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MEASUREMENT OF NEED FOR HARMONIZATION BETWEEN NATIONAL ACCOUNTING STANDARDS AND INTERNATIONAL FINANCIAL REPORTING STANDARDS

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ABSTRACT

This study analyses the quantification methods of the harmonization degree between the national accounting settlements and the international accounting standards. Starting from the presentation of the main methods used for this purpose such as - Euclidian distances, Jaccard's coefficients, Spearman's coefficients and other nonparametric methods for rank correlation analysis – we suggest a method of quantification for the need of harmonization between the national accounting standards and the financial reporting international ones. Beyond the certainty of a quantification model for this need, we analyze in the present study the situation of 33 states selected through reporting at a global level. The main achievement of this study is represented by the concept of pre-formal harmonization and the method to quantify it, strongly connected with the general accepted concepts of formal and material harmonization of accounting.

Keywords: financial reporting standards, pre-formal harmonization, measurement of harmonization

1. INTRODUCTION

The problem of financial reporting standards at global level represents current and actual topics of a lot of studies in international accounting area.

Beyond the conceptual approaches and the visions presented by the past field researches, the preoccupations regarding the measurement of the compatibility and comparability degree between the existent accounting settlements at international and national level have gained a significant importance.

As a consequence of this fact is that the measurement of harmonization becomes a well-established area of academic research from the late 1980s and the papers on this area reveal a continuing interest in the topic by a large number of researchers (Nobes, 2004).

Another effect of this state of fact is represented by the pragmatism and the complexity of the studies carried on until the present time, so that beyond the statistical methods used for measuring the accounting harmonization, new complex and complete approaches of the international accounting harmonization phenomenon have arisen.

We consider that a determinant role in the evolution of the international accounting harmonization and in the amplification of the need for compatible accounting referents goes to the globalization phenomenon and the global economic integration process. In this context, the most stringent problem arises not at the international accounting system's level, but at that of every national accounting one. On the other hand, we consider that the problem which's solution is insistently required by the economic reality, either it is about the one of the United States, of the Great Britain, China or of Malta or Portugal, and which's importance is more than significant, it is encountered in the financial reporting area and not in the one of the current, day by day accounting evidence.

If we wonder why the accounting harmonization at an international level is needed, we can identify a series of causes and determinant elements, such as:

1. The process of capital concentration in firms with international vocation.

The purpose of capital concentration is purely financial, that is to improve capital profitableness by dispersing risks into many activities, and its outcome is the existence of the group or the holding. The

concentration can be that of the production or financial one and it designates the grouping process of the production means and capital in the same area of control, with the purpose of increasing the advantages that can be obtained on the market.

2. "Mergermania" or "the fusions and acquisitions mania"

Today we are witnessing fusions and acquisitions of remarkable economic entities. An eloquent example is the fusion between Deutsche Bank and Bankers Trust, and the outcome was the emergence of the first worldwide level bank, the fusion between Société Générale and Paribas (1999), creating the most important French banking group, etc.

3. The financial orientation of concentrations of industrial units (business concentrations)

The financial logic of these concentrations is often based on the search to obtain a surplus value on short term, through purchasing and selling industrial units.

4. The increasing role of finances in contemporary economy, starting with the last two decades of the twentieth century, has determined changes in the social forces relation, through the domination of financial capital over other forms of capital (Ionaşcu, 2003).

To all these causes we can add some other more, which we consider important:

- Multinational companies (MNCs) or transnational companies (TNCs) - their number and the number of affiliates existent worldwide, as well as their turnover. The statistics present a number of parent corporations of 77 175 and 773 019 foreign affiliates located in an certain economy (UNCTAD, 2006)
- Answering the need of information of the capital and stock market investors.
- The globalization of markets, especially of the financial ones and the growth in size of the economic entities determines the increased need of financing their own entities.
- The orientation of multinational companies to external sources of financing their own activities.

All these possible, potential or existent factors promoting the international accounting harmonization and convergence process reflect the economic dimension of the phenomena, which determines us to take into consideration the existence of other determinant elements. For instance, the regional economic integration process clearly becomes a factor in favor of any process of compatibility in the social or economic sphere. It is generally accepted the idea that according to which a state that becomes an integrant part of a unitary and self sustainable system needs internal settlements and systems compatible with those of the integrant system part of which it becomes, and the national accounting system is a significant element.

We appreciate that beyond all this there are two other elements with significant influence, even determinant we may assert, in the international accounting harmonization process, but which's manifestation is difficult to quantify. When we take into consideration an element of the economic area, the quantification becomes a simple question of statistics or pure mathematics and that has no validity in the political and accounting profession area. The political factor and its influence in the harmonization process tends to become in majority determinant in certain regions or spheres at global level and the accounting profession can generate positive significant effects in the evolution of this process, if the maturity, the experience and its status are authentic, real and primordially based upon the satisfaction of the financial accounting information users' need for information. While the accounting profession is credited with the trust in its capacity to generate effects in majority positive, the political area gives birth to a lot of question marks, especially due to the options' exchange rhythm of the ones called artisans of the political world and of the globalization. Can we quantify the influence of these two determinant factors of the international accounting harmonization process? Here is an interesting challenge for the researchers in the accounting field.

Despite the fact that we have intended to get in this paper a lot of factors with significant influence on the accounting harmonization, we cannot claim to have mentioned all the causes that motivate the changes and evolutions that occur in the accounting regulations' field, on a national and international level.

Based on the evolution and the consequences of the accounting harmonization, at a national level as well as at an international or global one, a series of decisive steps towards the increase of the compatibility

and comparability of the accounting referential were taken so that today exist national accounting systems which undertook in the national accounting standards the international settlements (IFRS), having already experience accumulated in this field. Among the states that already chose the application of the IFRS at a national level for all the companies, regardless of the action area or their dimensions, we count: Armenia, Bahrain, Cyprus, the Dominican Republic, Malta, Sierra Leone, Ukraine and other similar states. However, not all countries have committed to adopting IFRS. For example, United States, Canada, India, Japan, South Korea and Saudi Arabia are reported to have not expressed an intention to apply IFRS on national accounting standards (IFAD, 2007).

However, there are a significant number of states for which the appliance of the IFRS is not permitted for the national companies unlisted for the stock exchange (domestic unlisted companies) or it is permitted but only in certain situations or specific conditions. According to the information presented by the IFAD, 46 states are in this situation among which all the states of the European Union, but also other countries such as Russia or Australia (IFAD, 2007).

In this context, the measurement of the harmonization degree of the national accounting systems has become strictly necessary, fact also proved by the numerous research existent in this field. The number of the significant research, with real contributions, consistent in the sphere of measurement and analysis of the accounting harmonization has exceeded a few years ago the level of 24 (according with Nobes, 2004).

Is it natural to ask ourselves why the measurement of the harmonization is necessary, what it is good for? As an answer to these problems, we identified a series of main reasons.

A first argument is the one according to which for the states that already apply the IFRS and find themselves in process of implementation of the international settlements at national level should find out, acknowledge which is the compatibility degree between the IFRS and the National Accounting Standards, and this way to be able to direct their efforts towards a correct implementation of the IFRS.

In addition, for the existent and potential investors, for capital markets and other users of financial statements is very important to know which is the level of the quality and comparability of published accounting data in different countries (Fontes A. et al, 2005). In this context, based on viable and self-sustainable arguments, they can direct their investment capacity towards those areas in which exists a high level of compatibility and comparability of the information supplied by different entities' financial statements, regardless of their geographical positioning.

Through the measurement of the accounting harmonization can also be verified the degree of implementation in the accounting practice, in the economic reality of the IFRS, beyond the legal stipulations regarding the accounting.

The studies in the measurement of the accounting harmonization field can be distributed in two categories. First, those studies which measure the degree of compatibility between the international accounting settlements (IFRS/IAS) and the national accounting standards (NAS) or what the literature of specialty calls – formal harmonization. The second category of studies is based on the analysis, the quantification and the interpretation of the compatibility degree between the implementation into practice of the international settlements and the existent stipulations at the IFRS level.

All these studies offer a general image over the scripted and factual reality of the IFRS implementation at the level of a national accounting system. However, the major limit of these measurement of harmonization systems is given by the inexistence of the information regarding the correlation degree between the need for IFRS implementation existent at the level of a selected state and at the level of IFRS implementation at a certain time, in the settlements area as well as in the practical one, for the same analyzed state.

The major contribution of this study is given by the system suggested for measurement of need for harmonization between national accounting standards (NAS) and international financial reporting

standards (IFRS). The quantification of this need based on a system of statistic indicators determines the **measurement of pre-formal harmonization** in accounting area.

However, why is an indicator that measures the need of accounting harmonization at the level of a national accounting system needed?

The first reason would be connected to the declared intention of certain states, which stated their option to apply IFRS in the existent form or in an adequate one - IFRSs for Small and Medium Entities, for domestic unlisted companies. For this kind of states, the existence of information or some system of measurement, which would allow them to quantify the need of accounting harmonization at the states' level, would be benefic.

Another argument may be given by the fact that the existence of a system of measurement of the accounting harmonization need, through the supplied results and information, can counter attack some decisions of the political factor or can give a real, scientific basis for its decisions. For instance, situations in which a selected state needs the harmonization of the national accounting settlements only for certain types of companies but the political factor decides to apply the IFRS for all the companies, at the entire national accounting system's level can be avoided.

The measurement of the accounting harmonization need existent at a national accounting system's level can give the answer for some states question whether to adopt or not the IFRS. On the other hand, this kind of a system can change some states' option to not apply the IFRS or to apply these settlements only for the domestic listed companies, or to offer the answer, for instance, for the states members in the EU to the question whether the coexistence of two distinct accounting referential at the level of a single accounting system – the EU Directives and IFRSs is possible.

Although is known the fact that EU's option is to maintain for the member states the appliance of the EU Directives in the accounting field, even if the orientation towards the IFRS is more and more present, the measurement of the harmonization need at the level of the entire EU can fundament the compatibility direction of the European accounting referential with the international one.

There is however a series of elements which contribute to the compatibility process' amplitude decrease of the EU Directives with the IFRS. The main barriers to convergence or harmonization at the level of EU are the link between financial accounting standards and tax accounting; and disagreements about the complicated nature of certain IFRS, especially those associated with 'fair value' accounting (Street & Larson, 2005)

Other arguments for measurement of pre-formal harmonization could be:

- the legislative approaches of each country have to be correlated to the real need of regulation, existent at a certain moment;
- the users of the financial - accounting information (especially the existent and potential investors) have the possibility of taking into consideration when supporting the assumed decisions the relationship existent between the manifestations of globalization and the national accounting standards;
- based on the tendencies and predictions established by means of such an indicator, the investors can achieve a general image concerning the normalization of national accounting settlements in the following period;
- the percentage modification of such an indicator, from one year to another, highlights the evolution in time of the stability extent when it comes to national accounting standards;
- the percentage modification of such an indicator, from one year to another, highlights the extent to which the national accounting regulations are affected by the evolutions of the processes of global economy, due to the globalization phenomenon.

Based on these elements we suggest the creation of a complex indicator for the measurement of pre-formal harmonization. We will call this indicator **Globalization Impact on National General Accepted Accounting Principles**, and the abbreviation will be **GINGAAP Index**. This indicator's construction is

based upon the philosophy and the methodology of elaboration of the Human Development Indices and will be presented in detail during the following parts of this study.

In addition, after a short revision of the literature in the harmonization field we will present the defining elements of the research methodology, including the fundamental hypothesis formulated for this study and finally conclusions and premises for the future researches.

2. LITERATURE REVIEW

For starters we decide to review what formal and material harmonization mean and how can these forms of the accounting harmonization be measured.

First, *formal harmonization* refers to the way accounting standards are written: that is, to their legal or quasi-legal specification. *Material harmonization* refers to the level of concordance exhibited by the actual practices of companies in implementing accounting standards. Most of the studies regarding the measurement of harmonization are focused on the formal part of this process. This is because the accounting world, particularly the EU, is focused on achieving convergence of accounting standards in a formal sense, and the IASB is working with national accounting standards setting bodies to help ensure this happens. Many national accounting systems include numerous and significant differences from IFRS, and in such circumstances, reliable measures of progress in achieving convergence are important (Fontes et al., 2005, p. 418).

Most studies in the material harmonization measurement area are based upon Van der Tas approach, although in the last years new derivative approaches arise.

Van der Tas (1988) uses a Herfindahl concentration index (*H* index) to measure the harmonization of an accounting method within a country. The *H* index is computed as:

$$H = \sum_{m=1}^M P_m^2$$

Where: *H* = Herfindahl index; *m* = alternative accounting method *m*; *P_m* = relative frequency of accounting method *m*.

Van der Tas devises two variants of *H* index; the *C* index and the *I* index. The *C* index measures national harmonization when a company provides information for several alternative methods of particular accounting practices. The *I* index measures international harmonization, i.e., harmonization of accounting practices among two or more countries. The *I* index is computed as:

$$I = \left[\sum_{m=1}^M \left(\prod_{n=1}^N P_{m,n} \right) \right]^{\frac{1}{(N-1)}}$$

Where: *I* = *I* index; *m* = alternative accounting method *m*; *n* = country *n*; *P_{m,n}* = relative frequency of accounting method *m* in country *n*.

The *I* index is computed by multiplying across countries the proportion of companies practicing a particular accounting alternative and then summing over all alternative practices. The correction factor in the exponent is used when more than two countries are examined. The *I* index is not meant to give an indication of the statistical significance of harmonization, but rather a scale upon which to quantify harmonization for comparative purposes (Herrmann D., Thomas W., 1995, p. 256).

Beside of van der Tas approach we found several methods for measuring material harmonization that have been developed to evaluate the level of harmonization in accounting practices (for examples Hermann and Thomas, 1995; Archer et al., 1995, 1996; Emenyou, Gray, 1996; Krisement, 1997; Morris,

Parker, 1998; Canibao, Mora, 2000; Aisbitt, 2001; Parker, Morris, 2001; Pierce, Weetman, 2002; Rahman et al., 2002)

In their study, Herrmann and Tomas attempts to determine the level of accounting harmonization in the European Community by examining selected measurement practices from 1992/93 annual reports of companies from selected member countries. Harmonization is tested using the chi-square statistic and measured using the *I* index. The *I* index measures the extent of concentration around a particular accounting measurement method. The results reveal that accounting for foreign currency translation of assets and liabilities, treatment of translation differences, and inventory valuation are harmonized, while accounting for fixed asset valuation, depreciation, goodwill, research and development costs, inventory costing, and foreign currency translation of revenues and expenses are not harmonized. The results also reveal that the extent of harmonization is greater among fairness-oriented countries than among legalistic countries (Hermann and Thomas, 1995, 253).

Archer, Dekville and McLeay bring into research area two main studies according with the topic of material harmonization. First paper of them reports on an analysis of accounting policy choices made by European companies with an international shareholding. In the paper, the van der Tas comparability index is developed by separating the index into two components relating to the within-country (intra-national) effects of domestic standardization and the between-country (inter-national) effects of harmonization. They apply their approach to two important accounting issues – deferred tax and goodwill. Their analysis indicates that, in the two areas of differed taxation and consolidated goodwill, little progress in harmonization took place between 1986/87 and 1990/91 (Archer et al., 1995, p. 67, 80). In their next study, we have found a more complex analysis, base on a method of modeling statistically the process of harmonization. Finally, we get a comparison between both their studies.

Emenyou and Gray proposed in their study to assess the extent to which the accounting measurement and associated disclosure practices of large listed companies have become more harmonized internationally. Their research represents an empirical study of companies based in the five major developed stock market countries. They use a chi-square test and *I* index. The results reveal that while progress has been made in some respects, international accounting harmonization has remained an exclusive goal (Emenyou, Gray, 1996, p. 269, 278).

Morris and Parker present in their study comparative statistical properties of the Van der Tas *I* index and the between-country *C* index introduced by Archer et al. in 1995. They develop a simulation study covering three accounting method in 10 countries, with uniform, bimodal and unimodal distribution of companies across accounting methods. Their main result is represented by the fact that the between-country *C* index is superior to the corrected *I* index because: first, between-country *C* index means approximate their 'expected values' more closely than do corrected *I* index means; and second, between-country *C* index means are more stable than corrected *I* index means where the data come form stable distribution (Morris, Parker, 1998, p. 73).

Primarily concerned with the process of harmonization of financial accounting within the European Union is the paper by Canibao & Mora. The main hypothesis that wanted to test is that, in spite of the obstacles to the harmonization of regulations in European Union, there has been greater conformity in recent years in the accounting practices of companies, which operate on the international stage. They found out that the major deficiency in the index-based methods of measuring harmonization is that no test of significance has been included in prior research. They proposed a bootstrapping test of the *C* index as a way of measuring the significance of the change in its value. Their study is focused four main accounting issues for 85 global players from 13 European countries and the periods of analysis are from 1991/92 to 1996/97. The main findings could be synthesized by the idea that evidence of harmonization is spontaneous and therefore that could not be transformed into a general accepted rule (Canibao, Mora, 2000, p. 349, 366-367).

Aisbitt Sally examined in her study the harmony and harmonization in four Nordic countries based on the usefulness of Archer et al. (1995) decomposed *C* index at four dates in the period between 1981 and 1998. Main result of this study is represented by the fact that the relationship between statute, standards

and practices is one that varies over time between countries and requires further investigation (Aisbitt, 2001, p. 51, 68).

The study of Parker and Morris tested the harmony and harmonization using the *C* index by examining the level of international harmony for eleven accounting measurement policies in matched pairs of large companies from Australia and the UK. According with this approach international harmony is measured by the between-countries *C* index and chi-square test; national harmony by van der Tas's (1988) *H* index. They find international harmony for only three of the eleven issues (Parker, Morris, 2001, p. 297, 324-325) .

Pierce and Weetman present in their research a specific analysis related to deferred tax accounting in Ireland and Denmark over a period of eight years, based on the Archer et al. (1995) method of calculating the combination-based between-country *C* index that takes account of non-disclosed of applicable cases. They use a new approach of this index and present a formula for *BCC* index where both types of non-disclosure are found within one sample. Conclusion of this study is that the state of harmony is better estimated when the data is analyzed to distinguish applicable from non-applicable cases of non-disclosure, and the index formulae applied are adjusted appropriately in both the numerator and the denominator (Pierce, Weetman, 2002, p. 259-260).

Rahman, Perera and Ganeshanandam (2002) in their research comparing accounting regulations and accounting practices of two countries (Australia and New Zealand) that are pursuing a program of harmonization. They find that there is some association between the levels of regulation harmony and practice harmony. That suggests that caution needs to be exercised in aiming to achieve practice harmony through regulation harmonization. The results also show that multinational auditors play a role in accounting practice harmonization (Rahman et al., 2002, p. 46, 73).

Measurement of formal harmonization is the object of some recent field studies because the major concern was from the beginning the measurement of material harmonization. In order to dimension the compatibility degree at a formal level (under the aspect of the accounting settlements) between the IFRS and NAS, most studies stop over using some methods for rank correlation analysis like Euclidian distances, Jaccard's coefficients, Spearman's coefficients. Among the most representative research in the field of the formal harmonization measurement, there are the studies carried out by Rasman et al., 1996; Weetman et al., 1998; Garrido et al., 2002; Fontes et al., 2005; Ding et al., 2007.

Rahman, Perera and Ganeshanandam (1996) use multiple discriminate analysis to describe group differences as a way of measuring the level of harmony between the accounting standards from two main countries (Australia and New Zealand), concerning disclosure and measurement requirements. Their main result reveals a higher level of harmony a measurement requirements and a lower level of harmony on disclosure requirements (Rasman et al., 1996, 325, 337-338).

Weetman et al. study evaluates the profit of those UK companies reporting to the Securities and Exchange Commission (SEC) in 1998 and 1994 spanning a period, which saw the establishment of the ASB and the implementation of the IASC's comparability project. According with their research an increasing gap was found between the reported profit under UK accounting principles and that restated under US GAAP. A conclusion also is that only multinational and listed national companies would be likely to have a direct interest in matters of harmony or disharmony, while companies essentially having a domestic base would continue to take the guidance of standard setters in a national context (Weetman et al., 1998, p. 189, 203).

Garrido et al. demonstrated the application of Euclidian distances to the level of formal harmonization reached by the IASB, through the three stages of its life, and by analyzing pronouncements on 20 accounting issues. The results of this study indicates that a reduction of the alternative accounting methods allowed by IASB standards has occurred, and, in this context, the comparability of financial information has improved (Garrido et al., 2002, p. 1, 26).

The paper of Fontes, Rodrigues and Craig analysis three methods for measuring the success achieved in effecting convergence between any two sets of accounting standards. They propose better, more defensible methods of measuring formal harmonization than those of Rahman et al. (1996) and Garrido et al. (2002). Their study is the first to use Euclidian distance, Jaccard's coefficients and Spearman's coefficients to measure formal harmonization between a certain national accounting standards and IFRS.

For measuring formal harmonization using Euclidian distance, they start by the general formula of this index. The Euclidian distance between two points X and Y with coordinates $X = (x_1, x_2, x_3, \dots, x_k)$ and $Y = (y_1, y_2, y_3, \dots, y_k)$ is defined as:

$$D(X, Y) = \left[\sum_{k=1}^p (x_k - y_k)^2 \right]^{1/2}$$

Where: x_k is the observed value of the k th variable for the individual x in the sample; and k changes from 1 to p (where p is the vector number order) (Lancaster & Tismenestsky, 1985, p.351)

According with their research the general formula of Euclidian distance to the full sample could be:

$$D_m^{IC/NC} = \sum_{i=1}^n d_{k,m}^{IC/NC}$$

Where: $D_m^{IC/NC}$ = is a convergence measure between phases IC and NC, m = the development phases (IA, IB, IC and NA, NB, NC), k = four strengths of accounting method, n = the number of accounting issues in the sample.

For measuring formal harmonization using Jaccard's coefficients they propose this based on the idea that this type of coefficients avoid contributing characteristics that are simultaneously absent in the computation of similarity between two sets of binary observations (Kranowski, 2002). Jaccard's coefficients are defined as:

$$S_{ij} = \frac{a}{a + b + c}$$

Where: S_{ij} is the similarity between two sets, a = number of characteristics taking a value of 1 in both sets, b = number of characteristics taking a value of 1 in the j th set and 0 in the i th set, c = number of characteristics taking a value of 1 in the i th set and 0 in the j th set.

For measuring formal harmonization between the actual stage of National Accounting Standards and those of the IASB, Fontes et al. propose to use the following form of Spearman's correlation coefficient:

$$r_s = \frac{\sum_{i=1}^n R(NC_i)R(IC_i) - n((n+1)/2)^2}{\left(\sum_{i=1}^n R(NC_i)^2 - n((n+1)/2)^2 \right)^{1/2} \left(\sum_{i=1}^n R(IC_i)^2 - n((n+1)/2)^2 \right)^{1/2}}$$

Where: n = total number of accounting methods included in the sample, $R(NC_i)$ = rank order of accounting method i of National Accounting Standards (NC), $i = 1, \dots, n$, $R(IC_i)$ = rank order of accounting method i of IASB standards (IC), $i = 1, \dots, n$.

Using all these coefficients that intend to assess the progress of National Accounting Standards setting bodies in converging their standards with International Financial Reporting Standards, over the period 1977 – 2003 in the case of Portugal (Fontes et al., 2005, p. 415, 419).

Ding, Hope, Jeanjean and Stolowy analyzes in their study determinants and effects of differences between Domestic Accounting Standards (DAS) and International Accounting Standards (IAS). They use an extensive list of differences between DAS and IAS to create two indices, *absence* and *divergence*. *Absence* measures the extent to which the rules regarding certain accounting issues are missing in DAS but are covered in IAS. *Divergence* applies in circumstances where the rules regarding the same accounting issue differ in DAS and IAS. It measures the extent of differences between DAS-based rules and IAS-based rules. They show using sample of 30 countries for 2001 that *absence* is (mainly) determined by the importance of the equity market and ownership concentration, while *divergence* is positively associated with the level of economic development and the importance of the accounting profession, but is constrained by the importance of equity market (Ding et al., 2007, p. 2).

All these scientific attempts represent considerable efforts in the accounting harmonization measurement area under the aspect of the settlements (*de jure*) as well as under the aspect of the accounting practices and politics (*de facto*). Our research intends to add to these two intensely analyzed dimensions a new approach, which is the one of the measurement of the accounting harmonization need (*prior de jure*) of a national accounting system with the international financial reporting standards (IFRS).

3. RESEARCH METHODOLOGY

The entire research carried on in the present study is based on a rigorous documentation relied on credible, viable documentation sources. If we were to place our scientific attempt in a certain research area, we may assert that we have to deal with an empiric research mainly quantitative.

The major objective of this research is to demonstrate that the implementation degree of the international financial reporting standards in the national accounting settlements area is determined directly by every state's global economic integration degree, as well as by the national accounting profession's status. In this context, we formulated the following hypothesis:

H₀: The need of harmonization between IFRS and NAS is directly determined by the level of global economic integration and the statute of national accountancy.

In order to quantify this need at a selected state's level we suggest an indicator based on three major dimensions: globalization of national economy, the connectivity with international accounting standards and, finally, the statute of the national accounting profession. Each of these dimensions is based on a series of statistic indexes, in a number of five, each of them representing the approved form of the selected influence factors. The five main indexes are formed through the composition pondered with a certain value of one or more sub indexes – in a number of nine, which is value is determined starting from simple or pondered values of some indicators of macroeconomic nature. These values are expressed either pondered or numeric, in the shape of absolute values. We have tried as possible that the majority of the values to be pondered by being reported at the existent global level for that considered element. The nine sub indexes were determined through the reporting of the difference between the value of the considered element for a selected state and the minimum of value for the same element, tot the difference between the maximum and minimum value of the same element at the level of all the selected states.

Based upon the five determined synthetic indexes we constituted a global index for each selected state, through determining their simple pondered medium. As a result, we appreciated the ponder of every dimension in the total of the global synthetic index GINGAAP Index is equal. Once determined the value of CINGAAP Index for each selected state it was extremely simple to synthetically present the hierarchy of the selected states – GINGAAP Index Ranking. The effective value of this index can be situated between the minimum value of 0 and a maximum of 1, where a realized minimum means that the need of

harmonization of the NAS with the IFRS at the level of the selected state is inexistent, while the maximum value indicates a major need of harmonization between the two sets of settlements. It is still left to analyze based on calculus and professional reasoning if this need is satisfied or not for the selected state.

The election of the selected states took into consideration two major reasons. The first one is the selection of the states with the highest economic and political influence at a global level, but also with the most important experience in the accounting profession. Another reason for the selection of the states is the pursuit of those states', which are integrated at a regional level behavior, in a structure more or less formal. This option is based on the idea that at this kind of structure's level the diversity degree tends to decrease significantly, reason for which we decided to observe the behavior of the harmonization need in this kind of environment.

Considering these elements the selected states are in number of 33 from which 27 are states member of the European Union and the other 5 states (Australia, Canada, China, Japan, Russian Federation and United States) were selected based on own reasoning.

All the dates on which the determination reasoning of GINGAAP Index place fundament come from certified, credible and general accepted source of data, mentioned every time they are used during our scientific attempt.

4. THE NEED FOR HARMONIZATION – GINGAAP INDEX

We consider that a state's efforts to reach its national accounting's system compatibility with an international accounting referential (for example IFRS) must imperiously have as starting basis the improvement of the national economic environment, so that the companies that develop their activities in that environment benefit from optimal conditions for the maximization of the entity's value. However, this wish must not supply the political factor or the accounting regularization organism with the possibility to choose a certain strategy beyond the need manifested by the economic environment.

The option of reaching a national accounting system's compatibility with an international referential must consider the following aspects:

- the system's need for compatibility manifested by the national economic environment;
- how far up the entity the compatibility is needed;
- the accounting profession's capacity to meet the challenge of the new referential implementation, here also considering the accounting professionals' level of instruction, beyond the history, tradition and experience of the national organisms of accounting regularization.

Clearly we can not ignore one factor which may have a determinant part in the accounting harmonization – which is, the so called "global players" where we can include the regularization organisms that exist at a global level (for ex. IASB and FASB), the professional organisms (for ex. IFAC, IOSCO, SEC, IFAD), the great companies of audit and financial-accounting consultancy.

We consider that a quantification of the compatibility need between a national accounting referential (NAS) and an international one (IFRS) is needed considering the estimations made by IASB according to which by the end of 2011 is expected that some 150 countries (including China, Canada, India, Israel and Korea) to be using IFRS and US GAAP and IFRS to be giving virtually the same results (Sir David Tweedie, 2007, p. 5).

In this context we suggest for the first time the construction of a quantification model for the harmonization need between two selected accounting referential based upon the analysis of the correlation between, on one hand, every selected state's degree of global economic integration and the actual status of the international referential's implementation, and on the other hand between this last element and the accounting profession's capacity to handle this type of challenge.

GINGAAP Index is not an indicator that supplies information of statistic nature regarding the accounting harmonization at the selected state's level. More likely this indicator offers a scale depending on which the need of harmonization at a selected accounting system's (NAS) level can be quantified in relation with an international accounting referential (IFRS).

4.1. Data and Index Composition

GINGAAP Index is based on three major dimensions, each of them owning an equal ponder in its composition.

The three considered dimensions are the following:

1. Globalization of national economy;
2. The connectivity with international accounting standards;
3. The statute of the accounting profession.

Each of these three elements will be dimensioned based on some synthetic indicators that we called $Index_n$ (where $n = 5$ for our sample), which own an individual ponder of $1/5$ in the total of the GINGAAP Index value.

The $Index_n$ that we will use in calculating the *GINGAAP Index*, which are determined base on our computation are:

- $Index_1$: GDP Index
- $Index_2$: TNCs Index
- $Index_3$: Global Economic Integration Index
- $Index_4$: Applying IFRSs Index
- $Index_5$: Accountancy Index

Each of the $Index_n$ is constituted based on some new indicators that we called $Subindex_m$ (where $m = 9$ for our sample), which have a certain individual ponder in the total dimension of the $Index_n$.

Each $Subindex_m$ is based upon a series of empiric data determined by the authors based on some information or supplied as they are by credible data bases.

The $Subindex_m$ that we will use in calculating the $Index_n$ are:

VARIABLES DESCRIPTION

Variables	Measurement	Source
$Subindex_1$	Gross Domestic Product based on purchasing-power-parity (PPP) as share of world total	International Monetary Fund, World Economic Outlook Database. Status as of 2007.
$Subindex_2$	The foreign affiliates located in a host economy as share of world total	UNCTAD, World Investment Report 2006
$Subindex_3$	The number of national companies listed on the capital international markets	Data delivered by London Stock Exchange, NASDAQ, New York Stock Exchange and Tokyo Stock Exchange
$Subindex_4$	Net Total Trade as a share of national GDP	World Trade Organization, Statistics Database. Status as of 2007.

VARIABLES DESCRIPTION

(continued)

Variables	Measurement	Source
<i>Subindex₅</i>	Foreign direct investment as a percentage of national GDP	UNCTAD, World Investment Report 2006.
<i>Subindex₆</i>	Applying IFRS for Domestic Listed Companies	Data determined by the authors according with information delivered by IFAD, Use of IFRSs for reporting by domestic listed and
<i>Subindex₇</i>	Applying IFRS for Domestic Unlisted Companies	unlisted companies by country and region. Status as of 2007.
<i>Subindex₈</i>	The experience of accounting profession	Data determined by the authors according with information delivered by every accounting bodies of selected states on their websites.
<i>Subindex₉</i>	The international acknowledgement of the national accounting profession	Data delivered by the IFAC. Status as of 2007.

For *Subindex₃* was considered the number of national companies listed on the following capital markets: London Stock Exchange, NASDAQ, New York Stock Exchange and Tokyo Stock Exchange.

Subindex₆ is determined by allocating a value between 0 and 3 for the existent situation at the level of each selected state. The potential values we considered in this study, for each analyzed situation may be:

- 0 – IFRSs not permitted
- 1 – IFRSs permitted
- 2 – IFRSs required for some
- 3 – IFRSs required for all.

Subindex₇ is determined by allocating a value between 0 and 5 for the existent situation at the level of each selected state. The potential values we considered in this study, for each analyzed situation may be:

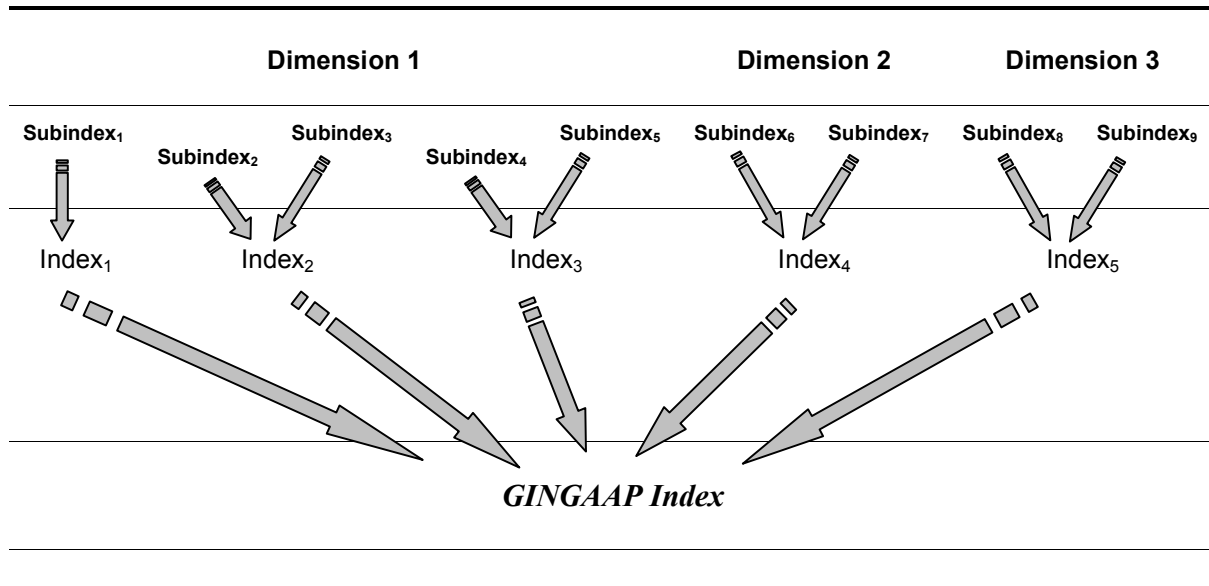
- 0 – IFRSs not permitted
- 1 – IFRSs permitted in some certain situation and National GAAPs are also required
- 2 – IFRSs permitted in both consolidated and separate company statements and other certain situation
- 3 – IFRSs required for some entities and not permitted for others
- 4 – IFRSs required for some entities and permitted for other entities
- 5 – IFRSs required for all.

For *Subindex₈* the experience of accounting profession will be dimensioned by the number of years of existence counted by the oldest professional accounting organism existent in the selected state.

For *Subindex₉* the international acknowledgement of the accounting profession will be dimensioned by the number of professional organisms acknowledged at an international level (for instance by IFAC).

Taking into consideration all these elements, the schematic representation of the composition of *GINGAAP index* is done below:

GINGAAP Index COMPOZITION



In the following part of our research, we will present the obtained data and an analysis of the main determined elements, and finally the conclusions and the suggestions for the following research.

4.2. Results and analysis

As we earlier said, GINGAAP Index is not an indicator that supplies information of statistic nature regarding the accounting harmonization at the selected state's level. More likely this indicator offers a scale depending on which the need of harmonization at a selected accounting system's (NAS) level can be quantified in relation with an international accounting referential (IFRS).

Our study is based on the analysis and determination of the harmonization need at the level of 33 selected states, from which 27 are members of the European Union and the other 5 are 'State player at global level' (Australia, Canada, China, Japan, Russian Federation and United States).

Starting with the composition of the elements included in the *Subindex_m* we determined for each selected state the value of the considered element. The obtained results are synthetically presented in the table below:

COUNTRY SUBINDEX VALUE

Country	Dimension 1				
	<i>Subindex₁</i>	<i>Subindex₂</i>	<i>Subindex₃</i>	<i>Subindex₄</i>	<i>Subindex₅</i>
	value	value	value	value	value
	%	%	No.	%	%
Austria	0.450	0.345	1.000	101.091	20.000
Belgium	0.551	0.303	2.000	104.589	132.300
Bulgaria	0.113	0.925	0.000	79.590	34.300
Cyprus	0.034	0.621	9.000	91.919	52.700
Czech Republic	0.357	9.235	2.000	101.521	48.100
Denmark	0.300	0.298	4.000	104.062	10.600
Estonia	0.037	0.370	0.000	87.779	93.600
Finland	0.276	0.263	5.000	104.965	27.300
France	2.921	1.386	29.000	98.256	28.500
Germany	3.864	1.168	31.000	105.243	18.000
Greece	0.437	0.097	17.000	92.691	13.200
Hungary	0.298	3.466	3.000	98.575	55.900
Ireland	0.282	0.158	88.000	113.373	105.700
Italy	2.704	0.929	12.000	98.545	12.400
Latvia	0.054	0.069	0.000	76.775	28.700
Lithuania	0.083	0.372	1.000	85.818	25.100
Luxembourg	0.056	0.094	18.000	137.319	203.000
Malta	0.012	0.020	1.000	84.076	77.300
Netherlands	0.866	1.774	48.000	107.516	74.100
Poland	0.856	1.872	5.000	96.543	31.100
Portugal	0.362	0.388	4.000	91.396	35.200
Romania	0.322	11.631	0.000	85.024	24.200
Slovakia	0.143	0.344	0.000	93.529	32.800
Slovenia	0.072	0.209	0.000	100.704	23.700
Spain	1.834	0.761	11.000	92.748	32.600
Sweden	0.472	0.602	6.000	108.177	47.800
United Kingdom	3.204	1.768	57.000	95.630	37.100
Australia	1.027	0.304	67.000	97.937	29.800
Canada	1.746	0.482	200.000	101.152	31.600
China	15.075	36.222	26.000	106.395	14.300
Japan	6.297	0.616	46.000	101.106	2.200
Russian Federation	2.608	0.152	20.000	112.827	17.300
United States	19.660	3.183	87.000	93.948	13.000

COUNTRY SUBINDEX VALUE
(continued)

Country	Dimension 2		Dimension 3	
	<i>Subindex</i> ₆	<i>Subindex</i> ₇	<i>Subindex</i> ₈	<i>Subindex</i> ₉
	value	value	value	value
	<i>value</i>	<i>value</i>	<i>No.</i>	<i>No.</i>
Austria	3.000	1.000	55.000	2.000
Belgium	3.000	1.000	54.000	2.000
Bulgaria	3.000	4.000	17.000	1.000
Cyprus	3.000	5.000	46.000	1.000
Czech Republic	3.000	1.000	38.000	2.000
Denmark	3.000	2.000	95.000	2.000
Estonia	3.000	4.000	8.000	1.000
Finland	3.000	2.000	82.000	2.000
France	3.000	1.000	126.000	2.000
Germany	3.000	2.000	75.000	2.000
Greece	3.000	1.000	15.000	1.000
Hungary	3.000	1.000	10.000	1.000
Ireland	3.000	2.000	119.000	2.000
Italy	3.000	1.000	101.000	2.000
Latvia	3.000	3.000	69.000	2.000
Lithuania	3.000	3.000	8.000	1.000
Luxembourg	3.000	2.000	23.000	1.000
Malta	3.000	5.000	65.000	1.000
Netherlands	3.000	2.000	112.000	1.000
Poland	3.000	4.000	100.000	2.000
Portugal	3.000	4.000	24.000	1.000
Romania	3.000	0.000	86.000	2.000
Slovakia	3.000	5.000	5.000	1.000
Slovenia	3.000	4.000	6.000	2.000
Spain	3.000	1.000	65.000	1.000
Sweden	3.000	1.000	1.000	2.000
United Kingdom	3.000	2.000	127.000	6.000
Australia	3.000	4.000	121.000	3.000
Canada	0.000	0.000	99.000	3.000
China	2.000	0.000	19.000	1.000
Japan	0.000	0.000	58.000	1.000
Russian Federation	2.000	4.000	10.000	2.000
United States	0.000	0.000	120.000	5.000

Based on this obtained value we determined the value of the *Subindex_m* for every selected state, based on the following formula:

$$Subindex_m = \frac{(Subindex_{m,i} - \min(Subindex_{m,j}))}{(\max(Subindex_{m,j}) - \min(Subindex_{m,j}))} \quad (1)$$

Where: $m = 1, 2, \dots, 9$; i = actual value for $Subindex_m$ in the case of a selected state; j = represent the value of $Subindex_m$ reported to the situation of all selected states from the sample.

COUNTRY SUBINDEX

Country	Dimension 1				
	$Subindex_1$	$Subindex_2$	$Subindex_3$	$Subindex_4$	$Subindex_5$
Austria	0.022	0.009	0.005	0.402	0.089
Belgium	0.027	0.008	0.010	0.459	0.648
Bulgaria	0.005	0.025	0.000	0.046	0.160
Cyprus	0.001	0.017	0.045	0.250	0.251
Czech Republic	0.018	0.255	0.010	0.409	0.229
Denmark	0.015	0.008	0.020	0.451	0.042
Estonia	0.001	0.010	0.000	0.182	0.455
Finland	0.013	0.007	0.025	0.466	0.125
France	0.148	0.038	0.145	0.355	0.131
Germany	0.196	0.032	0.155	0.470	0.079
Greece	0.022	0.002	0.085	0.263	0.055
Hungary	0.015	0.095	0.015	0.360	0.267
Ireland	0.014	0.004	0.440	0.604	0.515
Italy	0.137	0.025	0.060	0.360	0.051
Latvia	0.002	0.001	0.000	0.000	0.132
Lithuania	0.004	0.010	0.005	0.149	0.114
Luxembourg	0.002	0.002	0.090	1.000	1.000
Malta	0.000	0.000	0.005	0.121	0.374
Netherlands	0.043	0.048	0.240	0.508	0.358
Poland	0.043	0.051	0.025	0.327	0.144
Portugal	0.018	0.010	0.020	0.241	0.164
Romania	0.016	0.321	0.000	0.136	0.110
Slovakia	0.007	0.009	0.000	0.277	0.152
Slovenia	0.003	0.005	0.000	0.395	0.107
Spain	0.093	0.020	0.055	0.264	0.151
Sweden	0.023	0.016	0.030	0.519	0.227
United Kingdom	0.162	0.048	0.285	0.311	0.174
Australia	0.052	0.008	0.335	0.350	0.137
Canada	0.088	0.013	1.000	0.403	0.146
China	0.767	1.000	0.130	0.489	0.060
Japan	0.320	0.016	0.230	0.402	0.000
Russian Federation	0.132	0.004	0.100	0.595	0.075
United States	1.000	0.087	0.435	0.284	0.054

COUNTRY SUBINDEX
(continued)

Country	Dimension 2		Dimension 3	
	<i>Subindex₆</i>	<i>Subindex₇</i>	<i>Subindex₈</i>	<i>Subindex₉</i>
Austria	1.000	0.200	0.429	0.200
Belgium	1.000	0.200	0.421	0.200
Bulgaria	1.000	0.800	0.127	0.000
Cyprus	1.000	1.000	0.357	0.000
Czech Republic	1.000	0.200	0.294	0.200
Denmark	1.000	0.400	0.746	0.200
Estonia	1.000	0.800	0.056	0.000
Finland	1.000	0.400	0.643	0.200
France	1.000	0.200	0.992	0.200
Germany	1.000	0.400	0.587	0.200
Greece	1.000	0.200	0.111	0.000
Hungary	1.000	0.200	0.071	0.000
Ireland	1.000	0.400	0.937	0.200
Italy	1.000	0.200	0.794	0.200
Latvia	1.000	0.600	0.540	0.200
Lithuania	1.000	0.600	0.056	0.000
Luxembourg	1.000	0.400	0.175	0.000
Malta	1.000	1.000	0.508	0.000
Netherlands	1.000	0.400	0.881	0.000
Poland	1.000	0.800	0.786	0.200
Portugal	1.000	0.800	0.183	0.000
Romania	1.000	0.000	0.675	0.200
Slovakia	1.000	1.000	0.032	0.000
Slovenia	1.000	0.800	0.040	0.200
Spain	1.000	0.200	0.508	0.000
Sweden	1.000	0.200	0.000	0.200
United Kingdom	1.000	0.400	1.000	1.000
Australia	1.000	0.800	0.952	0.400
Canada	0.000	0.000	0.778	0.400
China	0.667	0.000	0.143	0.000
Japan	0.000	0.000	0.452	0.000
Russian Federation	0.667	0.800	0.071	0.200
United States	0.000	0.000	0.944	0.800

Based on the values obtained at every selected state's level we determined the value of the $Index_n$ (where $n = 1, \dots, 5$) taking this way a new step towards the determination of the GINGAAP Index.

If we pondered equally the *GDP Index*, *TNCs Index* and *Global Economic Integration Index* we would obtain for each selected state a certain level of Globalization of national economy.

For determining *GDP Index* we considered gross domestic product based on purchasing-power-parity (PPP) as share of world total in the case of every selected state.

For determining *TNCs Index* we combined the dimension the foreign affiliates located in a host economy as share of world total, with a ponder of 2/3 (two-thirds weight) in total, with the dimension the number of national companies listed on the international capital markets, with a ponder of 1/3 (one-thirds weight) in the total of this index. This index's formula of determination is:

$$Index_2 = (2/3)(Subindex_2) + (1/3)Subindex_3 \quad (2)$$

Global Economic Integration Index (*GEI Index*) was calculated based on a simple average of the two-selected dimension: Net Total Trade as a share of national GDP and Foreign direct investment as a percentage of national GDP.

$$Index_3 = (1/2)(Subindex_4) + (1/2)Subindex_5 \quad (3)$$

In order to determine *Applying IFRSs Index* we combined the dimension Applying IFRS for Domestic Listed Companies, with a one-third weight in total, with the dimension Applying IFRS for Domestic Unlisted Companies, with two-thirds weight in the total of this index.

$$Index_4 = (1/3)(Subindex_6) + (2/3)Subindex_7 \quad (4)$$

Accountancy Index we combined the dimension the experience of accounting profession, with two-thirds weight in total, with the dimension international acknowledgement of the national accounting profession, with one-third weight in the total of this index.

$$Index_5 = (2/3)(Subindex_8) + (1/3)Subindex_9 \quad (5)$$

The situation regarding the five synthetic indexes at the selected state's level presents itself as follows:

COUNTRY INDEX

Country	<i>Index₁</i>	<i>Index₂</i>	<i>Index₃</i>	<i>Index₄</i>	<i>Index₅</i>
Austria	0.022	0.008	0.245	0.467	0.352
Belgium	0.027	0.009	0.554	0.467	0.347
Bulgaria	0.005	0.017	0.103	0.867	0.085
Cyprus	0.001	0.026	0.251	1.000	0.238
Czech Republic	0.018	0.173	0.319	0.467	0.262
Denmark	0.015	0.012	0.246	0.600	0.564
Estonia	0.001	0.006	0.318	0.867	0.037
Finland	0.013	0.013	0.295	0.600	0.495
France	0.148	0.073	0.243	0.467	0.728
Germany	0.196	0.073	0.274	0.600	0.458
Greece	0.022	0.030	0.159	0.467	0.074
Hungary	0.015	0.068	0.314	0.467	0.048
Ireland	0.014	0.149	0.560	0.600	0.691
Italy	0.137	0.037	0.205	0.467	0.596
Latvia	0.002	0.001	0.066	0.733	0.426
Lithuania	0.004	0.008	0.132	0.733	0.037
Luxembourg	0.002	0.031	1.000	0.600	0.116
Malta	0.000	0.002	0.247	1.000	0.339
Netherlands	0.043	0.112	0.433	0.600	0.587
Poland	0.043	0.042	0.235	0.867	0.590
Portugal	0.018	0.013	0.203	0.867	0.122
Romania	0.016	0.214	0.123	0.333	0.516
Slovakia	0.007	0.006	0.215	1.000	0.021
Slovenia	0.003	0.003	0.251	0.867	0.093
Spain	0.093	0.032	0.208	0.467	0.339
Sweden	0.023	0.021	0.373	0.467	0.067
United Kingdom	0.162	0.127	0.243	0.600	1.000
Australia	0.052	0.117	0.243	0.867	0.768
Canada	0.088	0.342	0.275	0.000	0.652
China	0.767	0.710	0.275	0.222	0.095
Japan	0.320	0.088	0.201	0.000	0.302
Russian Federation	0.132	0.036	0.335	0.756	0.114
United States	1.000	0.203	0.169	0.000	0.896

Once the dimension indices have been calculated, determining the *GINGAAP Index* is straightforward. It is a simple average of the three dimension indices.

This indicator offers a scale depending on which the need of harmonization at a selected accounting system's (NAS) level can be quantified in relation with an international accounting referential (IFRS) where 0 represents the index's minimal value, which would represent the inexistence of the need for compatibility between NAS and IFRS and the opposite of this situation is given by the value 1, this index's maximum.

COUNTRY GINGAAP INDEX

Country	GINGAAP Index	Country	GINGAAP Index
Austria	0.219	Malta	0.318
Belgium	0.281	Netherlands	0.355
Bulgaria	0.215	Poland	0.356
Cyprus	0.303	Portugal	0.245
Czech Republic	0.248	Romania	0.240
Denmark	0.287	Slovakia	0.250
Estonia	0.246	Slovenia	0.243
Finland	0.283	Spain	0.228
France	0.332	Sweden	0.190
Germany	0.320	United Kingdom	0.426
Greece	0.150	Australia	0.409
Hungary	0.182	Canada	0.271
Ireland	0.403	China	0.414
Italy	0.288	Japan	0.182
Latvia	0.246	Russian Federation	0.275
Lithuania	0.183	United States	0.454
Luxembourg	0.350		

It can be observed that for our study the *GINGAAP Index* records a minimal value of 0.150 and a maximal value of 0.454.

If we analyze the ranking of *GINGAAP Index*, we can observe that the level of compatibility between NAS and IFRS is directly dependent, in some measure to the dimension globalization of national economy and the dimension of the statute of the accounting profession. Synthetically, the ranking of *GINGAAP Index* and the hierarchy of the selected states for a series of *Subindex_m* presents itself as follows:

GINGAAP INDEX RANKING

Rank	Country	GINGAAP Index	Ranking				
			<i>Index₁</i>	<i>Index₂</i>	<i>Index₃</i>	<i>Index₄</i>	<i>Index₅</i>
1	United States	0.454	1	4	28	31	2
2	United Kingdom	0.426	5	7	19	13	1
3	China	0.414	2	1	11	30	25
4	Australia	0.409	11	8	21	9	3
5	Ireland	0.403	23	6	2	16	5
6	Poland	0.356	12	14	22	6	8
7	Netherlands	0.355	13	9	4	14	9
8	Luxembourg	0.350	29	18	1	15	23
9	France	0.332	6	12	20	25	4
10	Germany	0.320	4	11	13	17	13
11	Malta	0.318	33	32	16	2	18
12	Cyprus	0.303	32	20	15	3	21
13	Italy	0.288	7	15	25	22	7
14	Denmark	0.287	22	25	17	19	10
15	Finland	0.283	24	24	10	18	12
16	Belgium	0.281	14	26	3	27	16
17	Russian Federation	0.275	8	16	6	10	24
18	Canada	0.271	10	2	12	33	6
19	Slovakia	0.250	25	29	23	1	33
20	Czech Republic	0.248	19	5	7	26	20
21	Latvia	0.246	30	33	33	12	14
22	Estonia	0.246	31	30	8	7	32
23	Portugal	0.245	18	23	26	5	22
24	Slovenia	0.243	28	31	14	4	26
25	Romania	0.240	20	3	31	29	11
26	Spain	0.228	9	17	24	21	17
27	Austria	0.219	17	28	18	28	15
28	Bulgaria	0.215	26	22	32	8	27
29	Sweden	0.190	15	21	5	20	29
30	Lithuania	0.183	27	27	30	11	31
31	Japan	0.182	3	10	27	32	19
32	Hungary	0.182	21	13	9	23	30
33	Greece	0.150	16	19	29	24	28

5. CONCLUSIONS AND SUGESSTIONS

According to the obtained results, we may conclude that the appliance of the IFRS at the level of the national accounting systems is currently manifesting in three distinct forms:

1. the appliance of the international settlements for all the national companies;

Within a category we encounter states which is economic development is reduced or at most in process and at the level of which the accounting profession has a diminished part or even inexistent. In this situation we find Slovakia, Malta and Cyprus which obtained a maximal value for *Applying IFRSs Index*, however for *Accountancy Index* they obtained values situated under the selected states' average (Malta: 0.339, Cyprus: 0,238, Slovakia: 0,021), Slovakia recording even this index's minimal value. The same fact is encountered in the case of the other indexes, Malta recording for instance the minimal value for *Index₁*.

2. the appliance of the international settlements for all the national companies listed on the capital markets and only for certain unlisted companies on the capital market;

At this category's level, we may find the majority of the world's states with a developed economy or in process of developing. According to our research, from 33 selected states only five do not apply IFRSs for all the companies listed on the capital markets.

3. the appliance of the international settlements is not permitted for any company.

Within this category, a relatively small number of states are found, by comparison with the number of the states, which can be encountered in the previous situation, but which is economic power and status at a global level can be significant (it is the case for the United States, Canada, India, Japan, South Korea, Saudi Arabia, etc.).

If we analyze the situation regarding the *GINGAAP Index Ranking* for the first ten states ordered descendent depending on the value of the index, we can observe that 8 out of 10 selected states recorded values from the first half of the *Index₁ Ranking*, that 9 out of 10 selected states recorded values from the first half of the *Index₂ Ranking*, that only 5 out of 10 selected states recorded values from the first half of the *Index₃ Ranking* and finally, that 8 out of 10 selected states recorded values from the first half of the *Index₅ Ranking*.

These obtained results allow us to assert that the null formulated hypothesis - H_0 : *The need of harmonization between IFRS and NAS is direct determined by the level of global economic integration and the statute of national accountancy is true.*

In order to interpret and analyze the obtained results for *GINGAAP Index* we suggest that the value obtained for a selected state be divided with the entire scale of values (from a minimum of 0 to a maximum of 1), but also with the minimum and maximum obtained at the level of the 33 selected states. This way the greatest need for compatibility between NAS and IFRS at the level of the selected states is recorded in the case of the United States, while the minimum level of this need is recorded by Greece.

If we analyze for instance Portugal, the study conducted in 2005 regarding the measurement of the formal harmonization shows that there is a tendency of growth in the degree of correlation between Portuguese accounting standards and IFRS, and at the level of 2003, this correlation became statistically significant. Based on their sample, and considering the strength of the accounting Methodism, Portuguese standards were found to exhibit a 50% similarity with IFRS (Fontes et al., 2005, p. 433-434). Considering the ascendant tendency regarding the degree of compatibility between NAS and IFRS where this state is concerned, associated with a level of the *GINGAAP Index* of 0.245, a pretty low value compared to any of the two scales of measurement (from 0 to 1 for *GINGAAP Index* or de la 0.150 la 0.454 recorded for our sample of this index) we consider that for the Portuguese Accounting Standard Board (*Comissão de Normalização Contabilística*) can be best recommended a complete compatibility of the settlements regarding the financial reporting for domestic listed companies and foreign affiliates companies located in

Portuguese economy, than a high level compatibility of the Portuguese Accounting Standards with the International Financial Reporting Standards.

This system of measurement for the harmonization need between the national accounting standards belonging to a selected state and IFRS comes to complete the information supplied by diverse systems of measurement of *formal* and *material harmonization*. In this context we consider that based on systems of measurement for the *pre-formal*, *formal* and *material harmonization*, complete, complex and self sustainable information can be supplied regarding a selected national accounting system compared to an international accounting system (for example IFRS vs. National Accounting System).

If we agree that it is therefore well recognized that a primary factor driving *material* harmonization is *formal* harmonization (Rahman et al., 1996, p. 327), it's possible to say that a correct evaluation of *need for harmonization* (pre-formal harmonization) represent a determined factor for a successful material harmonization.

For future research in the field of *measurement of pre-formal harmonization* we recommend that the number of selected states be expanded, the weight owned by the three dimensions that fundament *GINGAAP Index* be determined within the total value of the index. Also, any other improvements that can be made to this evaluation model of the harmonization need between NAS for a selected state and IFRS are welcomed.

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7. REFERENCES

- Aisbitt, Sally, "Measurement of harmony of financial reporting within and between countries: the case of the Nordic countries", *European Accounting Review*, Vol. 10(1), 2001, 51-72
- Archer, Simon Delvaille and McLeavy, Stuart, "The measurement of harmonization and the comparability of financial statement items: within-country and between-country effects", *Accounting and Business Research*, Vol. 25 (98), Spring, 1995, 67-80.
- Archer, Simon Delvaille and McLeavy, Stuart, "A statistical model of international accounting harmonization", *Abacus*, Vol. 32(1), March, 1996, 1-29.
- Canibao, Leandro and Araceli, Mora, "Evaluating the statistical Significance of *de facto* accounting harmonization: a study of European global players", *European Accounting Review*, Vol. 9(3), 2000, 349-369
- Ding, Yuan, Hope Ole-Kristian, Jeanjean Thomas, Stolowy Herve, "Differences between domestic accounting standards and IAS: measurement, determinants and implications", *Journal of Accounting and Public Policy*, Vol. 26, 2007, 1-38.
- Emenyonu, Emmanuel N., Gray, J. Sidney, "International accounting harmonization and the major developed stock market countries: an empirical study", *International Journal of Accounting*, Vol. 31(3), 1996, 226-279.
- Fontes, Alexandra, Rodrigues, Lucia Lima, Russell, Craig, "Measuring convergence of National Accounting Standards with International Financial Reporting Standards", *Accounting Forum*, Vol. 29, 2005, 415-436.
- Garrido P., Leon A. and Zorio A., "Measurement of formal harmonization progress: the IASC Experience", *International Journal of Accounting*, Vol. 37, 2005, 1-26
- Herrmann, Don and Thomas, Wayne, "Harmonization of Accounting Measurement Practices in the European Community", *Accounting and Business Research*, Vol. 25 (100), 2004, 253 - 265

International Forum for Accountancy Development (IFAD), "Use of IFRSs for reporting by domestic listed and unlisted companies by country and region", May 2007; <http://www.iasplus.com>

International Monetary Fund, "World Economic Outlook Database", May 2007; <http://www.imf.org>

International Federation of Accountants, "Membership information", May 2007; <http://www.ifac.org>

Ionaşcu, Ion, "The Dynamics of Contemporaneity Accounting Doctrine", *Economică*, Bucharest, 2003, 93-104

Kranowski W., "Principles of multivariate analysis: a user's perspective", Oxford University Press, New York, 2000

Krisement M. Vera, "An approach for measuring the degree of comparability of financial accounting information", *European Accounting Review*, Vol. 6(3), 465-485

Lancaster, P. and Tismenetsky, M., "The theory of matrices", Academic Press, San Diego, 1985

Morris, D. Richard and Parker, R.H., "International harmony measures of accounting policy: comparative statistical properties", *Accounting and Business Research*, Vol. 29(1), Winter, 73-86

Nobes, W. Christopher, "Elements in the International Harmonization of Accounting", Edward Elgar Publishing Limited, USA, 2004, 3-5

Parker, H. Robert and Morris, D. Richard, "The influence of US GAAP on the harmony of accounting measurement policies of large companies in the UK and Australia", *Abacus*, Vol. 37(3), October, 297-328

Pierce, A. and Weetman, P., "Measurement of the facto harmonization: implications of non-disclosure for research planning and interpretation", *Accounting and Business Research*, Vol. 32(4), 259-273

Rahman, Asheq, Perera, Hector, Ganeshanandam, Siva, "Measurement of formal harmonization in accounting: an exploratory study", *Accounting and Business Research*, Vol. 26(4), 1996, 325-339

Rahman, Asheq, Perera Hector, Ganeshanandam Siva, "Accounting practice harmony, accounting regulation and firm characteristics", *Abacus*, Vol. 38(1), 2001, 46-75

Street D. and Larson R., "Large accounting firms' survey reveals emergence of two-standard system in the European Union", *Advances in International Accounting*, Vol. 17, 2005, 1-29

Tweedie, David, "Keep it Simple Stupid! Can global standards be principle based?", *The 2007 Ken Spencer Memorial Lecture*, May 2007; <http://www.iasplus.com>

UNCTAD, "World Investment Report 2006", New York and Geneva, 2006

Van der Tas and Leo G., "Measuring Harmonization of Financial Reporting Practice", *Accounting and Business Research*, Spring, 1988, 157-169

Weetman P., Jones E.A.E., Adams C.A., Gray S.J., "Profit measurement and UK Accounting standards a case of increasing disharmony in relation to US GAAP and IASs", *Accounting and Business Research*, Vol. 28(3), Summer, 189-208

World Trade Organization, "Statistics Database", May 2007; <http://www.wto.org>

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