Statistical Analysis of Key Criteria Identifying Corporate Cultures

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ABSTRACT

The aim of this article is to revise main distinctions between corporate cultures of different nations. National corporate cultures have long been a point of interest for economists around the world. The question remains important nowadays as well, and will be so in future, since effective cross-border cooperation is one of the crucial factors, allowing attracting overseas investors. Modern researches have proven that both cultural and financial cross-national bonds are getting stronger these days, which leads to creating new paradigms of international cooperation across the globe. Author creates new methods, allowing analysing cross-cultural variance and statistically forecasting how effective will intercultural interaction be. These methods are then implemented to assess transnational cooperation and identify its specific traits on the example of Russia and its economical partners – countries that create the most of direct investments in Russian economy.

Keywords: Corporate Culture, Cross-Culture, Statistical Analysis, Geert Hofstede
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1. INTRODUCTION

About 30-40 years ago the majority of cross-border communications were limited rather to official level of embassies and representatives, while these days, due to powerful globalization, interstate penetration has become more resilient. Current financial and cultural goals, imposed by transnational companies put more pressure on the process of global interconnection (Hatch, 2009). This relation is now considered from productivity and price/earnings ratio point of view, which leads to the fact that new technologies, marketing tools and management strategies are applied to transnational communication, in order to make it advanced, cost effective and result-oriented. These strategies are intended to turn cross-national cooperation in competitive benefit, which, rather often is one of the few remaining resources to make the company effective at the markets with tight competition. Poor corporate environment within the business is a major cause of personnel burnout, undesirable ethical problems, low employee productivity, drops in cost/revenue margin per capita, and overall rise in workforce involvement, compared to end product output (Denison, 2000).

Cross-cultural instability should also be treated as one of the most important, yet underestimated barrier for potential transnational investors, seeking for opportunities of venturing in foreign businesses. Even international merger and acquisition contracts may stop or slow down due to improper inter-company legislation, inability to adjust to corporate rules and guidelines, procedures and principles, adopted in the financed country. All the above stated factors may lead to a significant success ratio decrease for those business venture projects that tend to neglect cultural aspects, even despite severely scrutinizing the financial component of the project (Schein, 2010; Kotter, 2011).

That is why scientific researches on national corporate cultures and their international integration keep flourishing nowadays. Scientists, however, are far from getting to a uniform point of view on corporate cultures. Even the notion itself is considered in different ways (Stanford, 2010). For instance, Jaques treated corporate culture as a habitual and traditional way of thinking and acting, accepted more or less by all employees of a company; this way of thinking should be accepted by newcomers, so that they

could join the company seamlessly (Jacques, 1951). Ouchi called corporate culture a unity of symbols, ceremonies, myths, used to transmit values and beliefs, common in the peer group, to the new members of the group (Ouchi, 1977). Hofstede said that corporate culture is a group formalization of ideas and beliefs that is used to distinguish one company from another (Hofstede, 2007).

2. BASIS FOR QUANTITATIVE ANALYSIS

Most of those the above mentioned researches, however, are empirical and qualitative, consisting of verbal description being given to main traits of corporate cultures. Opposite approach, statistical, quantitative, is not as widespread and popular. This situation should be changed, in our point of view, since numeric, statistical approach is the one that will allow to exactly identify the characteristics of corporate culture, excluding subjective opinions and personal attitudes of researchers. Quantitative approach is scalable, it can be applied to corporate interactions of different sizes, from transnational corporations to small businesses. Furthermore, it allows to evidently differentiate the research object from other corporate cultures, identify those cultural paradigms, that create most of that differentiation and develop methods to minimize cross-cultural difference.

One principal reason for such a lack of quantitative researches on corporate cultures is the fact that research criteria for cultures have qualitative characteristics and can hardly be formalized in a quantitative way. One of the first, yet most competent researchers in the area of cross-cultural differentiation is Hofstede, Dutch scientist, one of the world best known scientists in the area of cross-cultural interaction, author of several books, including "culture's consequences" (Hofstede, 1980) and "cultures and organizations" (Hofstede, 1997), that describe his approach to corporate cultures and made him one of the most cited globally social scientists.

Having analyzed main traits of different corporate cultures from the point of view of their major common and opposing points, Hofstede identified several principal factors, responsible for the classification, diversification and ranging of internationally cooperating countries. These factors are:
• Power distance index (PDI)
• Individualism (IDV)
• Masculinity (MAS)
• Uncertainty avoidance index (UAI).

The above listed principal criteria allowed the researcher to come up with the schemes of character assessment, flexible enough and representative enough to be applied on international level to more than 30,000 individuals from more than 90 countries worldwide. This polling allowed him to develop exact mathematical description of corporate cultures main traits, that lead to both purposeful and spontaneous creation of corporate norms and procedures. Further analysis requires a more detailed description of the four above mentioned criteria, developed by Hofstede.

PDI is the extent to which the society accepts or rejects social inequality. This criteria represents whether any given country accepts high distance between the layers of the society, as well

as within one company, since it thoroughly inherits the traits of the society it functions in. Companies, belonging to cultures with high values of PDI seem to be more united and vertically integrated, than those with lower values. Decision making process is usually consolidated in the hands of a small group of people, and remuneration inequity experiences high variation, depending on employee's grade. Low qualified workers are usually at the bottom of the grading system, while highly qualified tend to achieve higher parts of corporate pyramid.

IDV, as opposed to collectivism, shows the level of group integration, appropriate for an individual. When the level of IDV is high, interpersonal bonds are weak. Each person has to be responsible for his own life level and for the one of his close relatives or family. Communities or corporate clusters are not tied to any individual employee, as well as the employee does not experience any connection to the employer. Vice versa, representatives of low-individualistic society tend to make group decisions. From the date of birth low-individualistic people are integrated in social clusters of different nature, and this remains true throughout their entire life.

MAS and its antipode, femininity, represent the roles, appropriate for men and women in the society, and whether they are flexible or not. Societies with low level of MAS tend to give more importance to cooperation and contacts with subordinates, being uninterested in managerial functions. Societies with high level of MAS demonstrate independence at decision-making, competition, self-confidence. In highly masculine societies man are to behave like breadwinners and providers, taking care of their families, and women are supposed to maintain the household and raise children. A feminine society has a more flexible approach to these regulations and generally accepts women, behaving in masculine way and earning money for the household.

UAI shows the level of social tolerance to insecurity and the unknown. It identifies human desire to find "absolute truth," their trend to stay in peaceful harbor rather than face life obstacles and striving to achieve an uncertain result. In the societies with low UAI if individuals are willing to live without taking care of the future. Contrarily, the UAI is high in the peer group if individuals tend to care of the fore coming events, need to make plans for the future and have an opportunity, sometimes speculative, to make their own choices and decisions in life.

Basing on the abovementioned criteria, Hofstede created a method of personal testing, that allows to identify values of these criteria in the test subject. According to the researcher, these criteria are enough to identify the whole specter of existing corporate countries to the extent, sufficient to formalize basic corporate norms, and make further conclusions on the efficiency of cross-cultural cooperation, level of conflictness and the ability of different corporate cultures to assimilate each others, when subjected to the necessity of transnational merger.

Having performed a vast statistical research, Hofstede received formalized quantitative descriptions of corporate cultures, dominating in each of these countries. This research is used as a

base data source for my work. The key distinction is that Hofstede in his work hasn't performed in-depth quantitative analysis of the data received. In my view, however, it is the statistical analysis of corporate cultures that allows to identify cross-cultures that are both highly conflict (due to polar values of differentiation criteria), and low-conflict in cooperation, find similar and opposing cultural traits in terms of their reciprocal influence, identify and develop possible ways to minimize negative aspects of this interaction and develop measures that will allow to smooth possible initial conflicts and therefore increase productivity of cross-national merger both short-term and long-term.

3. ESTIMATING CROSS-CULTURAL DIFFERENTIATION

We have used several indicators to estimate cross-cultural differentiation. At first, we have calculated basic statistical indicators, starting with arithmetic average, mode, median values for the aggregate array of values, proper to all countries in the aspect of each individual criterion. These calculations have natural meaning, as they provide information for basic conclusions on the entire group of countries that were subject to Hofstede analysis. As an example, the values for PDI and IDV are as follows:

PDI has a minimum at 11 and maximum at 104, with the average value of 58 points, which is almost equal to the median value of the interval. At the same time, the mode of this interval is 80, much higher that the median. This can be proved by social aspect of this criteria – dictatorial regime with high level of social disparity dominated in the majority of main global economies throughout centuries. Even though the situation has changed nowadays, and these times have vanished, their impact still remains noticeable and is strong enough to influence such highly sensitive matters as corporate cultures.

IDV, has minimal value at 6 and maximal at 91. In this case mean and median values are equal, and the mode is as low as 20, which is almost a third lower than the median. This situation can also be explained economically, since strong individuals are often considered as threats by most employers – the workforce should feel themselves as part of the team/this makes them more controllable and more predictable.

After basic research we have calculated the total absolute values of variation between the criteria of analyzed country and compared them to each country that participated in the research. This allowed to identify the countries similar and polar to the research subject and mace basic conclusions on the level of conflictness arousing from straightforward discrepancy between the values of four Hofstede criteria for interacting countries.

Apart from the total variation value, we can use other indicators to investigate distinctions in corporate cultures of different countries. The value of cross-index is calculated as the difference between values of comparable criteria for both countries, divided by the difference between maximum and minimum for the same criteria. This index is used to perform pairwise comparison of

key cross-cultural factors and to identify their differentiation or conflict-compatibility.

Cross-index is calculated with the following formula:

$$CI = \frac{I_{base} - I_{comp}}{I_{max} - I_{min}} , \tag{1}$$

Where, I_{base} – index value for analyzed country; I_{comp} – index value for compared country; I_{max} – maximum index value; I_{min} – minimum index value.

Zero value of this criteria shows that the index has equal values in analyzed and compared countries. Negative value means that the index value in analyzed country is less than in the country, used for comparison. Opposite is true for values above zero.

Minimal value of the index is −1. It corresponds to the difference between maximal and minimal values of the criterion. Analyzed country has minimal value, compared country has maximal value.

Maximal value of the cross-index is 1. It also corresponds to the difference between maximal and minimal values. In this case the index for analyzed country has maximal value, for compared country – minimal value.

Apart from calculating the cross-index, it might also be useful to identify the influence margin that each index has on the total differentiation, thus identifying the most important indices. Doing so can help understand the priorities in developing the procedures intended to minimize cross-cultural differentiation.

In order to perform further analysis of corporate cultures' group differentiation, we calculated Gini coefficient and plotted Lorenz curve – these instruments allow to identify criterion with the highest level of differentiation.

Let's apply the above mentioned statistic research methods and analyze differentiation of Russia, compared to global corporate cultures.

The analysis of Russian position in global community, according to Hofstede criteria, allows to identify the degree to which our research subject is different from other countries. PDI index value for Russia is 93, with minimum at 11 and maximum at 104, inequality in terms of hierarchical power distribution can be stated as "high." IDV index reaches 39 points – this is median value. Maximum value for IDV index is 91, which means that Russian corporate culture tends to be more collectivist than individualist. MAS index – 36 – tends to be in the most frequent value group of the researched entity, and is three times less that maximal result for the index (110) – this indicates high acceptance of non-traditional labour distribution in the society. UAI value places Russia in the topmost group of countries, tending to avoid uncertainty (95 points, with maximum at 112 and modal value equaling 86).

Aggregate assessment of these criteria allows to identify groups of countries that are similar to Russia, as well as those that are

Table 1: Cross-cultural differentiation

Countries similar to Russia									
Total (four criteria)		PDI		IDV		MAS		UAI	
Country	Deviation	Country	Deviation	Country	Deviation	Country	Deviation	Country	Deviation
Surinam	20	Philippines	1	Jamaica	0	Guatemala	1	Belgium	1
Romania	23	Guatemala	2	Arab World	1	Surinam	1	Salvador	1
Guatemala	42	Panama	2	Brazil	1	Thailand	2	Malta	1
Uruguay	42	Romania	3	Iran	2	Uruguay	2	Poland	2
Bulgaria	46	Surinam	8	Turkey	2	S. Korea	3	Japan	3
Countries, polar to Russia									
Jamaica	162	*UK*	*58*	Denmark	35	Ireland	32	Malaysia	59
Austria	166	Finland	60	Italy	37	Mexico	33	*UK*	*60*
USA	*180*	Ireland	65	Hungary	41	Venezuela	37	Hong Kong	66
Ireland	188	N. Zealand	71	*Netherlands*	*41*	Austria	43	Sweden	66
Sweden	191	Denmark	75	*UK*	*50*	Hungary	52	Denmark	72
UK	*198*	Israel	80	Australia	51	Japan	59	Jamaica	82
Denmark	202	Austria	82	*USA*	*52*	Slovakia	74	Singapore	87

PDI: Power distance index, IDV: Individualism, MAS: Masculinity, UAI: Uncertainty avoidance index

polar by the sum of criterion values. The total absolute value of cross-cultural differentiation is displayed in Table 1. Countries, providing the majority of direct international investments in Russian economy are given in italic.

According to Table 1, such countries as Surinam, Romania, Guatemala, Uruguay and Bulgaria are the closest to Russia in terms of specific traits of corporate culture. Thus, we can assume that in case these countries try and establish international market bonds with Russia, diversity in corporate cultures would not play any important role, and managers could easily minimize or even neglect problems, caused by variety in management psychology. Denmark, Great Britain, Sweden, Ireland and USA are, contrary, polar to Russia in terms of all four Hofstede criteria. Consequently, there potentially is a high risk of problems in HR integration with businesses from these countries. We should also notice that the majority of countries that form the flow of direct investments in Russian economy are in polar position to Russia in the aspect of corporate culture.

Let's perform a deeper analysis and apply cross-index to differentiation criteria. Results are given in Table 2.

Table 2 shows that there are positive and negative variations of criterion values, comparing to Russia. Average value of 0.38 indicates that these variations are significant. PDI index has maximal variation and countries most polar to Russia are Germany, Switzerland and United Kingdom. It means that these countries have strict and centralized management system, comparing to more liberal Russian one. Basing on the values of cross-index, we can conclude that French managing system is the closest to Russian. Consequently, French companies coming to Russian market will have the least managerial problems in terms of human resource coordination. We have aggregated variation values to a separate table.

Data in Table 3 is used to calculate Gini coefficient and graph Lorenz curve. This information allows to perform further analysis of corporate cultures' differentiation and leads to a conclusion – all four criteria have a significant amount of differentiation, with IDV being the most differentiated. Most of the countries have

Table 2: Cross-index values

Countries	PDI	IDV	MAS	UAI
Russia	0	0	0	0
France	0.269	−0.376	−0.067	0.087
Germany	0.624	−0.329	−0.286	0.288
India	0.172	−0.106	−0.190	0.529
Netherlands	0.591	−0.482	0.210	0.404
Switzerland	0.634	−0.341	−0.324	0.356
United Kingdom	0.624	−0.588	−0.286	0.577
United States	0.570	−0.612	−0.248	0.471

PDI: Power distance index, IDV: Individualism, MAS: Masculinity, UAI: Uncertainty avoidance index

Table 3: Criterion variations

Countries	Factors			
	PDI	IDV	MAS	UAI
France	34.25	43.84	9.59	12.33
Germany	39.73	19.18	20.55	20.55
India	16.00	9.00	20.00	55.00
Netherlands	34.38	25.63	13.75	26.25
Switzerland	37.11	18.24	21.38	23.27
United Kingdom	29.29	25.25	15.15	30.30
United States	29.44	28.89	14.44	27.22

PDI: Power distance index, IDV: Individualism, MAS: Masculinity, UAI: Uncertainty avoidance index

less than average IDV value, which seems to be reasonable from the historical point of view – throughout history most of the countries at a certain stage were totalitarian, and the remains of that psychology can be visible up till now. Second most differentiated criterion is PDI, while UAI and MAS are less differentiated.

4. CONCLUSIONS

In the article we have made an effort to analyze the most important quantitative statistic indicators that allow to exactly identify the position of a corporate culture in the global system of cross-cultural interactions. Depending on the goal of the research, other indicators can be used as well. Practical value of the research - The analysis of cross-cultural characteristics, allows to create a general image of strong and weak sides of both global cross-cultural interaction, as well as local one involving two companies of

different countries, trying to build an effective international team. The above described method allows to analyze the efficiency of such interaction at different stages, both long-term and short-term, and to create an event plan, intended to optimize this interaction and minimize potential conflicts, offering general managerial recommendations. If we take into account main sources of foreign direct investments in Russian economy, it would be reasonable to use this model to have a deeper look on corporate cultures of France, United Kingdom, USA, Germany, India and Switzerland, in comparison to Russian one.

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