range of variables [1].

B. The second is the opinion of Victor Yakovenko (physicist to University of Maryland, Department of Physics) identifies next results:

1. Econophysics attention was primarily focused on analysis of financial markets and its important achievements define new statistical mechanics of money distribution (starting with fundamental law of the equilibrium statistical mechanics of Boltzmann-Gibbs distribution and finishing with Gamma distribution.

2. Econophysics literature has often used, on exchange models, the terms money and wealth as interchangeably. For all econophysicists wealth is equal to money plus the other property that an agent has. In order to estimate the monetary value of property, Econophysics need to know the price, and thus appears models with a conserved commodity, more and more models with stochastic growth of wealth.

3. Econophysics discovers a lot more empirical data available for distribution of income from tax agencies or population surveys and creates new theoretical income distribution's models.

4. If in Physics, a difference of temperatures allows to set up a thermal machine, then automatically the difference of money or income temperatures between different countries allows extraction of the profit in international trade. This process very much resembles what is going on in this new globalized economy where the perpetual trade deficit of the United States is the consequence of second law of thermodynamics and the difference of temperatures between the USA and the low-temperature countries (China).

5. If in Physics language, the segregation found by Schelling represents a phase transition of the system (similar to interaction energy between two neighboring atoms that depends on whether their magnetic moments point in the same or in the opposite directions), while in economics it becomes transition, and this new concept means that a small amount of one substance dissolves into another up to some limit, but phase separation (segregation) develops for higher concentrations, and thus physicists have decided to be helpful for practical applications of such models [4]. In the last three to five years, a selected list of only ten new domains of Econophysics could be really amazing:

1. A thermodynamic formulation of Economics (J.Mimkes)

2. Understanding and managing the future evolution of a competitive multi-agent population (D.M.D.Smith, N.F.Johnson)

3. Empirical studies and models of income distributions in society (P.Richmond & others),

4. The contribution of money transfer models to Economics (Y.Wang, N.Xi, N.Ding)

5. Econophysics of stock and foreign currency exchange markets (M.Ausloos)

6. Econophysics of precious stones (Watanabe, N. Uchida, N. Kikuchi)

7. Quantum Econophysics (E. Guevara)

8. Statistical mechanics of money (A. A. Dragulescu and V. M. Yakovenko)

9. The Production Function (G. Fioretti)

10. Basel II for Physicists: A Discussion Paper (E.Scalas)

Europhysics will continue to contribute due to its statistical physics method to economics in a variety of different directions, ranging from macroeconomics to market microstructure, and that such work will have increasing implications for economic policy making.

Some of the new trends and new opportunities for the Econophysics are Indexphysics or the new construction of economic and social indices (from Consumer Price Index or CPI to Human Development Index or HDI), Physics of Distribution or physics analysis of wealth, political or economical power, and resources to optimize the dimension of firms, institution and other socio-economical entities, convergence and divergence on the micro market, the spectrum of evolution for the macro market with the best results in lower transaction costs and more efficient strategies, typical of physical systems with many interacting units, Econo- Engineering or Econodynamic Engineering, etc.

6. A final remark

This paper was devoted to the globalizing scientific research and theory under new names like in Econophysics' interdisciplinary methods, models, fields

and trends. In the future, it seems possible that the boundaries between sciences will be considered more as determined by methods, and not by the subjects of research. But it is also possible like the methods and the models to be nearly the same in many types of future scientific researches and theories. Finally, we hope that our contribution to review some of the most important papers, models, methods and trends of the new science called Econophysics was accomplished.

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ELECTRONIC BUSINESS IN BUSINESS

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Abstract

The management of a business in the digital economy is based on a management process called digital management. Business in the digital economy integrates information technologies and communications within its activities and may be partially or totally electronic. Management of the business is carried out using information systems that support for the substantiation and decisions. Business electronic involve a complete change in how the customer is viewed in relation to the organization; requirements "e-customer" are larger and increasingly sophisticated, and the organization must be able to offer services of a quality that in the largest communities of a multinational partners and customers.

Keywords: management, business, IT & C, Internet, electronic

The management of a business in the digital economy is based on a management process called digital management. Business in the digital economy integrates information technologies and communications within its activities and may be partially or totally electronic. Management of the business is carried out using information systems that support for the substantiation and decisions.

Yet what is different businesses through electronic traditional business?

- business value: May not stay exclusively in its tangible assets, physical, size or number of employees but its intangible assets such as brand names, company image, quality relationships with customers, the capability to carry out an interesting experience of interaction with them, and to provide value-added services (online payment products purchased, the convergence of several apparently distinct services in a complex product, aggregate, etc.);

- flexibility: if business is seen through personalization, adapting production to demand, a shift towards niche applications, creating business processes specific to each type of client;

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- Interactive response capability, shortening terms of transactions: involves collaboration between producer and consumer through IT & C, most often through software agents that can provide answers 24 hours from 24 without human intervention. Organizations can choose when and how they wish to fulfill their tasks on the Internet without simultaneously involved in the same moment in time, and business partners;

- orientation processes: relying on IT & C support of the whole informational activities, allowing the dismantling of electronic business boundaries imposed by rigid organizational structure and management of a full uniform and processes necessary business activity;

- integration: the organization can no longer be viewed in isolation, without considering the market it is part, its suppliers and business partners. Business is not conducted in May by taking into account the availability and capabilities own organization, but those of all its partners;

- the danger of marginalization - the digital divide: in the digital world economy is created major competitive differences between digital organizations and those that still have not managed to reach this point, digital organizations will be faster, more competitive, closer to customers and suppliers.

Maybe in this moment, in which the Internet can still be exploited to the maximum for objective reasons related to the insufficient development of technological infrastructure and communications in certain regions, the most effective model would be that of a company that will operate both in the traditional manner and according to the vanguard model in which the Internet media and IT & C primordial place.

Business electronic involve a complete change in how the customer is viewed in relation to the organization; requirements "e-customer" are larger and increasingly sophisticated, and the organization must be able to offer services of a quality that in the largest communities of a multinational partners and customers.

In addition to services provided by the organization be taken into consideration and interactive services, value-added - such as those based on the use of the extranet. Some industries are favored in this regard to the status of e-business, namely those characterized by short production cycles, high-tech innovation and flexibility in adapting to changing demands in the market. Also telecommunications, finance and accounting, marketing, the companies advertising, which offers management of human resources are among the first subjects in their e-business.

E-business organizations put in a real dilemma. On the one hand the global market that e-business in November offers a promising business opportunities, new business itself and a competitive level equalization between small and large organizations corporations. On the other hand explosion of Internet technologies threaten the very existence of traditional organizations. They see it put in front of the necessity to evaluate his competency base - the so-called "core competencies"

- marketing policies, procedures and internal standards, virtually all aspects of economic and functional. Major question is what must change in their work and if switching to e-business will bring the expected increase productivity; the responsibility of managers is to decide whether a shift to e-business is a necessity in the context of individual economic organization, if the products and services they offer can be supplied or sold online, and if their business partners have the capability to also move to e-business. Let's not forget that e-business means primarily a connection to a market level, so you can not consider a business in terms of e-business if its partners do not have the ability or desire to turn this step.

Electronic Business may be characterized in three views: conceptual, organizational and practical.

In terms of conceptual, so that a business will be promoted to the status of e-business be taken into consideration the following aspects:

- customer orientation - personalizing the largest possible extent and offers products based on preferences, field of interest and typology clients; obtaining and maintaining an image complete 360 on their way in providing services during and quantity expected;

- targeting process - addressing information and operational activities of the organization's along process and not along rigid boundaries imposed by organizational structure (divisions, departments, territorial distributed locations, etc.);

- opening - a date with the transformation in "e"-business organization is opening a series of opportunities such as the possibility of integrating information and informatics business partners, with banking institutions, customs, government, in order to tax automation economic transactions;

- new forms of work, retraining staff - the deployment of most modern forms of work, based on intensive use of means IT & C (tele - work, tele - centers etc.).. The staff is trained for the purpose of the use of computer, the transition from performing simple operations to complex works. This can be considered as staff move from the stage qualifying at education;

- Information security - the most since the property price of a business (whether electronic or traditional) is information, e-business require "a fundamentally different approach regarding security informatics. In the past the only people who accessed networks were certain employees and partners. These were people you knew and they had confidence. In e-business, do not know who accessed the information and I'll know if you can not trust them. So it is necessary a different set of principles, processes and technologies to ensure that networks remain protected".

In practical terms, e-business involves the following:
• the use of IT & C in a higher proportion for automating daily operations;

• ordering, simplifying and monitoring flows of information: one of the essential conditions that guarantee the operation of a business is simplicity electronic information flows. What this implies simplicity information flows?

- first is the concept of a unique point of entry: each category of information (products, customers, orders, invoices, etc..) should have a single entry point (whether as part of an integrated applications or not). For example, if the organization has two systems, an ERP and CRM, which should be decided between the two will manage customer orders;

- second is the separation of information flows: flows must be maintained at a level as easy as possible, where a stream to complicate the need to cover certain situations and Non-standard equipment, exceptional, it is desirable to create custom parallel flows, Instead complicated flow standard. An example of this is the feed supply within an organization. For domestic suppliers to operate on the basis of a certain working procedures for the external uses a different procedure, something more complex. It is the second favorite definition of information flows, one for one for the domestic and external, each with a stream responsible for well-defined, instead of a single stream generic, ramification;

- responsibility of managing flows for each defined information flow will define a responsible, regardless of the number of departments or locations that feed it cross. The feed must be approved of those the best known business process represented by the flow;

- monitoring flows of information: the automation process involves a part of the implementation of information systems in business functionalities necessary, but also establish a mechanism for tracking how they are developed. The most common model is the monitoring by logging sites (historical), which allow memorize system of "all" of each process in hand. Where appropriate, it is essential that the logs to memorize in particular processes which constitute interface points with external systems or applications for import / export data between different systems;

- in terms of costs, simplify and location information flows are evident beneficial effects, including in information licensing applications implemented within the organization.

Turning to characterize their practical terms, organizations e-business supposed to:

• scaling systems: equipment and systems must be designed so as to allow the increase of capacity operating systems a date with business development and diversification in terms of new territories, new products and services, new types of customers;

• The operational separation of the management: in an organization-type electronic business information systems design and information should have in mind the major differences between the executors and managers, among both OLTP and OLAP11.

Executors must have online access, quickly, reliably and safely at full functionality of information systems. For example, low-speed access to hardware and software resources responsible for the billing process may have a negative impact on itself company image. In terms of information executors operate only transactions, understanding here in particular documents and punctual operations. Operations they perform are usually short and repetitive. The information should provide a simple graphical interface.

On the other hand, top managers do not need access to the transaction area a system which they lead their business; most likely not even they are not familiar with all the details of business flows. Top managers should have access to those resources which allow them to achieve analyses and statistics, identify trends design, testing scenarios "what-if". Interaction with their system is usually long-term, require intense physical resources (in particular storage media). For readability analysis is recommended that the results presented reports to be brief, mostly in graphic form (pie-chart-ROMs, etc.).. Between the two levels are operational managers or intermediaries with expertise in the transaction area and in the analysis. They must provide information synthetic top managers on the basis of analytical reports obtained directly from the transaction system.

Finally, in terms of organization, switching to e-business has resulted in the emergence of new functions (positions in the establishment), such as the administrator of applications, content manager of Web pages, Web designer. Addressing e-business in terms of organization, the structure of electronic business will be detailed during the next chapters.

As you can see, the evidence presented above do not represent something other than a brief list of the main characteristics of a complex solution type ERP / SCM / CRM, which again leads us to the conclusion that the business of promoting e-business can be achieved by "mere" implementation of such solutions and implementation to be binding and accompanied by a process reengineering the entire organization.

One of the points of departure effective in promoting traditional organizations to e-business is, in the opinion of the author, development, implementation and maintenance of a Quality System (like ISO) correctly and completely, which describes in detail:

• organizational structure of the company: departmental structure, file for each post office in part

• procedure structure of the company, focused on flows and stock.

Textbook quality, instructions and procedures specified by it should be distributed to all staff. In measuring the procedures indicate the use of means IT & C (even only those primary, such as e-mail or electronic documents type scales) as a standard operation and communication company, we can consider the organization as an organization digital.

Defining any business model - not only electronic business - should take into consideration four basic elements:

1. products and services
2. infrastructure and network partners
3. capital relationships with clients
4. the financial aspects of the business.

Referring us to define electronic business models, the four elements must be considered in light of how they are influenced by IT & C.

IT & C improve products with information, ranging up to them digital completely. Using mass customization policy and methods offered by IT & C, electronic organizations can adapt his bid to complete the application, depending on the profile of each customer in hand. A second direction in which technology is influencing companies offer orientation November distribution channels for products and services. Publication catalogue of products and services on the Internet, supplementing it with the necessary mechanisms, confirmation, payment orders, automatically lead to better market the company in question has influence.

The second element - the company's infrastructure - has in mind:

• configuration company in terms of the value chain which it builds and exploits. Using technology in this sense refers in particular to the use and implementation of solutions type ERP, CRM and SCM for functional integration of all activities within the company in a common platform business, in accordance with economic laws and practices of local governments;

• analysis of internal resources available to us - tangible (fixed assets, equipment manufacturing, etc.). Intangible (brand names, patents and licenses, quality relationships with clients.) And human resources.

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THE EVOLUTION OF SNP PETROM STOCK LIST - STUDY THROUGH AUTOREGRESSIVE MODELS

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Abstract

Stock exchange market is one of the most dynamic and unpredictable markets. In this context, this work intends to analyze the SNP Petrom shares on the REGS market, based on the chronological series.

The economic series are often not stationary, but they can be stationarized by different data transformations. The simplest method used for stationarizing a series is to apply differentiating operators of various classes on the series. After applying this operator, a stationary series that can be modified by an ARIMA (p.q) process is usually obtained.

Most time series with economic content include a seasonal component besides the trend and random component.

The purpose of this work is to estimate the parameters of an ARIMA (p,d,q) model for SNP Petrom shares, where p is the number of autoregressive terms, d is the integration level of the series (how many times the series must be differentiated in order to become stationary) and q is the number of moving average terms (MA).

Keywords**:** list, economic series, autoregressive models

Introduction

In literature the determination of the best ARIMA(p,d,q) sample in order to shape certain remarks for a series of time entails an assembly of techniques and methods, better known as the Box-Jenkins methodology.

A process $\{Y_t\}$, t belongs to Z, it admits a representation ARIMA(p,d,q) should this meet the subsequent equality: $\Phi(L)(1-L)^d Y_t = \Theta(L)\varepsilon_t$ whereas ε_t is a white noise, the two polinomes $\Phi(L) = 1 - \sum \varphi_i L^i$, $\Theta(L) = 1 - \sum \theta_i L^i$ have roots larger than one, as the initial conditions $y_{-p-d}, \dots y_{-1}, \varepsilon_{-q}, \dots, \varepsilon_{-1}$ are not correlated with the random variables $\varepsilon_0, \varepsilon_1, \dots, \varepsilon_t, \dots$

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Building the model with box-jenkins methodology

The Box-Jenkins methodology comprises three main aspects:
- ♣ identification;
- ♣ estimate;
- ♣ checking.

Sample identification

Having available the sample of remarks on the evolution of SNP Petrom share quotation, a series of transformations must be brought to these so as to induce stationarity.

In case of time series describing the processes on the financial market, a scale transformation appears necessary, whereas most of the time the initial i series is being applied a logarithmic filter, in order to have a stationary series.

The next step is the elimination of the determinist component, after finding the possible oscillations present in the evolution of the series (Figure 1.).
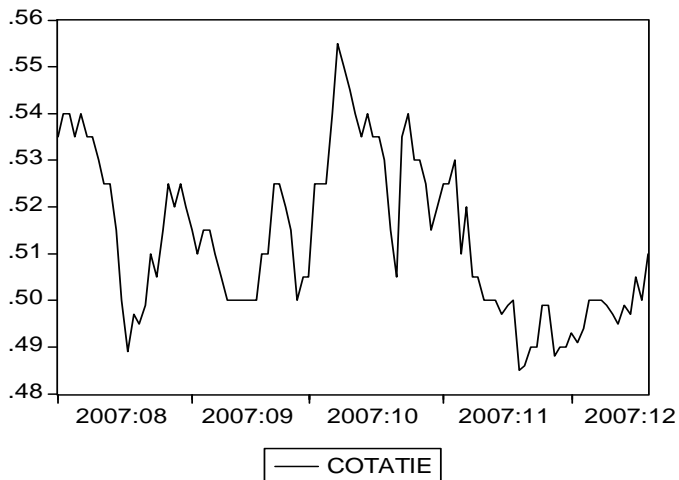

Figure 1 – Average price evolution of
Petrom SA shares on the market

Currently we are able to determine for which values of the parameters p and q the ARMA(p,q) process shape to the best in the stationary series obtained. A criterion in this regard is the behaviour of the autocorrelation (ACF) and of the partial autocorrelation (PACF) functions.

Corelograma p_RRC

Included observations: 489

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.|********	.|********	1	0.978	0.978	470.55	0.000
.|*******|	*|.	2	0.951	-0.126	916.31	0.000
.|*******|	.|.	3	0.924	0.001	1338.0	0.000
.|*******|	.|.	4	0.900	0.048	1738.6	0.000
.|*******|	.|.	5	0.874	-0.054	2117.6	0.000
.|*******|	.|.	6	0.848	-0.020	2475.0	0.000
.|******	.|.	7	0.824	0.045	2813.3	0.000
.|******	*|.	8	0.798	-0.076	3131.5	0.000
.|******	.|.	9	0.771	-0.031	3429.1	0.000
.|******	.|.	10	0.745	0.011	3707.1	0.000
.|******	.|.	11	0.720	0.018	3967.8	0.000
.|*****	.|.	12	0.697	0.005	4212.5	0.000
.|*****	.|.	13	0.676	0.025	4442.7	0.000
.|*****	.|.	14	0.653	-0.038	4658.3	0.000
.|*****	.|.	15	0.633	0.050	4861.6	0.000
.|*****	.|.	16	0.613	-0.046	5052.1	0.000
.|*****	.|.	17	0.592	0.005	5230.5	0.000
.|****	.|.	18	0.572	-0.009	5397.3	0.000
.|****	.|.	19	0.553	0.004	5553.5	0.000
.|****	.|*	20	0.539	0.092	5702.0	0.000
.|****	.|.	21	0.525	-0.018	5843.2	0.000
.|****	.|*	22	0.514	0.079	5979.2	0.000
.|****	.|.	23	0.504	-0.016	6110.1	0.000
.|****	.|.	24	0.495	0.020	6236.8	0.000
.|****	.|.	25	0.485	-0.030	6358.5	0.000
.|****	.|.	26	0.476	0.014	6475.8	0.000
.|****	.|.	27	0.466	-0.012	6588.7	0.000
.|***	*|.	28	0.455	-0.058	6696.6	0.000
.|***	.|.	29	0.443	-0.003	6799.1	0.000
.|***	.|.	30	0.433	0.020	6897.1	0.000
.|***	.|.	31	0.424	0.024	6991.2	0.000
.|***	.|.	32	0.417	0.051	7082.5	0.000
.|***	.|.	33	0.409	-0.029	7170.7	0.000
.|***	.|.	34	0.403	0.045	7256.4	0.000
.|***	.|.	35	0.397	-0.005	7339.9	0.000
.|***	.|*	36	0.394	0.075	7422.3	0.000

We can see that ACF decreases very slowly (up to 36 lags are statistically significant), as PACF dramatically decreases after the first lag. ACF suggests that the series of prices is not stationary, and it must be differentiated before applying the Box-Jenkins methodology. The test for the unit-root Dickey Fuller set out below proves that our series is actually integrated of order 1 (and not more).

Null Hypothesis: P_RRC has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=17)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.719685	0.0714
Test critical values:	1% level	-3.443551	
	5% level	-2.867255	
	10% level	-2.569876	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(P_RRC)
Method: Least Squares
Sample (adjusted): 1/04/2006 11/15/2007
Included observations: 487 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
P_RRC(-1)	-0.024636	0.009059	-2.719685	0.0068
D(P_RRC(-1))	0.130416	0.044974	2.899791	0.0039
C	0.002333	0.000881	2.648450	0.0084

R-squared	0.029038	Mean dependent var		-4.52E-05
Adjusted R-squared	0.025026	S.D. dependent var		0.002704
S.E. of regression	0.002670	Akaike info criterion		-9.007141
Sum squared resid	0.003451	Schwarz criterion		-8.981341
Log likelihood	2196.239	F-statistic		7.237291
Durbin-Watson stat	2.000354	Prob(F-statistic)		0.000800

Null Hypothesis: D(P_RRC) has a unit root
Exogenous: Constant

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-19.54109	0.0000
Test critical values: 1% level	-3.443551	
5% level	-2.867255	
10% level	-2.569876	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(P_RRC,2)
Method: Least Squares
Sample (adjusted): 1/04/2006 11/15/2007

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(P_RRC(-1))	-0.880858	0.045077	-19.54109	0.0000
C	-4.00E-05	0.000122	-0.328679	0.7425

R-squared	0.440506	Mean dependent var	-2.05E-06
Adjusted R-squared	0.439352	S.D. dependent var	0.003590
S.E. of regression	0.002688	Akaike info criterion	-8.996081
Sum squared resid	0.003504	Schwarz criterion	-8.978881
Log likelihood	2192.546	F-statistic	381.8541
Durbin-Watson stat	1.996914	Prob(F-statistic)	0.000000

After having established that the series is integrated of order 1, we are interested in ACF and PACF for the first difference d(p_RRC).

Sample: 1/02/2006 1/18/2008
Included observations: 488

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.|*		.|*		1	0.119	0.119	6.9697	0.008
.|.		.|.		2	0.002	-0.012	6.9716	0.031
*|.		*|.		3	-0.062	-0.062	8.8961	0.031

.|.	|	.|.	|	4	0.021	0.036	9.1067	0.058
.|.	|	.|.	|	5	0.021	0.014	9.3220	0.097
.|.	|	*|.	|	6	-0.049	-0.059	10.529	0.104
.|.	|	.|.	|	7	0.045	0.063	11.523	0.117
.|.	|	.|.	|	8	0.039	0.029	12.283	0.139
.|.	|	.|.	|	9	-0.000	-0.018	12.283	0.198
.|.	|	.|.	|	10	-0.054	-0.043	13.744	0.185
.|.	|	.|.	|	11	-0.029	-0.013	14.159	0.224
.|.	|	.|.	|	12	-0.047	-0.052	15.292	0.226
.|.	|	.|.	|	13	0.010	0.020	15.338	0.287
*|.	|	*|.	|	14	-0.077	-0.081	18.311	0.193
.|.	|	.|.	|	15	0.009	0.021	18.352	0.245
.|.	|	.|.	|	16	-0.009	-0.013	18.392	0.301
.|.	|	.|.	|	17	0.007	0.004	18.419	0.363
.|.	|	.|.	|	18	-0.035	-0.033	19.053	0.389
*|.	|	*|.	|	19	-0.107	-0.093	24.885	0.164
.|.	|	.|.	|	20	-0.024	-0.010	25.182	0.195
*|.	|	*|.	|	21	-0.091	-0.089	29.418	0.104
.|.	|	.|.	|	22	-0.011	-0.005	29.480	0.132
.|.	|	.|.	|	23	-0.013	-0.008	29.568	0.162
.|.	|	.|.	|	24	0.012	-0.006	29.638	0.197
.|.	|	.|.	|	25	0.004	-0.002	29.648	0.238
.|.	|	.|.	|	26	0.011	0.016	29.716	0.280
.|.	|	.|.	|	27	0.027	0.027	30.096	0.310
.|.	|	.|.	|	28	0.009	-0.001	30.143	0.356
.|.	|	.|.	|	29	-0.010	-0.012	30.192	0.404
.|.	|	.|.	|	30	-0.041	-0.049	31.081	0.411
.|.	|	*|.	|	31	-0.056	-0.066	32.702	0.383
.|.	|	.|.	|	32	0.033	0.040	33.260	0.406
.|.	|	.|.	|	33	0.000	-0.039	33.260	0.455
.|.	|	.|.	|	34	0.035	0.037	33.916	0.472
*|.	|	*|.	|	35	-0.078	-0.102	37.098	0.372
.|.	|	.|.	|	36	-0.015	0.007	37.211	0.413

The new correlogram has by far less statistically significant terms, therefore we should search for a sample of ARIMA (3,1,3) type, and even if we take into account how separate are the significant terms, it is possible that this sample be actually ARIMA (1,1,1).

2.2 Sample estimation

The stage of sample estimation includes the effective use of data to do parameter inferences according to the soundness of the sample. In order to

estimate parameters the method of maximum probability also known as the method of maximum likelihood or the method of the least squares can be used.

By using least squares, we have estimated the following model in Eviews:
d(p_rrc) c ar(1) ar(2) ar(3) ma(1) ma(2) ma(3)

Dependent Variable: D(P_RRC)
Method: Least Squares
Sample (adjusted): 1/06/2006 11/15/2007
Included observations: 485 after adjustments
Convergence achieved after 78 iterations
Backcast: 1/03/2006 1/05/2006

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.78E-05	3.50E-05	1.364149	0.1732
AR(1)	0.410036	0.217294	1.887007	0.0598
AR(2)	-0.030056	0.259614	-0.115771	0.9079
AR(3)	0.547195	0.171668	3.187527	0.0015
MA(1)	-0.309835	0.203756	-1.520619	0.1290
MA(2)	-0.022812	0.224538	-0.101597	0.9191
MA(3)	-0.656745	0.155067	-4.235223	0.0000

R-squared	0.040818	Mean dependent var		-4.33E-05
Adjusted R-squared	0.028778	S.D. dependent var		0.002710
S.E. of regression	0.002670	Akaike info criterion		-8.998945
Sum squared resid	0.003408	Schwarz criterion		-8.938555
Log likelihood	2189.244	F-statistic		3.390230
Durbin-Watson stat	1.979233	Prob(F-statistic)		0.002766

Inverted AR Roots	.97	-.28-.70i		-.28+.70i
Inverted MA Roots	1.00	-.34+.74i		-.34-.74i

Taking into account that the terms AR (2) and MA (2) are statistically non-significant, we re-estimate the sample without these:

Dependent Variable: D(P_RRC)
Method: Least Squares
Sample (adjusted): 1/06/2006 11/15/2007
Included observations: 485 after adjustments
Convergence achieved after 56 iterations
Backcast: 1/03/2006 1/05/2006

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.84E-05	3.79E-05	1.277387	0.2021
AR(1)	0.364003	0.130325	2.793049	0.0054
AR(3)	0.566562	0.125066	4.530114	0.0000
MA(1)	-0.291995	0.113841	-2.564937	0.0106
MA(3)	-0.696925	0.114552	-6.083924	0.0000

R-squared	0.037552	Mean dependent var		-4.33E-05
Adjusted R-squared	0.029532	S.D. dependent var		0.002710
S.E. of regression	0.002669	Akaike info criterion		-9.003793
Sum squared resid	0.003420	Schwarz criterion		-8.960658
Log likelihood	2188.420	F-statistic		4.682116
Durbin-Watson stat	1.927134	Prob(F-statistic)		0.001026

Inverted AR Roots	97	-.30+.70i		-.30-.70i
Inverted MA Roots	1.00	-.35-.76i		-.35+.76i

In this sample, all coefficients except the constant are statistically significant.

2.3 Sample Checking

This last stage of the Box-Jenkins methodology is at least equally important as identification or estimate stage. The purpose is seeing in what extent the sample built complies with the available observations dealing with the stochastic process studied.

The stage implies testing the sample adjusted in its relation with data in order to discover the inadequacies of the sample and to obtain its improvement.

Taking into account that we have estimated an ARIMA(3,1,3) sample, we are in the first instance interested in knowing if we have eliminated autocorrelation of residuals. The correlogram of residuals (in the object equation -> view -> residual tests -> correlogram Q statistic) proves that there are no more autoregressive statistically significant terms. For verify this assumption we can used the Breusch-Godfrey test.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.796514	Prob. F(2,478)	0.451496
Obs*R-squared	1.413281	Prob. Chi-Square(2)	0.493299

Test Equation:
Dependent Variable: RESID
Method: Least Squares

Sample: 1/06/2006 11/15/2007
Included observations: 485
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.26E-07	3.79E-05	0.003333	0.9973
AR(1)	-0.082179	0.181701	-0.452276	0.6513
AR(3)	0.070815	0.168008	0.421497	0.6736
MA(1)	0.039016	0.136551	0.285722	0.7752
MA(3)	-0.039871	0.137752	-0.289442	0.7724
RESID(-1)	0.080796	0.078024	1.035525	0.3009
RESID(-2)	-0.014196	0.054266	-0.261598	0.7937

R-squared	0.002914	Mean dependent var		5.37E-05
Adjusted R-squared	-0.009602	S.D. dependent var		0.002658
S.E. of regression	0.002670	Akaike info criterion		-8.998873
Sum squared resid	0.003409	Schwarz criterion		-8.938483
Log likelihood	2189.227	F-statistic		0.232826
Durbin-Watson stat	1.999891	Prob(F-statistic)		0.965813

The assumption can be accepted. Nevertheless, residuals are relatively far from normality, with both excess kurtosis and skewness positive (figure 2).
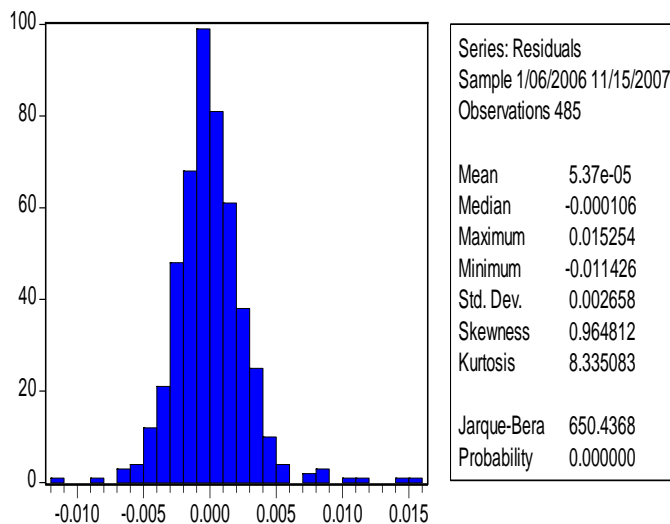

Series: Residuals	
Sample 1/06/2006 11/15/2007	
Observations 485	
Mean	5.37e-05
Median	-0.000106
Maximum	0.015254
Minimum	-0.011426
Std. Dev.	0.002658
Skewness	0.964812
Kurtosis	8.335083
Jarque-Bera	650.4368
Probability	0.000000

Figure 2 – The residual distribution

The test of double residual autocorrelation (squared residuals) also suggests that the heteroskedasticity hypothesis is not verified, and the ARIMA (3,1,3) sample should be estimated with a ARCH sample for variant, not at all simple least squares.

If we estimate the ARIMA (3,1,3) sample by means of a GARCH (1,1) sample for a variant, results are more encouraging:

Dependent Variable: D(P_RRC)
Method: ML - ARCH (Marquardt) - Normal distribution
Sample (adjusted): 1/06/2006 11/15/2007
Included observations: 485 after adjustments
Convergence achieved after 72 iterations
MA backcast: OFF (Roots of MA process too large), Variance backcast: ON
GARCH = C(6) + C(7)*RESID(-1)^2 + C(8)*GARCH(-1)

	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.18E-06	1.42E-05	-0.083107	0.9338
AR(1)	-0.334103	4.52E-05	-7383.989	0.0000
AR(3)	0.805044	0.000128	6272.457	0.0000
MA(1)	0.377929	0.000473	798.9506	0.0000
MA(3)	-0.883694	0.000149	-5921.544	0.0000
	Variance Equation			
C	5.56E-07	1.75E-07	3.179919	0.0015
RESID(-1)^2	0.256283	0.046331	5.531570	0.0000
GARCH(-1)	0.680985	0.056834	11.98200	0.0000
R-squared	0.076118	Mean dependent var		-4.33E-05
Adjusted R-squared	0.062560	S.D. dependent var		0.002710
S.E. of regression	0.002623	Akaike info criterion		-9.276988
Sum squared resid	0.003283	Schwarz criterion		-9.207971
Log likelihood	2257.670	F-statistic		5.614269
Durbin-Watson stat	1.745316	Prob(F-statistic)		0.000003
Inverted AR Roots	.83	-.58+.79i	-.58-.79i	
Inverted MA Roots	.85	-.61+.82i	-.61-.82i	
	Estimated MA process is noninvertible			

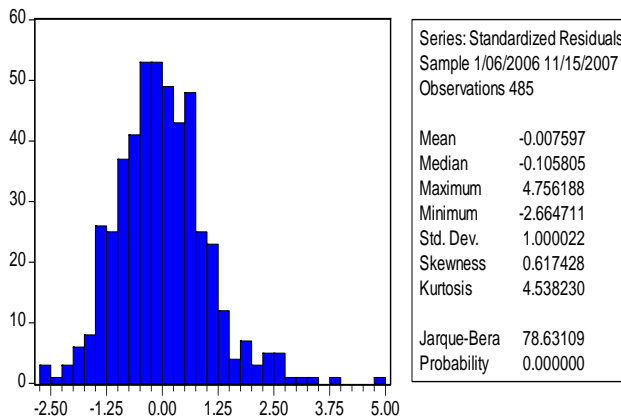Now, the residuals distribution is presented in figure 3

Series: Standardized Residuals	
Sample 1/06/2006 11/15/2007	
Observations 485	
Mean	-0.007597
Median	-0.105805
Maximum	4.756188
Minimum	-2.664711
Std. Dev.	1.000022
Skewness	0.617428
Kurtosis	4.538230
Jarque-Bera	78.63109
Probability	0.000000

Figure 3 – The residual distribution

Conclusions

ARIMA(3,1,3) sample, possibly with a GARCH (1,1) sample for the variant of residuals, adequately describes the structure of autocorrelation in the field of Rompetrol share prices.

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"Global" Diversity Management: The Case of Automobile Manufacturing Companies in Japan

Mariana Preda[*]

Abstract

Diversity management has been extensively studied in domestic settings. However, domestic diversity management research is inadequate for understanding diversity management concerns of global firms at the level of their strategic decision-making and cross-national coordination activities. The aim of this paper is to examine Japanese global firms in the automotive industry with a view to reveal their reasons for adoption, diffusion and implementation of global diversity management activities. The field research assumes a multi-party, multi-layered approach, incorporating interviews with decision leaders in key institutional actors, including diversity managers, trade union and employers' association representatives and, subject specialist scholars. The research also involves a case study of global diversity management in the Japanese automobile industry from a multi-stakeholder perspective. Despite their global outlook, the automotive companies still retain multinational rather than global approaches to diversity management, proposals of some remedies for overcoming current tensions in effective implementation of global diversity management activities.

Keywords**:** diversity management, global, automobile industry, Japanese companies.

1. Global effects: Incipient associations

The expansion of the legal protections to wider range of categories of workers and the divergence of diversity concerns across national borders calls for coordination of equal opportunities activities in global firms which do not only employ home and host country nationals but also have by definition third country workers. Therefore, while the individual differences are exacerbated in this international setting, also the complexity of legal provision requires that the management approach is indeed more proactive and overarching that it can accommodate current law as well as foreseen changes. Diversity management discourse with its promise to recognize and value individual difference came at the right time in North America and Western Europe when these legal changes were taking place. Japanese global firms present a different picture altogether. The

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reasons for this are manifold: Whilst Japan hosts the head quarters of a large proportion of world's global firms, Japanese labor law has remained largely unaffected by expansion of anti-discrimination legislation in the last three decades. Three key pieces of legislation were enacted in Japan during this period. Equal Employment Opportunity Law of 1985 was introduced to eliminate direct discrimination, the Employment Stability Law for Older Workers of 1986 to ensure stability of work for older workers and the amendment of the Labour Standards Law in 1987 to attempt at curbing the long working hours in Japan. However, the impact of these pieces of legislation is questionable. Whilst an Equal Employment Opportunity Law was introduced in Japan in 1985, this came little too late and with little impact and scope. The law only tackles sex equality and had provision for only direct forms of sex discrimination, where indirect form of sex discrimination are not considered unlawful. This point was raised by Rengo in their efforts to lobby the government for a change of law to incorporate indirect discrimination. Whilst direct discrimination may tackle overt forms of discrimination, subtle forms of discrimination, by which a single rule has a disproportionate impact only on one gender. For example, the long hours of work culture in Japan effectively keeps career opportunities away from women who are expected to carry out disproportionate share of domestic duties in corporations that value face time and presentation culture. Among other factors, the weakness of the law meant that the Japanese labor market has retained a strongly sex segregated profile in comparison to other industrialized countries. In response to the law, Japanese firms sought to provide dual career paths for women who wish to take up careers and women who wish to stay in the temporary workforce. However, Wakisaka (1997) argues that this was not a completely positive development as it still hinders women's chances of career moves between temporary and career track work, after they take up their first post. Furthermore, Japanese global firms have retained a homogenous workforce in head quarters in Japan. The core workers in Japanese international firms are predominantly male and overwhelmingly Japanese nationals (Arimura 2001, 2004). This model presents a contrast to increased heterogeneity in other global firms in Europe and North America. Furthermore, Japanese business and management schools have not broken the mould to offer courses in equality and diversity management; as such skills were not required explicitly by the recruiting companies. Whilst the globalization of Japanese firms have not engendered diversification of their managerial workforces, the Japanese society, customs, and labor market dynamics have altered to entertain greater levels of diversity. For example, the proportions of women who enter the labor market and women who wish to have careers have increased (JILPT 2005). Furthermore, women's accession to career tracks is underway (Wakisaka 1997). Family sizes have decreased and Japan has been receiving migrant labor particularly from South American countries (descendents of earlier Japanese migrants there) and other foreign nationals that arrived for

work. Increased concerns over management of diversity and some high profile cases abroad, such as the discrimination law suits against the Mitsubishi Motor Corporation (see Box 1), as well as the changes in the internal labor market has encouraged global firms in Japan to consider diversity issues with some degree of resolve.

This study also uncovered that personal commitment to diversity by individual diversity officers, senior executives and other individuals with a diversity cause to champion, has been a significant influence on the way diversity management approaches are shaped. The executive director of the case study company as well as by consecutive directors of Nippon Keidanren has fostered diversity management initiatives in these organizations. The campaign in Rengo had a more diffuse ownership. Interviews suggested that powerful individuals with clout in organizations can elevate the status of diversity management and support programs and initiatives. The individual support afforded by senior executives is essential in the recognition of diversity as a key institutional prerogative and a strategic concern for the organization. Diversity officers may face a number of obstacles to realize their aims, develop themselves professionally and find solutions to their diversity related concerns: One of the issues that my interviews have reviewed is the fact that there is little collaborative networking in the field of equality and diversity across sectors, firms, and different constituent actors. This is radically different to the case of USA and the UK where such networking between diversity management officers of companies, some of which are rivals in the sector. These networks provide essential means by which practices and view points on diversity management are exchanged and some common and unique cases are discussed with a view to find solutions. The interviews in the case study company, Rengo and the Nippon Keidanren revealed that indeed such networking is not possible in Japan, where the members of competing firms do not get together on issues of diversity. Lack of networks may have an isolating impact of diversity officers who may experience professional difficulties in overcoming their Contributing to the isolation of diversity officers is also the unavailability of diversity management training in Japan. As explained earlier, diversity management does not even constitute a minority interest in management curriculum Japanese universities. In response to a question regarding diversity management training one of the participants was able to refer to a doctoral thesis that she was able to locate in a university library and another participant mentioned a professor who has done research on the field. Other than individual attempts at professional development, the Japanese education system does not yet cater for professionalization of diversity officers. Furthermore, the situation of diversity managers as agents of change and influences on diversity management strategy is the least studied subjects in the Japanese context. Diversity management officer posts are relatively new posts in Japan, furthermore the academic attention has been devoted to institutional policy making and

implementation efforts in the field of diversity management, rather than the significance of the individual actors. Considering that these constraints are evident at the head quarter country of the Japanese automotive companies, deems the recruitment, selection, training and professional development of 'global' diversity managers even more complex. If the Japanese companies are to recognize the value that diversity management one day and decide to move from multi-domestic to global diversity management approaches, there needs to be several changes in the current education system in Japan to capture the need for training diversity professionals.

The case of individual commitment to and leadership for diversity management does not appear to be as strong in Japan as it is in other countries in North America and Western Europe. This may be due to the fact that in this current political and social climate, talking about diversity or championing the cause of diversity may be viewed as swimming against the tide. On the same token, diversity may be associated with certain 'unpleasant' concepts such as discrimination and inequality by sex and race. The wall of silence that these two overtly critical issues receive in the mainstream of Japanese scholarship in economics and management may also be responsible for the shortage of champions in different causes of diversity. However, the literature suggests (Sako 1997) that heterogeneity in the Japanese labor market is unlikely become less. Therefore, if the social discourses surrounding diversity can break the mould of silence, it may be possible to see more leadership in diversity management.

2. Discussions and conclusions

Who are the key actors that inform the global diversity management perspectives of Japanese car manufacturing firms? Why and how do Japanese automotive firms develop their 'global' diversity management approaches? What are the key influences and drivers in adoption and diffusion of diversity management approaches in Japanese global firms?

The layered approach that the study has taken allows for identification of a range of actors at each level of influence. At the global level, the alliances, strong and weak economic, social and labor ties between Japan and other industrialized countries has fostered the development of the current legal framework for equality in Japan. The same actors are now in operation, as the rest of the industrialized world has been moving from equal opportunities laws that are limited to gender and ethnicity to laws which offer protection against discrimination on the basis of a wider range of differences and diversity. International Labour Organization (ILO) also plays a role in pushing for international labor standards. International institutions of significance are the ICFTU and its Asian and Pacific counterpart for the trade unions. Furthermore, transfer of knowledge through best practices in global firms as well as universities allows for public and management opinion to

be shaped. However, the global actors that shape the global diversity management approach that the Japanese car manufacturing companies take are still rather weak in terms of their relevance to global diversity management concerns. At the national level, the state, corporations, trade unions and employers' associations are the key actors. However, in the Japanese context, the impact of these national actors remains at the level of domestic diversity management. There is no provision or encouragement for global firms to adopt global diversity management approaches or to make these public for that matter. Furthermore, the weak and almost negligible political and social support for causes of equality and diversity means that there is little concern over global diversity. Indeed, attention has almost exclusively been on growing heterogeneity in the domestic labor markets. Nevertheless, in recent years, due to changes in the composition of labor supply, the national level actors have started debating equality issues, particularly in relation to women and older workers. Furthermore, there are company based efforts due to an increased awareness of the business case for equality and diversity. These initiatives and programs should not be discounted altogether, because there is little union or other actor involvements.

At the organizational level, the actors are both external and internal. External actors are the national level actors, outlined above. The internal level actors diversity management offices, or other functional areas that take up diversity management roles as well as individuals that partake in diversity management decision making in a spectrum of roles ranging from championing diversity to displaying backlash behavior against it. The organizational level actors in this study were the ones carrying much of the burden of interpreting the conflicting pressures of the labor market supply and demand, competitive pressures of the market, and global, regional and national trends. Despite the burden these individuals bare in balancing these competing pressures, they are often the ones who are afforded the lowest level of resources in terms of training and professional development opportunities.

Why and how do Japanese automotive firms develop their 'global' diversity management approaches? This question was formulated with the hope that Japanese firms in the automotive sector would assume global diversity management activities. The interviews have revealed that indeed the Japanese automotive firms have diffused rather than coordinated management of their diversity management activities in their global branch networks. This model is more akin to the multinational firm model, where practices are localized without overarching global management. The automotive firms in Japan find the multinational model more appropriate possibly for two reasons. Their headquarter workers and senior managers in their branch networks are still drawn from homogenous pools of Japanese men, only very few women and even fewer minority ethnic workers or third country staff are employed in these posts. Sole use of Japanese language in head quarters of Japanese firms presents a natural

barrier to employment of foreign nationals. The homogeneity of the workforce is also coupled with an inherent belief in Japanese ways of work and their superior over other forms of organization. This belief contradicts the very principles of diversity, which is about allowing difference. Japanese global firms' management approach does not yet allow for 'global' diversity offices to be set up. However, international talent pool is small and global firms have to compete for recruiting best staff. In these times of change, the clash between the old ways and the new ones is likely to swing for the benefit of the new. Global firms in the Japanese automotive sector are under pressure to increase their productivity. International research suggests that there are performance improvements in effective management of global diversity. It is unlikely that the Japanese firms will ignore the substantial empirical evidence that comes from North America and Western Europe.

Finally, the likelihood of adoption of domestic and global diversity management is contingent upon the speed of various transformations at multiple levels of engagement. Despite the bleak picture that the current evaluation presents of the present status of global diversity management efforts of Japanese firms, the winds of change are certainly blowing from the right direction for future adoption of diversity management by firms. However, time will tell if the Japanese companies will respond in ways that will embrace or battle against the demographic and competitive challenges of increased global diversity.

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THE FUTURE OF THE JAPANESE MARKETING

Oana Preda[*]

Abstract

It should not be surprising that Japanese marketing practices vary from traditional Western marketing practices, because marketing is the process of satisfying wants and needs and these desires vary tremendously among cultures. In fact, it would have been surprising if differences were not seen because, in many aspects, the American culture and the Japanese culture are practically diametrical opposites. Of all the business disciplines, marketing is by far the most culturally sensitive. The critical questions most Japanese ask are not "Am I making any money?" or, "How much money am I making?" but rather, "Am I a leader in my business?" "How do I compare with my competitors?" "What must I do to survive in the 21st century?" Technological self-sufficiency, market share, and industrial rank (status) are the key phrases in Japanese business practices.

The Japanese system of decision-making imposes a predisposition to enter new technologies to keep up or gain an advantage on competitors. The Japanese undertake a research project not because it will solve a particular problem, but because it may contribute to solving a number of seemingly unrelated problems. Americans, in contrast, are more narrowly focused.

Keywords: japanese marketing, japanese culture, american culture, decision-making

The reason the Japanese have succeeded is precisely because they had a hands off policy and let the locals conduct marketing the way it needs to be done in each particular region or country. Perhaps it is not their marketing skills but their *cultural sensitivity skills* that ought to be boasted. The Japanese marketing strategy revolves around their management of product market evolution. They choose and sequence the markets they decide to enter, the products they decide to produce, and the marketing tactics they decide to adopt for the market segment. However, the most important factors in their international marketing success is their acceptance, understanding, and application of marketing principles to the markets they decide to enter

Marketing as practiced in Japan is not that which is performed outside the country. As the Japanese have catapulted to become an economic power, many

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reasons have been given about their rapid progression--one is the claim that they are the world's premier marketers. Certainly American marketers would argue the point. How well are the Japanese versed in the development and implementation of marketing strategy? Is there really a difference between marketing practices used in the West and those implemented in Japan?

Basically the Japanese view marketing in a different fashion than the West. The Japanese idea of marketing is that if a good, quality, lower priced product is produced based on consumer information, people should buy it. They rely on this belief to succeed. This, and the belief by most Americans that Japanese products are of superior quality, gives them a huge advantage over their competitors. Most Japanese companies, however, continue to overemphasize manufacturing at the expense of marketing as it is known in the West. In many cases, the Japanese do not place much importance on marketing. An obsession still exists with production. They basically have the opposite mindset vis-a-vis American companies. Both the Japanese company and the Japanese culture are well suited to manufacturing[29]. They approach projects from a manufacturing point of view- but good manufacturers are not necessarily good marketers. The marketing success of Japanese products in the United States is derived from the Japanese hiring American marketers to sell their products to Americans. Therefore, it is American marketing of Japanese products that has made Japanese goods in the United States so successful.

The differences between the Japanese and American marketing practices are summarized in the following discussion[30]

➢ Products - Although Japanese and Americans appear very similar in their product needs, wants, and uses, the vast cultural distance between the two cultures creates a huge gulf that must be bridged. The Japanese tend to diffuse faster and to a greater extent than Americans. Americans will be the first to try new products, but American markets develop slower than Japanese markets because of the differences between individual and collective cultures. In Japan, once a product becomes hot everyone must have it[31].

➢ Service - Japanese are probably a decade or more ahead of American consumers in their fetish for service and quality. American consumers will close the gap, but it is doubtful that they will ever catch up-basically for cultural reasons. In the years ahead the value Americans place on service and quality will increase, but it will never reach the pinnacle that it has in the Japanese culture

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[29] Kotler, Philip and L. Fahey," The World's Champion Marketers: The Japanese," Journal of Business Strategy, 2, 1982

[30] Herbig, Paul A. and Pat Borgstorff, "The Japanese Consumer: Are They Really Different From the U.S?," Journal of International Marketing, 2/1 1994, 11-17.

[31] Herbig, Paul A. and Joseph C. Miller, "The Affect of Culture in the Adoption Process: A Comparison of Japanese and American Behavior," Entrepreneurship, Innovation, and Change, 3/2, June 1994,22-35.

because of the many choices and options that Americans have that the Japanese do not. Americans seem to be able to conduct a trade-off between price and quality, and are willing to accept lower quality goods (discount stores, etc.) for a break in the price. The Japanese consumer demands high quality and pays high prices as a result-only recently beginning to trade quality for discounts. In this respect the Americans are a generation ahead of the Japanese. The Japanese view service as a labor-intensive function that must be present to show the customer how much he is valued. The Americans view is to automate the function as much as possible to minimize the cost while providing maximum choice and individual flexibility for the customer.

➤ Consumerism - The ineffective Japanese consumerist movement and the lack of concern of goods by producers are analogous to U.S consumers and producers in the 1950s. As incomes keep growing, more Japanese are exposed to living conditions abroad and the number of the *shinjinrui* increase-Japanese baby boomers who want affluence now and not sacrifice to acquire it later-this gap will close in the years to come. However, like its penchant for service, it is doubtful if the Japanese will ever totally catch up because of the American cultural worship of the individual and his or her rights compared to the Japanese obligations to its society and the acceptance of some limitations for the greater good of the country and the corporation.

➤ Demographics -Demographics will adversely affect Japan early in this new century. Japan has the highest share of seniors in the world. A nation of pensioners is due by 2010. Japan's personal savings rate will be depressed by the aging of its population-old people tend not to be money savers. The greater the number of elderly, the greater the drain on savings. The Bank of Japan thinks the savings rate could fall as low as 8 percent from the current 16. It could fall so much that Japan may well return to a deficit on the current account of its balance of payments and will need to import capital. As unit labor costs rise, older workers have to be paid more, especially if pay is tied to seniority rather than merit as has been the tradition.

Japan is rapidly on its way to becoming a nation of consumers, pleasure seekers, importers, investors and speculators. The abundant money and free financial markets risk creating a boom and bust cycle. Japanese workers are becoming more concerned about personal fulfillment and less willing to devote their entire lives to the companies who employ them. Japanese workers are beginning to ask for some leeway during off-hours. Many believe that boundaries for work-related duties should be established.

The Japanese have also developed exacting standards for product quality, durability and reliability, and at the same time demand fashions and styles that match their individual lifestyles and ages. Individualization, while maintaining high quality and reasonable cost, has become one of the keynotes in consumer marketing in Japan. The Japanese market demands not only the basics such as

good finish, ease of operation, diversity, and high level of reliability and service, but it is a highly demanding market in almost all other aspects. This drive for perfection has been advantageous in their marketing of products overseas.

Nevertheless, emphasizing manufacturing abilities can be a detriment in marketing, especially in the marketing of fast-moving products. The same type of slow, deliberate consensus building thought process that helps the Japanese produce quality products has a negative impact when they introduce those products into a real time competitive environment.

Japanese do not delegate much authority to their line positions. Simple decisions often take a week or more to be made. It becomes almost impossible to react quickly to changes in the marketplace. Group decision-making in Japan makes it difficult for someone to do anything that does not go by the book-thus creating an atmosphere where a lack of creativity dominates. The chain of command must be adhered to. Everything is done by a committee. No one takes responsibility for the marketing plan because of job ambiguity-although no one is praised or blamed for its outcome, either. Individuals take few risks.

Japanese companies get very close to their customers. This, however, is not necessarily equated with strong marketing. Excessive dependence on customers also inhibits the development of radically new products to fulfill needs of which customers are unaware or only vaguely aware.

In addition, the Japanese have not yet demonstrated much marketing success in markets where major cultural differences are paramount; their success has been almost exclusively in product markets where the notions of function and utility are reasonably consistent across cultures, autos, electronics, steel, etc. However, where major elements of cultural differences exist, they have not been as successful (e.g., food products, cosmetics, fashion, services). Japanese companies also typically use large Japanese trading companies that are familiar with the social atmosphere, business customer, legal procedures and language of the host countries. Their scale of operation and experience allows economies of scale which helps reduce distribution costs. The trading companies often take on the role of the sales and marketing arm, allowing the firm to concentrate on economies of scale to provide a low cost, good quality product. For many Japanese companies, the *sogo shosha* is their marketing arm-companies merely keep the plants humming to manufacture high quality, low-priced goods.

What will Japan's future be in the highly competitive world market? This puts the Japanese company and its paternal relationship with its employees into a dramatic turning point: stay traditional and fall behind or become lean and mean and eliminate the lifetime employment paternal arrangement. If this were not enough, the domestic Japanese marketplace can no longer be a protected turf because of external pressures. Inevitably, it will be invaded by all types of *gaijin* companies, each aggressively pursuing a Japanese market that has eluded them for over 50 years.

If open competition from the West is not enough, Japan has seen the Third World countries (especially the mini-dragons of Southeast Asia) become tough and aggressive competitors. These countries are copying Japan's approach to invading new markets, and are now offering high quality products at a lower cost than the Japanese. The protectionist trend in the United States and Europe to protect local industries by import quotas and non-tariff barriers has Japan implementing more expansion moves within those countries.

Marketing, as practiced in Japan (just as marketing as practiced in the United States or France), is culturally based and optimized to its particular culture. Behaviors that consumers in the West might find unusual, illogical, ineffective, or unacceptable are commonplace elsewhere and are attune to the country's particular mores (it is just as likely other countries would find Westerner behavior just as unlikely).

The future for marketing in Japan is a continuation of the past with a Western twist. Japanese success overseas has resulted more from high product quality, pricing muscle, and economies of scale made possible by a protected market. As the latter gives way, impacts will be felt on the former. As Western companies meet Japanese product quality and attributes and pricing advantages disappear (previously conferred by low capital costs and premium prices in its domestic marketplace), Japanese companies must begin to turn away from the first meaning of marketing and toward the last meaning-the full marketing process. This will require hiring and training marketing specialists, a difficult and unusual process in a cultural environment that trains and rewards its workers to be generalists.

If Japanese companies allow local marketing specialists (who know the marketing process philosophy and use it expertly) to run the marketing operations in the local market, success will continue. But if Japanese companies have very visible "glass ceilings" for non-Japanese managers, that same success can also be fleeting as local personnel leave for other companies that do not have the same ethnocentric limitations. This dilemma will haunt the Japanese: allow more and more non-Japanese into its higher management and thus disrupt the homogeneous Japanese cultural roots of the company, or loose the more talented and capable locals upon which the company must depend for its success in foreign markets. Success overseas will eventually depend on Japanese companies becoming more process oriented and incorporating more locals into their operations. Because success is still the overriding concern among Japanese companies, the inevitable conclusion is major changes-not merely in marketing practices-in overall company practices are necessary for the typical Japanese company to survive and compete in the international markets of the twenty-first century.

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THREE APPLICATIONS OF TRANSACTION COST ECONOMICS IN ROMANIA

Radu A. Păun[*]

Abstract

We begin by investigating the use of complex contracts in Romania. A transparent transaction cost economics (TCE) model generates the hypothesis that buyer and seller relationship-specific investments have opposite effects on contract complexity. Our analysis counters the problem of unobserved heterogeneity, generates estimates of the effects of specific investments that are opposite in sign on opposite sides of the agreement, and explains the patterns in the biases of ordinary least-squares estimates. We continue by presenting a simple methodology for measuring transaction costs at agreement level. These costs are assessed as large, accounting for more than a fifth of value added. The validity of the measure is tested and quality of the data is analyzed. Finally, we investigate the determinants of transaction costs estimates thus obtained. Results show that TCE theory is very successful at predicting the existence of transaction costs and moderately so at predicting their size when incurred by firms.

Keywords: new institutional economics, transaction cost economics, contract complexity

Introduction

Part of the New Institutional Economics, Transaction Cost Economics (TCE) considers transaction costs to arise from two inherent features of the human nature: bounded rationality and opportunistic behavior. The pivotal idea in the field, attributed to Ronald H. Coase, is that firms conduct their activities, shape the governance structure of their agreements, and rely on particular institutions in an attempt to save on transaction costs. This paper fully adheres to these views and briefly presents three applications of the TCE theory in Romania.

Apart from following the same line of thought, the three applications also share the same data set, collected by a survey of Romanian companies. We present below some features of the survey, which will help the reader to better understand the types of analyses we were able to conduct. Implemented in the middle of 2001, the survey targeted middle and large companies, and two hundred fifty-four firms were included in the sample. The enterprises were located in and

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around Romania's largest twelve cities, conducted business in various sectors of activity, and had various ownership structures. The goals of the survey were to understand the way Romanian companies conduct business and, in particular, to assess their reliance on the formal legal system. To achieve these goals, four different respondents were interviewed in face-to-face meetings: the general manager, the head of the legal department, and the managers of the sales and procurement departments. The questionnaires of the latter two managers are very similar, the only difference being that while one asks about the activities of the company as a seller, the other inquires about its activities as a buyer. The responses offered by these two managers provide most of the information we use in this paper. The main feature of the survey, with direct implications on the types of analyses that could be conducted, is the richness of information it provides.

In what follows, we will cover the main aspects of the three chapters in Păun (2007). For obvious space considerations, we avoid going into detail here and instead guide the reader to the relevant section where such details are exposed.

The conditional effect of partners' relationship-specific investments on contract complexity

One of the paradigms of the TCE field, following Klein et al. (1978), is that an investment in a relationship-specific asset leads to the existence of appropriable quasi-rents. Corroborated with inevitable gaps and ambiguities in contracts, the existence of quasi-rents triggers partners' opportunistic behavior, thus leading to the existence of transaction costs. Vertical integration (the situation when trading partners act under unified ownership and control and their actions are guided by a unique, profit-maximizing objective) is the most prominent solution found in the literature.

However, vertical integration is one form of governance, placed at one end of a spectrum. At the other end are spot market exchanges, when one-time agreements take place between independent economic actors and all the relevant information is contained in the price. According to Shelanski and Klein (1995), between these two poles there are a variety of "hybrid" modes such as complex contracts, long-term contracts, and partial ownership arrangements. Our focus is on complex contracts, seen as possible deterrents of opportunism and viable alternatives to integration.[32]

The parallel between vertical integration and the use of contracts is by no means novel: in an early contribution, Kessler and Stern (1959) compared "contract integration" to vertical integration, while Lafontaine and Slade (2007)

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[32] We use the term *complex* and not *complete* contract. Williamson (2000) considers that bounded rationality, limited foresight, skill, knowledge, and time, combined with increasing costs of designing more complex contracts, imply that, regardless of their complexity, all contracts are incomplete.

consider contracts as "almost integration". The parallel also appears strongly in the empirical literature. Despite the low number of studies examining the choice of complex contracts, especially when compared with the vast literature on vertical integration (Chiappori and Salanié, 2002), the variables used to explain the make-or-buy decision are also those used as determinants of the choice between simpler and more elaborated contractual forms (Crocker and Reynolds, 1993; Gompers and Lerner, 1996; Saussier, 2000). To summarize, the main connection we investigate is between the existence of opportunism and the complexity of contracts, much in the same way the studies in the vertical integration literature investigate the connection between the existence of opportunism and the make-or-buy decision. Therefore, our results are comparable to those in the vast field of vertical integration. Since opportunistic behavior is particularly acute in the presence of specific investment, the commonly used regression equation is:

$$C_i = \alpha + \beta I_i + \gamma Z_i + \varepsilon_i,$$

where i represents the unit of observation (a particular transaction between two firms), I_i measures relationship-specific investment, Z_i is a vector of transaction and firm characteristics, and ε_i is an error term. C_i is a measure of the contract characteristics (length, complexity, type of pricing scheme) and is analogous to the decision to vertically integrate employed in other studies. In our particular setup, C_i is a measure of contract complexity, which we construct based on contract features.[33]

The common result in the TCE literature is that β is positive: a relationship-specific investment increases the threat of opportunistic behavior and, in order to counter such a behavior, partners rely on more integrated governance structures (Joskow, 1988; Gibbons, 2005). When examining vertical integration, those who contrast TCE and the property-rights theory (PRT) focus on the sign of β. PRT implies that the sign of β depends on which party is undertaking the specific investment, and that the sign will be opposite for the two parties in an agreement (Whinston, 2003; Acemoglu et al., 2005, Lafontaine and Slade, 2007). By contrast, the existing TCE theory predicts that any investment in relationship-specific assets increases the likelihood of integration (Whinston, 2003).

The possibility of a negative β in the TCE framework is shown in a transparent model which resembles that of Koss and Eaton (1997). For space consideration we do not go into the model's details. Rather, we only mention here that it is based on the rent-seeking branch of TCE (Gibbons, 2005) and try to present it intuitively.[34] The main assumption we make is that, in a regular

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[33] For details on the construction of all variables see section 6.2 of the first chapter in Păun (2007).
[34] The model is presented in detail in section 4.3 of the first chapter in Păun (2007).

transaction between a buyer and a seller, the two parties are not equally exposed to the opportunism of the other. In addition, corroborated information indicates that in 2001 Romania the sellers were vulnerable to the opportunism of the buyers even without undertaking specific investments.[35] Then, if sellers need to undertake such investments, which will increase their exposure even more, they will do so only if the buyers agree to enter into more complex contracts. However, the buyers' situation is different: their relationship-specific investments may balance the exposure of the two parties, thus leading to an agreement which can be governed by a less complex contract. An alternative view follows the discussion on hostages in Williamson (1985). Namely, buyers' specific investments may have advantages purely for transactional reasons: they can be seen as a sign of commitment, thus increasing the trust between the partners. Such relationships again do not need to be governed by complex contracts.

There are several concerns with existing TCE studies, which we address. Chief among these concerns is the possible endogeneity of the right-hand side variables, in particular of the decision to invest in specific assets (Chiappori and Salanié, 2002; Masten and Saussier, 2002, Sykuta, 2005). If this endogeneity is not taken into account, estimated coefficients of parameters (in particular β) may not be consistent. We tackle the probable endogenous nature of the decision to invest in specific assets and rely on an instrumental variables approach. Also, our model offers precise predictions on the direction of the biases when the unobserved heterogeneity is not accounted for. Namely, the consistent estimates of β are positive for the seller and negative for the buyer, while both ordinary least-squares (OLS) estimates are shown to be biased toward zero. This means that the difference between the OLS estimates for β for the two sides of the transaction is smaller than the difference between the consistent estimates, which may explain why opposing signs for the opposite sides are not commonly found in the literature.

Acemoglu et al. (2005) is the only other empirical study we are aware of which finds opposite effects of relationship-specific investments for the two parties in a transaction in a PRT framework. Interestingly, the signs Acemoglu et al. (2005) predict are opposite to ours, but their predictions also rest on a departing prediction. Therefore, in both TCE and PRT, it is the prediction of opposite signs on opposite sides of the agreement that is likely to be a feature of the empirical studies, not which sign is positive and which is negative.

Other concerns relate to the type and quality of data being analyzed. Since contracts among firms are often confidential, the areas of research are limited to those where contracts are available: contracts between state and private entities (as governments usually publicize their contracts) or contracts between firms, which are public because the sector of activity is strictly regulated (Chiappori and

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[35] For the precise arguments the reader is guided to section 4.2 of the first chapter in Păun (2007).

Salanié, 2002). Despite the meaningful insights these contracts uncover, most of the agreements are reached between private companies acting in diverse and unregulated sectors, where the incentives for opportunism may differ, hence the findings may not easily extrapolate to the vast majority of agreements firms enter into. Our data address this issue and the firms in our sample come from various sectors of activity. A related concern is expressed by Sykuta (2005): TCE studies tend to rely on samples of reduced size, which impacts on the quality of the estimates. We also address this: given the structure of the questionnaires, we extract information on two agreements each firm has entered into, leading to a potential sample of five hundred eight observations.[36] Lastly, another concern comes from the measurement of the primary concepts. In particular, researchers have encountered difficulties in measuring asset specificity directly, and so proxies are often used instead. The choice of proxies is open to debate (Shelanski and Klein, 1995; Masten and Saussier, 2002). Our measure of the relationship-specific investment (despite being a binary variable) captures the precise information of interest and is consistently measured across firms and sectors.

Also, given particular features of the questionnaires we use, we are able to gather information on both sides of the same agreement, while most of the studies we've surveyed rest only on information from one side. The wealth of information our survey provides makes the analysis conducted here possible.

An additional point needs to be emphasized. Contracts usually imply written agreements, designed based on a clear set of rules. Partners in a contract agree to follow certain procedures when disputes arise and to present their case before arbitrators (usually commercial courts). Thus, partners are discouraged to behave opportunistically by the penalties imposed by the formal legal system. Investigating the use of contracts between companies is therefore equivalent to investigating the use of the legal system in a developing, transition economy, such as Romania of 2001.

Our empirical results fully confirm the predictions of the model. First, when OLS is employed, both the buyer and the seller relationship-specific investments seem to have a positive impact on contract complexity, with the estimated coefficient of the former not statistically significant. These findings, though incorrect, match the overwhelming majority in the TCE literature, when researchers do not account for unobserved heterogeneity and observe only one side of the agreement. The consistent estimates, obtained by maximum likelihood estimation of the treatment-effects model, show that seller's specific investment leads to higher contract complexity, while buyer's investment decreases it, both estimates being highly statistically significant.

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[36] We chose not to use agreements between Romanian and foreign companies as they are characterized by particular features (e.g., are governed by a different body of law). This exclusion, corroborated with few missing observations, leads to a sample of four hundred twenty-three agreements.

The results also indicate that Romanian companies use the formal legal system in the way theory would suggest, relying on more complex contracts when their exposure to partner's opportunism is greater. Additional evidence supports this view. Our regressions include a variable measuring the quality of services provided by the commercial court in respondent's area. Results indicate that firms design more complex contracts when the court quality is higher (one would only invest in a tool if he knows he can use it). These two findings contradict the view that formal legal systems in transition economies are too corrupt and costly to be used by firms, and that companies rely instead on alternative (informal) ways to solve their outstanding matters with partners.[37]

Section 8.2 of the first chapter in Păun (2007) presents the tests employed for the main results: we conduct some overidentification tests for the instrumental variables used for relationship-specific investments and several robustness tests for our specification. The first chapter continues with some additional results (we investigate the use of buyer prepayments, which can be seen as alternatives to buyer relationship-specific investments) and concludes with some final remarks.

A proposed way to measure (part of) transaction costs at agreement level

The TCE literature abounds with definitions of the transaction costs concept.[38] The common view is that transaction costs cover all those expenses associated with an exchange, which are not a direct result of the physical processes of production and transportation. Masten (1996) refers to transaction costs as to those costs arising from impediments in reaching and enforcing agreements. In what follows, we adhere to this more precise definition.

By contrast, the measurement of transaction costs lags behind as only few attempts have been made (Allen, 2000; Benham and Benham, 2000; Wang, 2003). At macroeconomic level, Wallis and North (1986) have estimated that transaction costs accounted for 26.1% of US GDP in 1870, a share which has constantly increased to reach 54.7% in 1970. Cheung (1998) estimates transaction costs at 80% of Hong Kong GDP and argues that in rich countries these costs sum to more than half of national income.

The attempts to measure transaction costs at microeconomic level have been less successful. Chief among the difficulties researchers have faced is the predominant implicit nature of the concept. Also, many of the transaction costs components are not directly incurred (are hidden) or are incurred along with other costs, from which they cannot be disentangled. However, some breakthroughs

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[37] The essays in Murrell (2001) suggest that this view is misplaced. Johnson et al. (2000) find evidence that Romanian companies use the formal legal system more than firms in other countries in the region.

[38] Allen (2000) and Klaes (2000) provide two extensive expositions on its history, use, and meaning.

have been made in narrow sectors of activity, where researchers have found easier to separate transaction costs from the costs of production and transportation: Kuperan et al. (1998) have measured transaction costs of fisheries co-management in San Salvador Island, Philippines, while Lesmond et al. (1999) have estimated transaction costs on financial markets.

The second chapter in Păun (2007) proposes a new methodology to measure (part of) transaction costs incurred at agreement level, by relying on a survey question addressed to company officials who supervise the buying and selling activities of the firm. An advantage of the method is that it solicits information from exactly those decision-makes who possess it. Also, the transaction costs estimate thus obtained is comparable across firms, sectors, regions and countries.

In essence, the proposed method is the following: first, interviewed sales and procurement managers are asked to choose one particular agreement their company was part of. The agreement can be a written or a verbal one, successful or unsuccessful, regarding the sale/acquisition of a new or traditional product. The only constraints in the choice of the agreement are that it provides for the exchange to have taken place recently (within the past six months) and that the respondent is thoroughly familiar with the agreement and its implementation. After answering many questions on the chosen agreement (to assure informative focus on problems and successes), the respondent is asked how much it would have been worth to reverse history and instead have reached an agreement with a non-opportunistic partner (precisely, one who would share business information, would keep his promises, and would negotiate equitably to solve problems). In other words, the question asks how much would the firm be willing to pay to reverse history and deal with a different partner, an imaginary one, who would have the same characteristics as the actual one, but would be frank, trustworthy, and fair. The answers are recorded as percentage of the sale price and negative values are not allowed.

We recognize that the proposed method is limited; it places more weight on opportunism (and much less on limited rationality) and focuses on the costs of haggling, bargaining, and miss-alignment emphasized especially by Williamson (1985), which are only part of all transaction costs firms incur in their activity. However, the method provides a coherent and practical procedure for measurement of a phenomenon of central interest for economists. Also, given the paucity of attempts to measure transaction costs, the proposed method constitutes a much needed first step toward a consistent estimation of the concept.

The responses we collect show that many transactions go smoothly: no transaction costs are incurred in 58.1% of agreements. However, the average transaction costs, as percentage of sale price, is 3.87% when the responding firms were sellers and 3.11% when they were buyers in the specific agreement. To appreciate the magnitude of these costs more fully, they must be placed in the context of firms' operation as a whole. Companies incur costs as both a buyer and

seller, hence the two should be aggregated. Assuming that transaction costs of purchasing labor and capital are commensurate with those incurred in purchasing intermediate inputs (presented above), and that profit is a negligible component of value added, the transaction costs of a typical firm equal 6.98% of revenues. Moreover, comparing costs to prices is not the best guide to economic significance (even though it is the most useful approach for a survey question). The firm's production is best measured by value added, and transaction costs are incurred in producing this. A reasonable estimate would place value added at 30% of sales, which implies that transaction costs total an impressive 23.27% of value added for the average company.[39] Since the proposed method captures only part of the concept, we must conclude that Romanian enterprises face large transaction costs in the course of their activity.

The second chapter in Păun (2007) continues with an assessment of the validity of the collected data by investigating the correlates of the transaction costs estimate with many variables suggested in the theoretical literature. In section 4.2 we provide evidence that the proposed method captures the sought concept.

A large section of the chapter then investigates the potential biases that may affect our measure. Namely, downward or upward biases may arise at respondent level if the interviewed managers understood and answered the question in a manner different from our intentions. Also, a bias at aggregate level may be present because the agreements we investigate have not entered the sample randomly. Apart from this sample selection bias, other sources of potential bias at aggregate level are discussed. Empirical investigations of all these biases are only possible given the richness of information the survey offers, and the investigations indicate our data are not affected.

An analysis of the factors determining the genesis and size of transaction costs

The last chapter in Păun (2007) is closely related to the second one: it relies on the data collected by the proposed method and investigates the factors determining the existence and size of transaction costs.

In his clear and concise review of the TCE literature, Masten (1996) presents the determinants of transaction costs along with predictions on their impact. These factors are: asset specificity, market uncertainty, transaction complexity, frequency of exchange, ease of measurement, reputation, attitude toward risk. Our survey permits the investigation of all these factors, to which others are added:

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[39] If we alter some of the assumptions and consider the ideal situation of zero transaction costs in purchasing labor and capital, while using the same estimate of value added (30% of sales), computations provide the lower bound of the mean transaction costs: 20.2% of value added.

partner location, firm age, firm organization of legal matters. All these factors are used as independent variables in regressions explaining transaction costs.

The econometric details of the analysis are presented in section 4 of the third chapter. In short, we argue that using OLS on all transaction cost responses is not advisable. For truncated data such as ours (the responses to the proposed question are continuous over the set of positive values but with a positive probability mass at one point – zero) researchers usually implement the Tobit procedure. Yet, the sample selection model is recommended for our setup (Vella, 1998; Puhani, 2000). An important feature of this model is that it includes two distinct equations, one determining the existence of transaction costs and one determining their size when such costs are incurred. By contrast, the Tobit model combines the two equations into one, which is not appropriate in our framework (Wooldridge, 2002).

We follow Heckman (1974) and estimate the sample selection model by maximum likelihood. Also, we implement the two-step procedure proposed by Heckman (1976, 1979), which is more commonly employed for such models. Particular test statistics in both these cases indicate that sample selection bias would not be a problem if we would estimate the two equations separately. We adopt this approach and estimate the selection equation (which determines the existence of transaction costs) by probit using a transaction costs binary variable[40], and the main equation (which determines the size of transaction costs when they are incurred) by OLS using only the positive transaction costs responses. These regressions provide the main results of the chapter.

The overall image results offer is that TCE theory is very successful in predicting the existence of transaction costs (six of the eight variables theory proposes have the predicted effect, and five of these six coefficients are also significantly different from zero at the usual levels). The theory seems to be only moderately successful in predicting the size of transaction costs when such costs are incurred (even though six of the eight variables theory proposes have the predicted effect, only two of them are statistically different from zero).

At the end of the chapter we present some additional results (see section 4.4). Precisely, we take into account the two-sided nature of the relationship-specific investment (in the same way we did in the first chapter). Then, we discuss the potential endogeneity of our variables: we provide arguments why endogeneity bias should not be a major concern in our analysis and, where possible, we employ an exogeneity test. The third chapter in Păun (2007) concludes with some final remarks.

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[40] This variable equals one if the respondent reports positive transaction costs, zero otherwise.

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REVIEW OF INEQUALITY METRICS WITH APPLICATION IN INCOME INEQUALITY IN LOUISIANA

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Abstract

Economic data sets usually are, by their nature, very large and therefore researchers naturally want to analyze the distribution of the data set and make statistical inference about various parameters of interest, such as means, medians, variances, etc. To perform such tasks several incomes metrics or indices are generally used. Among the metrics widely used, we will consider in this paper only three: Lorenz curve, the the so-called S-Gini index and the Atkinson index. We also consider a general index of economic inequality that covers a number of indices, including the aforementioned S-Gini and Atkinson indices.

Keywords: Economic inequality, Gini index, Atkinson index, asymptotic normality.

Introduction

We are interested in analyzing the distribution of resources received by the population under consideration, in particular the disparity between the a percentage of population and the percentage of resources received. In particular, when one thinks about resources, one refers to income. Therefore we want to know what is the distribution of income among the individuals coming from the same population.

For performing such a task several metrics will be defined below. These metrics have values between 0 and 1. When a metric has value 0 we consider that the inequality is at minimum, which means each individual holds the same income. When the value of the metric is 1, inequality is considered to be at maximum, which means that one individual holds essentially all the income.

Knowing how to properly analyze this disparity inside a population and being able to compare several populations or the different distributions of the same population at different moments in time is of great importance for econometricians. Knowing how big the inequality among individuals is, one can derive taxation policies that can help the lower income individuals in the society,

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one can compensate for inflation or once the level of inequality is identified new measures can be implemented to reduce the inequality. Although there are several metrics that can be used for measuring inequality, there is no way of telling which one is the best measure, since the choice depends on the problem that we want to resolve or emphasize, or discover in the society under consideration.

In what follows we give main notions and notations used in subsequent sections. Specifically, we discuss some measures of variation among ``incomes'' such as the Gini coefficient, Lorenz curve and the Atkinson index. We also define a general index, discuss its asymptotic properties such as consistency and asymptotic normality, and then check those asymptotic properties in the special cases of the S-Gini and Atkinson indices.

Metrics of Economic Inequality

Let X be a non-negative random variable, that models the income of individuals, with cumulative distribution function (cdf) F.

For any $t \in (0,1)$, the t × 100 percentile F^{-1} is given by the equation $F^{-1}(t) = \inf\{x : F(x) \geq t\}$, which defines the left-continuous inverse of the distribution function F.

Definition 1 *The* **Gini coefficient** *G is a measure of inequality in a population and is defined by the formula [3]:*

$$G := \frac{1}{2\mu} \mathbf{E}(|X_1 - X_2|) = \frac{1}{2\mu} \int_R \int_R |x_1 - x_2| dF(x_1)dF(x_2), (1)$$

where X_1 and X_2 are independent random variables.

The Gini coefficient was developed by the Italian statistician Corrado Gini in 1912 and a low Gini coefficient indicates more equal income or wealth distribution, while a high Gini coefficient indicates more unequal distribution.

We can derive from the formula above, the empirical Gini coefficient:

$$G_n : \quad = \frac{1}{2\overline{X}} \int_R \int_R |x - y| dF_n(x)dF_n(y)$$

$$= \frac{1}{2n^2 \overline{X}} \sum_{i=1}^{n} \sum_{j=1}^{n} |X_i - X_j|,$$

where

$$F_n(x) = \frac{1}{n} \sum_{i=1}^{n} I(X_i \leq x). (2)$$

Definition 2 *The following metric is referred to, as the **Lorenz curve** [4]*

$$L_F(z) := \frac{1}{\mu} \int_0^z F^{-1}(s)\,ds, \text{(3)}$$

where μ is the mean of X and $F^{-1}(.)$ represents the left-continuous inverse of the distribution function F.

The Lorenz curve was developed by Max O. Lorenz in 1905 for representing income distribution. This is a graphical representation of the cumulative distribution function of a probability distribution, where the percentage of individuals is plotted on the x-axis and the percentage of income on the y-axis.

Definition 3 *The **Atkinson index**, denoted A_F, is defined as follows [2]:*

$$A_F = 1 - \frac{1}{\mu}\left(\int_0^1 (F^{-1}(t))^a\,dt\right)^{\frac{1}{a}}, \text{(4)}$$

where $a > 0$ is a parameter, and μ is the mean of X.

In the above definition $\mu = E(X)$ denotes the mean of X which is assumed to be finite and non-zero,

$$0 < \mu < \infty. \text{(5)}$$

Recall that the Atkinson index A_F can be rewritten in the following form:

$$A_F = 1 - \frac{1}{\mu}(E(X^a))^{\frac{1}{a}}. \text{(6)}$$

Using the corresponding empirical function for the quantile function defined in Eq. (2), we obtain the empirical Atkinson index:

$$A_n = 1 - \frac{1}{\overline{X}}\left(\int_0^1 (F_n^{-1}(t))^a\,dt\right)^{\frac{1}{a}}. \text{(7)}$$

Studies dealing with the Gini index are extensive and the index is one of the principal inequality measure used in economics. However, in reality no explicit reason is given for preferring one measure of inequality over another. As such, we focus our attention next on the Atkinson index. The Atkinson Index is one of the few inequality metrics that incorporates normative judgments about social welfare [1][2]. The Atkinson index parameter a, is called the inequality aversion parameter. The parameter a reflects the strength of society's preference for

equality, and can take values ranging from zero to infinity. When $0< a <1$ the index suggests a preference for equality.

Louisiana Tech University Incomes - Case Study

In this case study, we present incomes from the Louisiana Tech University, for the year 2005-2006, [6]. We wish to perform a complete analysis on this data, using the indices defined above. We like to know how the salaries differ between 12 months group employess (administrative faculty, staff and maintanance) and the 9 months group employees (instructors, lecturers, tenure track or tenured faculty) and study where we have more inequality. We expect to find more inequality in the 12 months employees.

The first data set is a sample of n=558 salaries for the 12 months employees. A plot of these salaries is shown in Figure 1a. The minimum income in the sample is $1,252 per year, the maximum is $200,020 per year, and the mean salary is mean $35,283.60 per year. To observe better how the incomes are spread in our data set, we present a histogram of the incomes in Figure 1b.
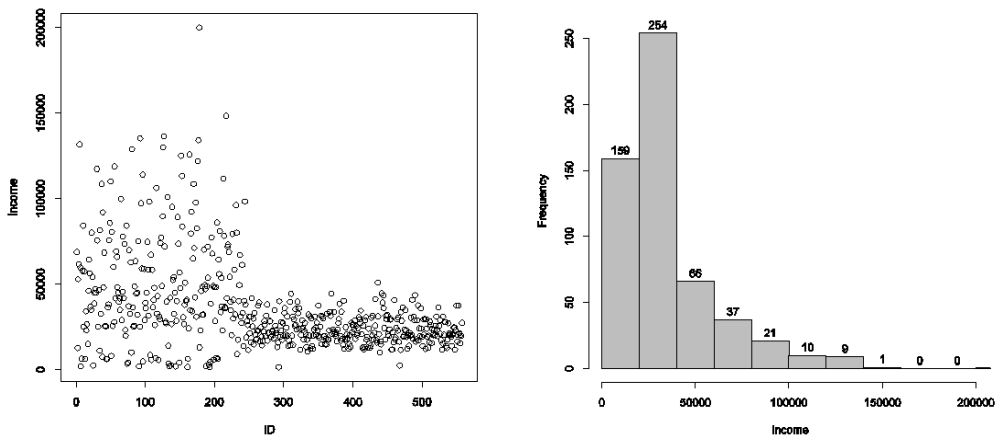
Figure 1. Plot and histogram of the yearly incomes for the 12 months employees at Louisiana Tech University

The second data set is a sample of $n = 336$ salaries for the 9 months employees. The minimum income in the sample is $4,990 per year, the maximum is $129,289 per year, and the mean salary is $51,452.94 per year.

Figures 2a and 2b are plots of the yearly incomes of the 9 months employees in the sample. To observe better how the incomes are spread in our data set, we present a histogram of the incomes.
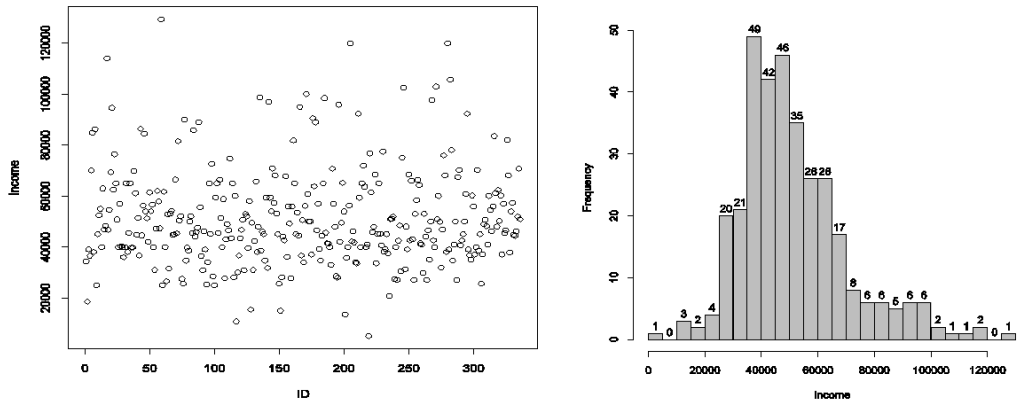
Figure 2. Plot and histogram of yearly incomes for the 9 months employees at Louisiana Tech University

If we just look at the means we clearly observe that 9 month employees have a larger salary average than the 12 month employees. However, the mean is not taking into consideration the fact that the data is skeewed or the possible outliers.

To have a better ideea about how big the inequality among these two data sets is, we show in Figure 3 two plots reprezenting the Lorenz curves for the two samples. The diagonal in the plots reprezents the exact equality in wealth distribution and the curve reprezents the distributional inequality. The greater the inequality, the more the line curves away from the diagonal.
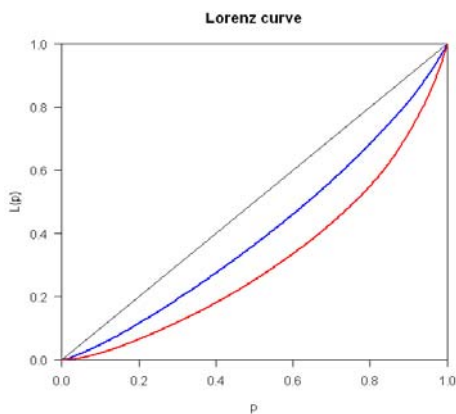
Figure 3. The Lorenz curves for the two data sets.

The curve closser to the diagonal (the red) reprezents the Lorenz curve for the 9 months employees and the curve further away from the diagonal (blue) reprezents the Lorenz curve for the 12 months employees. Since the Lorenz curve

for the 9 months employees is closer to the diagonal, we conclude there is smaller inequality among the 9 months employees that the 12 months employees.

To analize the magnitude of the inequality and in which part of the distribution we have more inequality, we present Table 1.

Indices/Parameters	9 Months Employees	12 Months Employees
Gini Coefficient	0.19851	0.37272
Atkinson (a=0.1)	0.06528	0.02356
Atkinson (a=0.5)	0.03264	0.11477
Atkinson (a=1)	0.06592	0.22577
Atkinson (a=2)	0.14258	0.47204
Atkinson (a=10)	0.81492	0.93210

Table 1. Gini and Atkinson index for different values of the parameter.

Comparing the two Gini indices from Table 1, we observe that the inequality among the 12 months employees is three time biger than the inequality among the 9 months employees.

In Table 1 we calculated the Atkinson indices for different values of the parameter, for both samples. The small values of the Atkinson parameter emphasizes the high salaries and as the values of the parameter increase, the lower salaries are emphasized. We observe that although the 12 month salaries have a maximum greater than the 9 month salaries, there is more inequality among the top salaries in the 9 months data set (Atkinson = 0.06528) , than it is in the 12 months data set (Atkinson = 0.37272).

When the parameter is 1, we emphasize the middle size of the salaries distribution, and we observe that for the 9 month employees the middle size salaries are almost equal (Atkinson = 0.06592), compared to the 12 month employees salaries were we have some inequality (Atkinson = 0.22577). As the parameter increases and we get to emphasize the lower part of the distribution we observe that the level of inequality increeases (close to 1) for small salaries.

Conclusion

In line with our earlier assumption we find more inequality among the salaries of the 12 months employees compared to the inequality among the salaries of the 9 months employees. The analysis performed in Section 3 gives us a comprehensive image of how different these incomes are both within the same category and among the two categories.

These inequality metrics have the potential to be used in a large variety of application. Essentially every time we are interested in measuring any type of

inequality we can apply these metrics. In [7], the Atkinson index was used for developing a framework of measuring performance and competence among employees. We are interested in finding new applications for these inequality metrics. In [6] we developed an asymptotic and bootstrap theory for the Atkinson index, for one and two populations. It is of interest to extend this theory when comparing inequality for more than two populations.

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TEN STEPS TO INCREASE THE KNOWLEDGE FOR AN EFFICIENT MANAGEMENT OF THE INTELLECTUAL CAPITAL IN THE ENTERPRISE BUSINESS INTELLIGENCE

Sebastian Marius Roşu and Marius Guran[*]

Abstract

In order to develop intelligent business for become competitive, the enterprises must increase the quality and technologic level of products and services conform with applicable codes and standards, to have permanent new products or to make old products bettering, to respect the market rules, the applicable laws and to have a good price politic.

These activities request a large amount of date, information and knowledge collecting from all sources and then transferring at each enterprise level.

This work analyses the state of the art of the knowledge management and it propose a methodological model, based on the occurrence of conversion types of the knowledge to be used during the product development process.

Keywords: Business intelligence, knowledge transfer, knowledge applications, knowledge capitalization, knowledge management.

Introduction

Whether organizations are composed of one enterprise or many enterprises (holding), for survival, is necessary to learn from the past, supervise the present and plan the future [1]. An important factor for the enterprise in the products and services development is to know, to establish, to translate and to define the customer requirements using quality methods, tools and techniques.

The enterprise use IT & C support to attract, retain and cultivate relationship with customers, streamline supply-chain, manufacturing, procurement systems and automate corporate processes to deliver the right products and services to customer quickly and cost-effectively.

During the first decade of the computer science, the emphasis was data management. In order to transform data into information it is required tools. In order to transform information into knowledge it is needed time.

Knowledge is to use information (and as a consequence data) to generate new ideas or solutions. Also, today, are differentiating these three classes of elements as [2]:

1. Data – a discreet and objective group of facts of a certain event;

2. Information – a message containing an originator and a receiver and whose meaning involves a new interpretation based on a group data;

3. Knowledge – a mixture of experiences, values, contextual information and intuition, forming a framework in a person's mind that enables him/her to evaluate and to obtain new experiences and information's.

The main studies are identified two important distinctions types of knowledge that has be used [3]:

- The tacit knowledge – it is knowledge that the people possess but it isn't described in any place, it is just residing in your heads;

- The explicit knowledge – the knowledge that is registered in some ways and therefore is available for the other people.

These studies have suggested four basic conversion patterns for the knowledge creation in an organization:

1. *From tacit knowledge to tacit knowledge (socialization)* – it is a process of sharing experiences and, therefore, the creation of tacit knowledge. The based input for the acquisition of this knowledge type is experiences.

2. *From tacit knowledge to explicit knowledge (externalization)* – an articulation process of the individuals tacit knowledge in explicit concepts. These conceptual knowledge usually happens through: symbolic representation of the tacit knowledge (through metaphors, analogies, models, concepts, hypotheses by using the figurative language), oral reports and films, part description of the tacit knowledge through spreadsheets, texts, images, illustrations, rules, scripts, design history, lesson learned, etc.

3. *From explicit knowledge to explicit knowledge (combination)* – a conversion process of some type of explicit knowledge individual generated for add up to the organization explicit knowledge (e.g. individuals knowledge exchange and combination through documents, meetings, chats, etc.). Usually, this systemic knowledge happens by different explicit knowledge grouping and processing that could be generate into a new knowledge.

4. *From explicit knowledge to tacit knowledge (internalization)* – an explicit knowledge from the organization incorporating into individuals tacit knowledge process. This operational knowledge happens through: reading/visualization and individual study of different format documents, individual interpretation and experimentation.

Business Intelligence

The enterprise market value is representing the thing that distinguishes its business performance from all others. It is generally accepted that the value of every organization falls into one of three major categories of value discipline [1], [4]:

1. Customer intimacy, when the companies try to understand their individual customer's needed, and will try to do everything is possible to accommodate their

customers. These companies are definitely not cheap, because personal service is an expensive commodity; however their customers prefer to use them because they feel that they are sufficiently rich to justify the extra cost.

2. Product leadership, as companies that could be described as "leading edge", because their value is that can keep you ahead to the customers of other similar companies. These companies are always on the top with new innovative products, new ideas that can keep their customer interest.

3. Operational excellence, as companies that excels at operational efficiency.

All companies tend to have a stronger affinity to one of the three categories. An organization needs to understand how to interact with its customers and how would like to interact with its customers. Therefore, activity improvement is a priority in all companies and a solution can be finding in one of the following situations:

- New products manufacturing assimilation (proper conception products or licensed products);
- New services assimilation;
- Existing products & services modernization;
- Production reorganization or readjustment;
- Manufacturing process modernization.

After this, the enterprises can start to develop a strategy to improve customer relationship management and other e-business solutions, as enabling technologies and core technologies. For the future, e-services and e-business, as were defined, require the enterprise re-thinking and re-modeling, with the system and applications design for an efficient use of new network technologies [1], [5]. The perspectives of this kind of manufacture and economy are named in brief *new digital economy*.
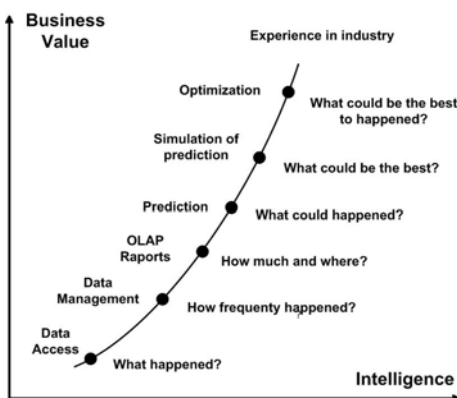

Fig. 1. The business value & intelligence evolution.

The connection between *business value* and *intelligence* can be represented as evolution (see Fig. 1), based on the experience in industry, where the beginning is represented by "data access" and "what happened?"

Knowledge applications (KApps)

Traditional applications in the enterprises, mainly related to ERP (Enterprise Resource Planning), DMS (Document Management System) and CRM (Customer Relationship Management), are using massive amount of data on operation and customers that are unused in data warehouses. To turn that stored data into valuable information, companies are now questing knowledge applications (KApps). The business advantage in having KApps, lies in the ability to analyze large amounts of data from any business model, determine the personalized preferences of all potentially customers, than rich them with relevant information, wherever they may be. These serve as the driving force for new generation of applications.

Traditionally, we have query-and-response paradigm for applications. For the new generation of applications, the logic is reversed: *what-if-system* didn't wait for the end user to have the question, and the system just asked the question for the end-users and sends them the answer. In this way one could anticipate a whole set of questions. This new class of applications allows companies not only to collect but to analyze data and information, in order to developed better supplier and customer relationships. It is aimed at increasing profitability through revenue growth. This revenue-enhancing framework focuses on an interesting mix of modeling, data processing as decision support, information retrieval, reporting and analysis, what-if-scenarios, data warehouses, and data mining.

Knowledge-driven applications have the potential to expand the use of information, by transforming existing huge data collections into revenue-generating asset [6], [7]. To take the full advantages for knowledge and information-based business models, there is a need for an integration framework that can tie together the various classes of Kapps. Some of the emerging classes of Kapps are [8]:

- *Customer Relationship KApps* - offer companies tools for mining customer data and information, having as outcome of this data mining process improved pricing, greater market share, longer customer retention, or a new revenue flow. For this, the companies must to do more real-time relationship management, the trend known as *personalization* (better understand and respond to each customer's needs, behavior and intentions.

- *Supply Chain KApps* - encourage trading partners to improve profits by managing inventories in the supply chain; by obtaining the information that enables visibility and certainty, offering more favorable terms, increased levels of supplies, invests in co-marketing.

• *Knowledge / Innovation Management* - assure the companies to push technologies farther, giving their employees instant access to information and reports that previously took days or week to obtain.

• *Remote Performance Monitoring* - provide information to operating managers throughout an enterprise that enables them to improve performance on a routine basis, by bridging operations and strategy using key performance indicators.

• *Simulation using what-if scenario analysis* - encompasses advanced simulation and scenario modeling, based on information from diverse internal and external sources. This enables management to participate in developing strategies and learns risk management (by modeling of future risk and returns).
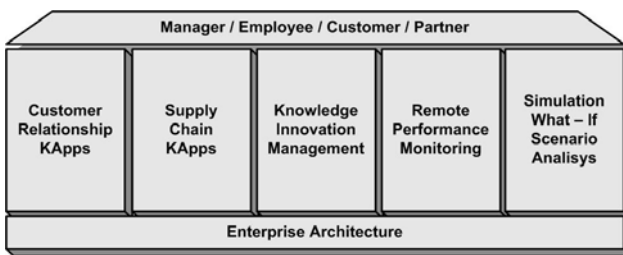

Fig. 2. The emerging classes of KApps - customers get exactly what they need.

To create an integrated decision framework, the organizations have to implement a number of KApps built on a platform that is composed of three layers [9]:

- *E-business decision* – support solutions, that includes the ability to deliver views and queuing, reporting, and modeling capabilities that go beyond current offerings.

- *Enabling technologies* – data mining, query processing, and result distribution infrastructure, which mean the ability to store data in a multidimensional cube format (On-Line Analytical Processing – OLAP), to enable rapid data aggregation and profound analysis.

- *Core technologies*, as data warehousing, and data markets, that get all company data working together so that user can see more, learn more, and make the organization to work better.

Because information access and control drive business competition, it is obvious to consider the lack of boundaries in modern business and that fact that corporations and consumers are becoming more interconnected via private networks and Internet.

These increasing interconnections are facilitating development of KApps in three phases:

- *Corporate Intranets*, in which the companies are creating complete and uniform linkage of information and knowledge resources distributed through the organization. For the knowledge creation to occur, data aggregation needs to be complemented with data analysis. Moving from departmental solution, in which data and reports are, developed for small, specialize communities of users, to corporate intranets, opens up data resources to a broader base of users, by using the browser as a standard interface.

- *Extranets*, that are focusing on supply chain partners, in the conditions when the companies are moving parts of the internal corporate information infrastructure, so that suppliers and trading partners can access them (through fire-walls). The key business drivers are: fast access, customized data, and responsiveness. Standardized reports and interfaces are minimizing services requirements imposed by the management of huge data volumes, cross-platform coverage and support, response time speed, and a broad range of interface choices.

- *Commercial Internet Applications*, which focuses on new business models, created for capturing, consolidating, and reselling consumer information, business transaction records, and financial data.

At the present, most companies and corporate strategy is in phase I, with the emphasis on creating the ability to imitate decision-making through all levels of an organization. But they are facing the challenges of performing complex computational analysis on collected data and of disseminating the information and knowledge not only to employees, but also to customers, suppliers, and business partners.

Knowledge management

Knowledge management is a certain form of looking into the organization in the search of points of the business process where knowledge can be used as competitive edge [9]. Also, Knowledge management is not technology but it can be benefited from new technologies of the information and of communication. Knowledge management is not creativity and innovation but it is related to how to use the innovations generated in the company in a systematic way for a better market positioning. Knowledge management is not quality but it uses techniques and tools that have already been applied in the quality management and in the approaches of continuous improvement. Knowledge management is not marketing but it can help companies in the competitive intelligence. Knowledge management is not documentation but it is related to organizational collective memory.

Knowledge management is not also administration of human resources but it only takes place with the people of the organization. In fact, knowledge management is a new area within information technology and management, a new field among the strategy, culture and information system an organization.

Today, we define knowledge management as being the process by which the organization generates wealth, from their knowledge or intellectual capital. In this context, wealth happens when a Virtual Enterprise uses its own knowledge to generate more efficient and effective processes. Companies tend to differentiate themselves from what they know (intellectual capital) and from how they use this knowledge. The interest for knowledge within companies begins with identification that the value of market of several companies is much larger than the value of their own physical patrimony (equipments, facilities etc.).
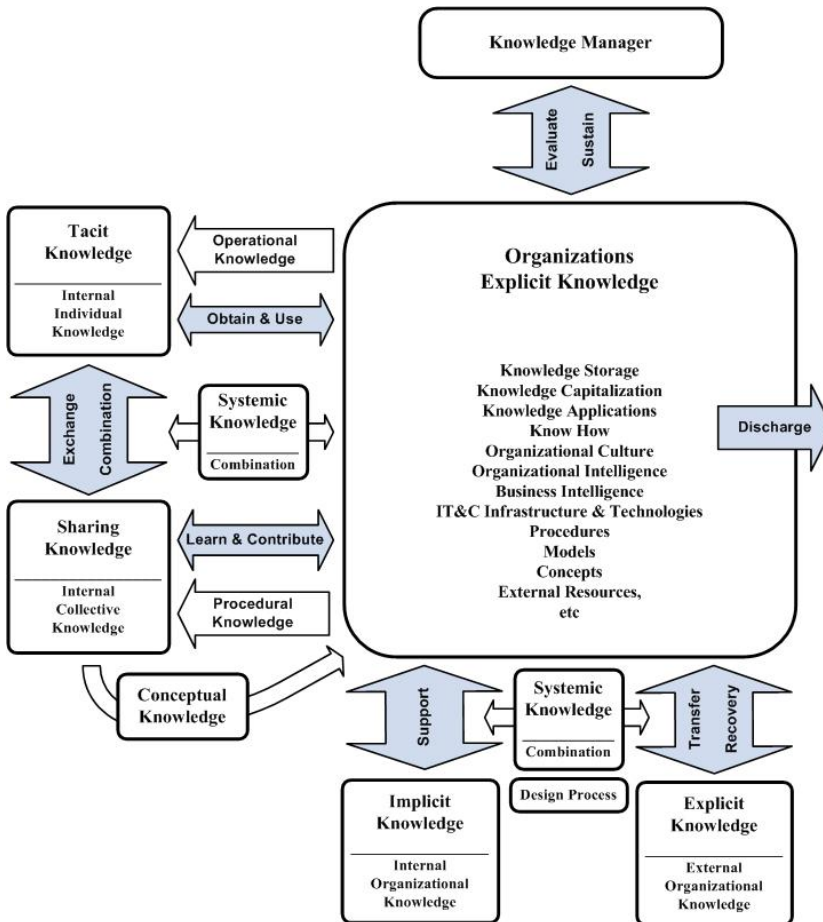

Fig. 3. Knowledge management at the enterprise level

The knowledge of the organization is composed by the sharing knowledge of each individual [1], [2]. For increase the knowledge in the enterprises for an efficient knowledge management of the intellectual capital we define ten steps: obtains and uses, learn and contribute, evaluates, sustain, support, exchange, combination, transfer, recovery and discharge (see Fig. 3):

1. The steps obtain and uses are well known within organizations. People always seek information and use them later to solve their problems, to take decisions or to create new products. Therefore, new technologies (e.g. intranet/internet/extranet) allow that the large amount of information that flows within organizations can be correctly managed.

2. The steps learn and contribute are relatively new for organizations. For example, it has been difficult to convince employees to contribute to the organization's knowledge base. New technologies have helped companies easily organize, send and transfer certain types of information. However, the employee has seen this facility as a threat for his/hers own job security. The most difficult task is to convince individuals that their contribution will give return to their organization as well as to themselves.

3. The steps evaluates indicate that the organization should define its own necessary knowledge for its mission and classify its own currently intellectual capital. In other words, the knowledge manager does more than organize the content in system on-line; he/she should understand and foresee the community's needs.

4. The step sustain or maintain should assure that the future intellectual capital would maintain the organization viable and competitive. Organizations tend to build their own intellectual capital through their relationships with customers, employees, suppliers etc. The knowledge manager should also be responsible for the maintenance of the organizations knowledge base.

5. The step support can be used for the continuous improvement of the product design process.

6. The step exchange represents an intelligence and creativity combination of organization employees to find better solutions to their problem. Knowledge exchange involves interaction between decision makers and researchers or project development teams and results in mutual learning through the process of planning, disseminating, and applying existing or new research in decision-making.

7. The step combination can be making by means of the Industrial Informatics Systems or Knowledge Work Systems.

8. The step transfer realized by teaching process, e learning and simulations. At the organization level the knowledge could be found to individual or group (collective) resources.

9. The step recovery utilized when the organization must re-create knowledge that disappears because documentation isn't adequate or experts don't pass along knowledge before they leave.

10. The step discharge excludes any useless knowledge from the organizations knowledge base. However, some knowledge can be more valuable if it can be transferred to outside of the organization.

Conclusions

This paper analyses the knowledge management process at the enterprise level and proposes a methodological models, based on the intellectual capital as well as knowledge resource used during the product development process and business intelligence strategies elaboration. The validation of these methodologies will be carried out based on a practical application in a university and Romanian SME partnership. The aim of this project is to determine the new organization type for integrating in the virtual enterprise medium and to outsource shared resources of the university research centers to the industrial partners.

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HOW TO PROMOTE YOUR PRODUCT ONLINE

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Abstract:

How to promote your product online, online payment processing. Why promote you product online and have an e-payment processor? The most important answer to these questions is 24h/day availability, 365 days a year. Having a website is like having a robotic salesman that can offer limited information whenever he is inquired. And the beauty of selling online is that you can make money even while you're sleeping.

Keywords: promoting online, online payment processing, payment processing, online commerce

1. Introduction:

The estimated number for internet users in December 2007 was 1,319,872,109 (according to www.internetworldstats.com), approximately 20% of the population on the globe. With such a big market that can access your site from anywhere, it has become a standard to have a website, for organizations of all types that operate in any branch of the economy. And as sites have become compulsory for reputed organizations, e-commerce has made it's appearance. Following the orientation of marketing on the client, the desire for more comfort has given birth to the possibility of paying online. In 2005, credit card and electronic transactions accounted for an overwhelming $3.4 trillion of total U.S. payments, according to The Nilson Report, the equivalent of 50% of all transactions from that year.

2. Different ways of promoting your product online

A random definition of promotion is "how to raise awareness with your target market". Promotion, also called Marketing Communication utilises tools such as advertising, sales promotion, direct marketing, personal selling, public relations and publicity. One way of making your product and/or services known is promoting them online. Firstly we have building a website and describing the product, it's specifications, the way in which it will satisfy the needs of the potential customers, posting pictures of the product etc. A common solution for

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the need to see the physical product is the 360 degrees interactive presentation. The 360 degree view consists of pictures made from different angles of the object that are put together into a collage in such a way that enables the viewer to virtually change the angle from which they see the product by using their mouse.

Adwords

Pay per click or PPC, is an advertising technique used on websites, especially search engines. Pay per click advertisements are usually text ads placed near search results; when a site visitor clicks on the advertisement, the advertiser is charged a small amount. For example, Google's PPC service, Google Adwords, places relevant text-based ads both within Google, termed "sponsored links", and on external sites willing to host Google ads, termed "Ads By Goooooooooogle." PPC essentially works in the following way: you set up a maximum bid and depending on the competition (how many people are bidding on the same keywords) you pay an amount ranging from the minimum bid, which is around 10c to the maximum bid you have chosen.

Web 2.0

This is "the new web" with applications like blogs, social networking, user-generated-content. All of these methods are free and efficient ways of promoting your services. You can create a video about your product, or an advertisement and upload it to youtube where it will be viewed by a lot of people if it's funny, very useful or something you would want to share with your friends. A funny clip with a hamster eating a popcorn on a piano has been viewed 2 million times over the course of a year. This is the promotion power of youtube.

Blogs

Blogs are a great feedback device which not only promote your offer, using the power of word of mouth(informal talk between acquaintances), but act as a public relations desk. In the blogosphere people are not afraid to tell you exactly what they don't like about your products, as they aren't afraid to genuinely compliment you. Blogs are the best way to know your market and develop customer relationships .You can also leave comments on other blogs/forums and have your site/blog in the signature line. If you contribute useful information, the readers of those forums/blogs will access your site.

Article e-zines, directories

As in the blogosphere, content is king on e-zines and directories. Write some articles about the benefit of your product or about an issue of consumer interest that your product solves and submit them to article e-zines, directories or to squidoo(a website designed to make it easy for anyone, for free, to set up a single page on a topic he or she knows or cares a lot about. Advertising revenue is shared with these content creators, and some of it is given to charity). Remember to add value rather than to merely advertise your product. To make social media marketing work, you must enjoy being part of the community.

Affiliate marketing

This is a way to promote yor site by offering comissions to affiliates that bring you traffic. Each affiliate has a unique link that contains their affiliate code. They promote your site and when visitors they bring you subscribe to your services or buy an item you sell, they receive a comission. Comission Junction(www.CJ.com) is the biggest network of publishers interested in gaining affiliates.

Payment processing

These are the steps of paying online with a credit card, from the merchant's perspective:

1. The customer selects the item(s) he wishes to purchase.
2. He is then lead to a screen where he must enter the name on the card, the number of the card, the expiration date and the authorization number(from the back of the card), after which an electronic request is submitted to the processing network for authorization.
3. The processing network receives your electronic request and determines if the cardholder's account is valid and if the funds are available. If so, a response called an "authorization code" is transmitted, guaranteeing your access to the funds.
4. A confirmation screen appears, asking the client if he wishes to finish his order. After he proceeds by clicking yes, he is lead to a page that represents the invoice, which will usually also be emailed to him/ This is the end of the transaction for the buyer.
5. At the end of the business day, a merchant will electronically submit a final request to the processing network to "capture the funds" for all authorized transactions in a given day. This process is referred to as settlement. Once approved, a response is generated to your electronic terminal or computer.

6. From there, the funds associated with the batch you settled are deposited electronically into your business bank account, usually within 48 to 72 hours. Typically, the rate and any fees paid to your merchant account provider are deducted from your account at the end of the month.

7. At the end of the month, your merchant account provider will send a statement to you, detailing the credit card activity for the month and the associated fees you've been charged.

There are two basic software programs needed to enable online commerce:

Shopping Cart: A secure series of scripts (or coding) that keep track of items a visitor chooses to buy from a site until they proceed to checkout. On the checkout screen, the shopping cart collects the credit card number,the name of the cardholder, the billing address, authorization number and expiration date. Verisign has recently developed a new digital authentication named "Secure Site Pro with EV: True 128-bit Extended Validation SSL" which has the "extended validation feature", meaning it stores the products in the shopping cart for a longer period of time when you navigate away from the page while in the middle of placing an order.

Payment Gateway: When the online shopper is ready to finalize the transaction, the information collected in the shopping cart is transferred to a payment gateway for authorization. It is the equivalent of a physical POS terminal used in a retail setting.

Free accounts versus merchant accounts

To set up a payment processor on your site, you can opt for either a free account or a merchant account. Both process credit cards, the only difference laying in the much more serious verification of your business and the entry abd annual fee- e.g.: 2checkout actually calls your customers from time to time and asks if the purchased goods have been delivered to them and currently has a 49$ one time sign up fee+ 45c for any transaction. Both free accounts and merchant apply a fee on every sale which is approximately 5% of the item's value. So it makes sense to set up a free account if you're a small business owner and only go for the merchant account when you have grown enough to afford it.

Paypal- the most used free payment processor, with 100 million accounts in 103 countries and regions

Setting up an account on paypal is easy. All you have to do in order to be able to make payments is to add a credit card. For security purposes, paypal

retains 1.5$ i.e. and requires that you check the bank statement for 4 numbers next to the word "Paypal" that compose the verification code. Upon introducing this code into your account, the 1.5$ are transferred to your paypal account and you are verified, which lifts your buying limits. One advantage of paying via a payment processor versus paying directly with your credit card is that, as a buyer, the merchant never sees your credit card details, as these are sent by the processor directly to the merchant's bank.

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