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Effect of perceived Price, Brand Image, perceived Quality and Trust on Consumer's buying Preferences

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Abstract
The study investigates the effect of factors such as perceived price, brand image, perceived quality and trust on consumers' evaluative judgments for beautification products. Results showed that brand image has positive and significant impact on consumer trust. Increase in perceived quality and trust depicted increase in a particular brand preference. Decrease in perceived price showed significant and positive impact on brand preference. This study measured the effect of brand image, price, quality and consumer trust information on how individuals subjectively evaluate a brand.
Keywords: brand image, brand preference, perceived price, perceived quality

Introduction

Beautification products are those that clean and perfume the body, change appearance, correct body odor, protect skin and give us a feeling of freshness and neatness (Chidambaram & Devi, 2000). Such products are more important for women. In Pakistan, majority of the cosmetics and beauty products are used by women. The commonly used beautification products in Pakistan are: fairness cream, talcum powder, body lotion, lip liner, shampoo, lipstick, face wash, eyeliner, perfume, hair removing cream, conditioners and so on. Some beautification

products are used daily and some occasionally. These products were used in earlier times as well and our literature is full of the consciousness of the earlier princesses in particular and women in general for using natural ways to increase beauty. Today's varied cosmetics are the result of scientific processing of natural items.

There are two possible ways for consumers to use brand image in their product evaluation. In the first, rational way, brand image is a construct that consumer use to simplify their product knowledge about a specific brand (Meenaghan, 1995). Thus, consumers will often refer to brand image prior to their product attitude formation process. In the second, emotional way, consumers are assumed to seek a match between their self-concept and brand image (Heath & Scott, 1998). Perceived value is the perceived utility relative to its monetary and non-monetary costs, assessed by the consumer and based on simultaneous considerations of what is received and what is given up to received it (Ladebo, 2006). Clearly, quality of product/service is a logical driver of perceived value. In instances where the core of what the e-vendor offers to the customers is a digitized product/service (e.g., online banking, content aggregators and online stock trading), there is no tangible product and, as such, it is difficult for consumers to differentiate product quality, service quality, and Web site quality. The main effects of price appear to be more clearly associated with quality perception of a brand. Perceived price is a good proxy variable for perceived quality. Price conveys information to the consumer about product quality (Erikson & Johansson, 1985). The importance of price as a function of perceived quality has been extensively studied more than any other factors in this sphere (Dodds et al., 1991; Swan, 1974; Wheatley & Chiu, 1977; Zeithaml, 1988). Quality is the best indicator of the product's durability, reliability, precision and other valued attributes. It provides added value and constructive perception on a brand to affect consumers' brand evaluation. The high quality perception often depends on consumers' distinct liking and beliefs toward the brand. Thus, a brand may contain quality attributes but it may not satisfy consumers' preference if it does not fit with their perceptions and beliefs of high quality. Typically, consumers recognize the quality levels of different brands through categorical information as well as experience with the brand and they form positive or negative perceptions about the quality of a specific brand. When consumers are convinced with quality of a brand, they evaluate a brand positively. Recent research has focused on the

antecedent of the country-of-origin effect (Hung, 1989; Roth & Romeo, 1992) and assessing the relative importance of country of origin as one of many possible cues (Thorelli). The perceived quality construct has received considerable attention in the marketing literature (Chowdhury & Islam, 2003; Holbrook & Corfman, 1985; Jacobson & Aaker, 1987; Olshavsky, 1985). Quality is the ability of a product to satisfy a consumer's needs and requirements (McCarthy & William, 1991). Perceived quality can be defined as the perception of a consumer about the overall excellence and superiority of a brand, which is directly related to his/her satisfaction.

Literature Review

Brand image can be positive, as well as negative. On the basis of the characteristics which the consumer associates with the brand, a competitive advantage for a brand can be build. People can form images about many different entities, such as products, brands and organizations. Images help individuals to think about an entity and will influence their subsequent actions towards the object (Dowling 1994). There are two aspects of customers' brand evaluations that have often been examined in the literature. They are trust in the brand and feelings or affect elicited by the brand (Chaudhuri and Holbrook 2001). Brand trust is defined as the willingness of the average consumer to rely on the ability of the brand to perform its stated function. Brand affect is defined as a brand's potential to elicit a positive emotional response in the average consumer as a result of its use. (Lim, & Jongsuk, 1989; Tse & Gorn, 1993)

Brand image inhibits the learning of other attribute information too. Moreover, it provides specific information about product quality, reputation, performance, credibility, prestige and so on, about a brand. Hence, high image brands have significant and dominating influence in evaluating a brand. A well-known brand also reduces the consumers' risk perception and increases positive evaluation towards the brand. Sometimes, brand image is used as a symbol of social status and it forces the consumer to own that brand.

Honesty is the belief that a partner stands by his word, while benevolence is the belief that the partner is interested in the customer's welfare and will not take actions with negative impact on the customer (Afsar Bilal, 2010).

Chaudhuri and Holbrook (2002) define brand trust as the customer's willingness to rely on the ability of the brand to perform its stated function. Trust causes dedication because it reduces the costs of negotiating agreements (Bendapudi and Berry, 1997) and lessens customers' fear of opportunistic behavior by the service provider (Bendapudi and Berry, 1997). In social psychology, trust is considered to consist of two elements: trust in the partner's honesty and trust in the partner's benevolence (Zineldin, 2006). Price plays a pivotal role in a consumer's choice of brand. Many consumers organize their products category knowledge in terms of the price bands of different products (Keller, 1998).

According to a study named "The Dual Role of Price in Consumer's Value Judgments" by Manoj Thomas, Vicki G., Leonard M. Lodish; first, as a product attribute, price affects the perceived similarity of the target product to the mental prototype of a higher or lower quality product. For a brand, different consumers hold different perception vis-à-vis brand quality. A brand might be coded as "high quality" by some consumers, and "medium quality" or "low quality" by others. Again, product quality perceptions are also varied based on the product class.

According to Pennanen and Luomala (2004), consumers prefer those brands and products which have high quality and brand image. Brand image creates trust among consumers for the products as well as services. In case of beauty products, most often it is the brand which ultimately decides the course of action for the consumers. In Pakistan, beauty products are mostly used by women. A large number of women in Pakistan choose brands on the basis of price. Price is quite an important factor which influences the decision and purchasing patterns of the consumers. The researches showed that increase in price decrease preference for a particular brand. Quality of a beauty product also describes the results that consumers expect by using a particular product. There are so many brands in Pakistan. Some are local, and majorities are foreign. Though there are so many other factors which also influence a consumer while deciding about using a brand, but the factors mentioned are the most pivotal and are supported heavily by the literature. Image of a brand is the perception and expectations from a product or service (Liebermann and Stashevsky, 2002). Since we are discussing about products which relate more to women, brand image and recognition are mostly related to females. As females attach

emotions to buying decisions and loyalty for them is relationship management and retention in the longer run. They commit to brands, make them focused on a brand and if satisfied advertises it through positive word of mouth. They convince others to use that particular brand. Now as it is a matter of beauty and females usually do not compromise about it, they consider quality as an imperative determinant. Quality is the combination of expected result and actual results. How much satisfaction after using a product depends on quality? If consumers become beautiful, they stick to a brand. So the expectations of consumers and the actual targets define the quality. (Brown and Dacin, 1997; Sen and Bhattacharya, 2001). The Corporations strategize their market share on the basis of sustained competitive advantage and distinctive competence. The brands with qualities that can not be imitated easily by the competitors are successful and earn more profits. Bredahl et al. (1998) demonstrate that expected and experienced quality diverge widely and are not closely related to objective characteristics. It is therefore clear that the understanding of the relationships between expected and organoleptic characteristics through intrinsic quality cues is the key to a better understanding of how consumers form expectations.

Perceived brand image (i.e., higher brand image perception) is associated with more favorable evaluations toward a beautification item. Perceived price (higher vs. lower) has a direct positive effect on the evaluation of a beautification item. High quality perceptions toward a brand achieve consumers' preferences and satisfactions rapidly. When consumers' perceptions of quality are more favorable, their evaluation of a beautification brand is positive.

Consumers evaluate a brand as unique, prestigious and reliable for its superior quality. If the product is associated with high-perceived quality, the consumers' trust of a brand is increased and thus a brand's preference is also increased. Moreover, consumers use the brand's quality to differentiate a brand from the other brands. Researchers generally have postulated that there are many different ways to differentiate products; superior quality is one of the most effective (Porter, 1980). Consumer trust is defined here as “the expectations held by the consumer that the service provider is dependable and can be relied on to deliver on its promises” (Sirdeshmukh, Singh, & Sabol, 2002, p. 17). Conceptual (Nooteboom *et al.*, 1997) and empirical (Garbarino & Johnson, 1999; Morgan & Hunt, 1994; Tax, Brown, &

Chandrashekaran, 1998) studies have pointed to **trust** as a fundamental ingredient for the development of strong and long-term relationships between consumers and organizations.

Trust offers a guarantee as to the consistent and competent performance of the company, assuring that the consumer will continue to gain value from future dealings with the same provider (Sirdeshmukh *et al.*, 2002). In reducing the risk involved in exchanges, trust contributes to giving continuity to the relationship and to creating feelings of loyalty. Thus, the greater the consumer's trust in the company and its employees, the greater the probability of his/her engaging in future dealings and keeping a long-term relationship with it. Likewise, consumers will make comments and recommend companies in which they have a great deal of trust to friends and relatives.

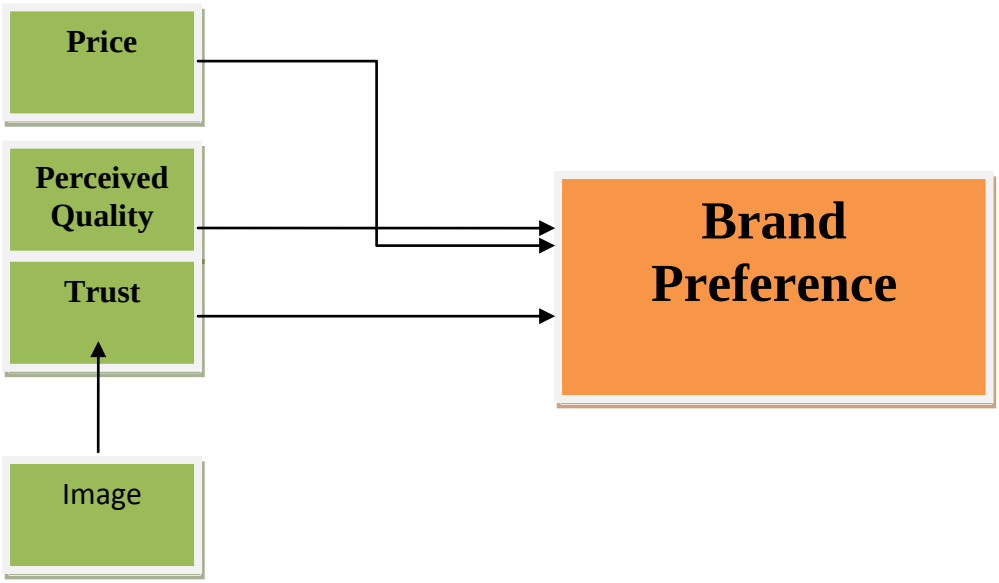
Trust is a central construct in the value chain that leads to consumer commitment toward the firm (Guibert, 1999). Most research works in marketing adopt a bi-dimensional conceptualization of trust: objective *credibility* of the partner groups' competency and honesty attributions whereas *benevolence* attribution corresponds to the good and caring intentions of the partner. Benevolence dimension is not considered here for two reasons: honesty and benevolence are difficult to distinguish (Larzelere and Huston, 1980, p. 596) and the benevolence dimension raises many theoretical, methodological and managerial difficulties (Gurviez and Korchia, 2002).

Research Hypotheses and Theoretical Framework

The hypotheses on the basis of literature are as follows:

H1: Brand Image influence Consumer Trust.
H2: Perceived Quality influences brand Preference.
H3: Consumer Trust influences Brand Preference.
H4: Perceived Price is negatively associated with Brand Preference.

So, on the basis of the hypotheses developed, the theoretical framework of the study is as follows:



Methodology

The gathering of data may range from a simple observation at one location to an extravagant survey of multinational corporations at sites in different parts of the world. The method of research can determine how the data are collected. Questionnaires, standardized tests, observational forms, laboratory notes and instrument calibration logs are among the devices used to recover raw data (Cooper and Schindler, 2003). The survey approach was used for this study and a questionnaire was developed which was also validated. The questionnaire was distributed among 450 respondents and response rate was 85%. The above opinions were measured by requesting respondents to indicate, on a five-point Likert-type scales, anchored on "1 = to a very little extent" through "5 = to a very great extent", their agreement or disagreement with a series of statements that characterize the factors for brand preference of beauty products in Pakistan. The questions measuring different variables are as under:

Brand Image

1. This brand is more advanced than any other brand of this kind.
2. This brand belongs to a socially responsible company.
3. This brand has distinctive competence that no other brand can imitate.

4. It is always comes with unique functions that distinguishes it from the others.
5. It is more concerned about customers.
6. It is a sophisticated brand.

The following table (table no.1) shows the standard deviations and means of the questions which were answered by the customers.

Tabel no.1. Brand Image Mean and Std. Deviation Result

	Mean	Std. Deviation
BI1	3.59	.74
BI2	3.47	.79
BI3	3.63	.89
BI4	3.85	.75
BI5	3.92	.71
BI6	3.12	.88

Perceived Price

1. The price of the product is always very high.
2. The price of the product is always reasonable.
3. The price of the product exceeds my needs and desires.
4. The price of the product is always under priced.
5. The price compared to its quality is always acceptable.

The mean and standard deviation of each question is shown in table nr. 2.

Tabel no. 2 Perceived Price Mean and Std. Deviation

	Mean	Std. Deviation
PP1	3.78	.95
PP2	3.56	1.15
PP3	3.08	1.10
PP4	3.06	.90
PP5	3.52	.78

Perceived Quality

1. This product has something new that cannot be found in other products.
2. This product is very friendly to my body.
3. This product is friendly to my skin.
4. This product has improved my personality.
5. This product improves my social status.
6. This product is always a good quality product.
7. I always feel impressed by using this product.
8. This product always does its basic job very consistently.

Table no. 3 shows the mean and the variance of the questions which are answered by the customer.

Tabel no. 3. Perceived Quality Mean and Std. Deviation Result

	Mean	**Std. Deviation**
PQ1	3.74	.78
PQ2	3.25	1.05
PQ3	3.78	.98
PQ4	3.95	.73
PQ5	3.52	1.04
PQ6	2.85	.59
PQ7	2.89	.65
PQ8	2.99	1.04

Consumer Trust

1. My preference for this brand would not willingly change.
2. It would be difficult to change my beliefs about this brand.
3. Even if close friends recommended another brand, I would not change my preference for this brand.
4. To change my preference from this brand would require major rethinking?

5. I feel secure when I use products of this brand because I know that the brand will never let me down and will never cheat me.
6. The brand provides me with reliable and worthwhile (value for money) products?

These means show the average response of all the respondents for a given question.

Tabel no. 4. Trust Mean and Std. Deviation

	Mean	**Std. Deviation**
CT1	3.45	.87
CT2	4.80	.83
CT3	4.26	.93
CT4	3.56	.93
CT5	4.56	.95
CT6	3.85	.96

Brand Preference

1. I always keep this brand in my consideration set.
2. This brand always outperforms other brands of this category.
3. This brand has unique features which cannot be found in other brands.
4. My intention to use the products of this brand would not be changed.
5. Would I always use this brand's products?
6. This brand has attractive attributes than other brands.
7. I am impressed by this brand's image.
8. Owning this brand make other people envious.

Table no. 5 shows the mean and standard deviation results.

Tabel no. 5. Brand Preference Mean and Standard Deviation Result

	Mean	Std. Deviation
BP1	3.22	.75
BP2	3.45	.80
BP3	4.30	.71
BP6	4.70	.73
BP7	4.27	.80
BP8	3.76	.71
BP9	3.12	.64
BP10	3.50	.85

Tabel no. 6. The correlation matrix

	PP	PQ	BI	CT	BP
PP	1.000	.493	.386	.607	-0.45
PQ	.493	1.000	.598	.531	.932
BI	.386	.598	1.000	.712	.347
CT	.607	.531	.712	1.000	.504
BP	-0.45	.932	.347	.504	1.000

The Lagrange-multiplier test was used to determine whether the specification of certain parameters as free rather than fixed would lead to a better represented model of the data. In our case, no parameter was indicated when released to provide a significantly better adjustment in the model. This signifies that the measurement model applied can be considered adequate for both types of services investigated. The goodness-of-fit indices for the model are: NFI = 0.86, NNFI = 0.81, CFI = 0.94 and RMSEA = 0.09, and therefore satisfactory.

Proceeding with the analysis of the measurement model, the convergent validity was supported, basically, by the fact that all the items, without exception, presented high and significant factorial coefficients in the constructs that they were supposed to measure (between 0.70 and 0.95 t-values over Cristiane Pizzutti dos Santos, Daniel Von der Heyde Fernandes). Additionally, there was significant correlation between items associated to the same construct. Therefore, the convergence of measurements, i.e., the existence of a high correlation between the measurements designed to measure the same construct was detected (Churchill, 1999).

Evidence of diPPriminant validity was found through the correlation levels existing between the constructs. Correlations of over 0.80 would indicate a lack of diPPriminant validity, i.e., constructs would be measuring the same phenomenon. The highest correlation found was between brand preference and perceived quality of brand (0.932). Closing the diPPussion of the measurement model, the measurements applied provided satisfactory levels of reliability and extracted variance. Reliability lay between 0.76 and 0.91 (procedural fairness and distributive fairness, respectively). Extracted variance lay between 0.58 and 0.87 (procedural fairness and word-of-mouth communication, respectively). Hypotheses H1 examines the path from brand image to trust. Brand Image (β =0.429, t-value=6.592, $p<0.001$) had a significant positive effect on Consumer Trust thus supporting H1. About 67 percent of the variance in trust was accounted for by brand image. H2 is also supported by the results as perceived quality (β =0.399, t-value=5.431, $p<0.001$) also suggested positive influence on Brand Preference and similar result was shown by H3 as Trust (β =0.355, t-value=5.102, $p<0.001$) had strong affect on Brand evaluation. However H4 showed that perceived price negative value of 0.45 showed a negative relation with brand preference. The result showed that it is the perceived quality which has the strongest influence over brand preference by consumers, in Pakistan.

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Neural Network Analyses of the Romanian People working in Foreign Country's

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Abstract

Millions of people went from Romania to make a fortune in foreign countries and a few of them came back and make their life easier at home. There are some preconditions for each of them and there have some expectations of the outcome of the time spent. Because these factors are not related in a straight way, the analysis of the problem needs knowledge discovery. We choose artificial neural networks to recognize some patterns related to this problem. In neural network analyses, sometimes the results are good, but we cannot transform it in adequate conclusions. These results are fitted to predict the outcomes of *new* data. Neural networks mimic the functions of the human brain. In comparison with the fuzzy sets, the artificial neural network is the hardware, and the fuzzy set model is the software approach of, sometimes, the same problem. We have a brunch of problem, for that the neural network model cannot be substituted by the fuzzy model, although the results of the fuzzy approach are most human-readable. Our problem is maybe closer to the fuzzy system, but this time we want to verify the neural network approach. We use this analysis to discover patterns between the inputs of a human that goes outboard to work in foreign country for a period of time and the outputs of the work, like material realization, education and professional profit.

Keywords: neural networks, foreign labor, input, output

Introduction

Romania is the land from where millions of people went in foreign countries to make a fortune. But there is no free lunch in Great Britain or in Germany, or elsewhere. Our subjects were in foreign countries and come back with money or with experience, or both. We want to discover if the factors we believe to be important before travel and the results of the work like foreigners in other countries are somehow related. We discover that is no correlation between two of the data columns combined. This makes us to consider the neural network analysis able to solve this cumbersome problem. We choose six factors for input and five for the outputs that results from the implementation of the questionnaire through the subjects returned in Romania. The six factors for the inputs are composed by the following expectations: *material, connection network building, self-actualization, professional* and the jobs related factors: *activity before the foreign work, the foreign job*. The five target factors are: *the material realization, the social network construction, self-actualization, professional advancement* and the *activity after returning in the country*. Our conclusion is that not all targets can model with a simple neural network using the inputs choose. Because we have six input arguments, we choose from one to six hidden neurons to solve the fitting expectations. It is enough to draw some conclusions. This paper evolves during some sections. In the next section we address the basis of the research: the *people* and the *data*. The research is based on a PhD thesis entitled: "*The Economical and Social Characteristics of Foreign Labor in Harghita County"* and a Domus research fellowship: "*Working abroad in the years following the economic crisis in Harghita County",* accepted and financed by the Hungarian Academy of Sciences, from where we get the responses regarding the people involved from our region, the main problem researched, the factors and facts questionned. In the third section we show the method and the framework used to analyze a part of the research data with the factors mentioned. The fourth section shows the results of analyze, concluded in the last section. [4], [5]

Material and Methods

For the *quantitative* research as a sampling technique, Péter have chosen the snowball sampling method because she only had a few data about the population used by Tomcsányi. Thus she has started with two interviewee chosen based on their activity before foreign labor (workers from industry and agriculture). The interviews were taken in the November-December 2012 period. In her questionnaire she has used both, open and closed questions. [4], [6]

During the process she has contacted 85 people, 53 answered. Invoking personal reasons failure, shame, inconveniences in adapting 32 people refused to answer. She experienced refusal in taking part in the process, but only few cases when a person did not want to answer a certain question.

She contacted people from the analyzed county, who returned in Romania and are older than 18. The questionnaire based on analysis shows that the repetitive character of emigration is in a significant correlation with the activity undertaken before emigration. 29% of unemployed, 19.4% of intellectual workers, 19.4% of those working in industry, 12.9% of students and 12.9% of newly graduates undertook repeatedly the difficulties of foreign employment. 35.5% of those who repeated emigration did not find a job after returning home, 22.6% was hired in an intellectual profession, 3.2% worked in commerce and services and 6.5% continued their studies. 41.9% of the women and 58.1% men are repeated emigration and the number of family members did not significantly influence the decision of repeating the foreign experience.

An interesting observation is that public servants, considered to have a solid function, also decided to leave, and young university graduates try to find their first job abroad. Analyzing the results of the research we can conclude that after undertaking a job abroad, more and more become unemployed and continue their unfinished studies. Agricultural and industrial activities are not attractive for those returning home. People are interested to work in services. The research shows a significant decrease in entrepreneurship. None of the interviewees launched their own business. One person declared that he bought equipment for his carpentry, but does not plan to establish a firm; now he is doing some “black work” for his family and acquaintances. Based on the results of the research we can conclude that financial expectations at the beginning of employment are significantly

correlated to the field of activity undertaken during working abroad. In the post crisis years, the repayment of bank loans contracted in incautious conditions represents a serious problem. The indebtedness influenced not only unemployed, but also underpaid young graduates and white-collar workers to undertake jobs abroad.

Literature review

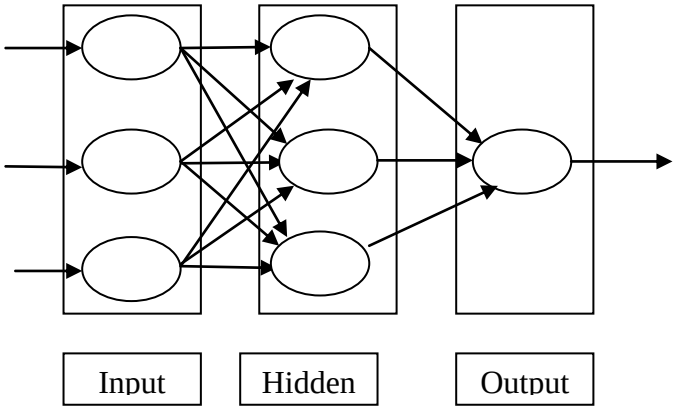
The Neural Networks

In 1948, Alan Turing proposed the concept of neural network in his paper *Intelligent Machinery* and he named them "B-type unorganized machines"[8]. There are some steps and some dead periods in the evolution of the concepts and applications of the model. Computer storage and operational memory are two main factors that influenced the use of the network in applications. One big step was the definition of the concept of perceptron, by Rosenblatt. [7]

The other big change was proposed by Hopfield and the name of his network became Hopfield network. In opposition of Neumann's computer model, in the Neural Network model the memory is not separated from the algorithms, and this model uses parallel computing for problem solving. We refer with the Neural Network term to Artificial Neural Networks. [2]

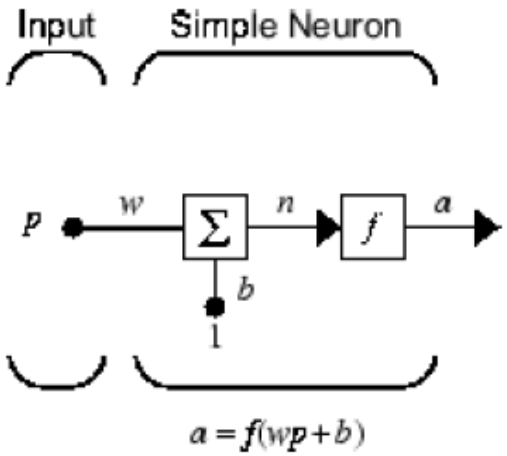
Like brain is capable to learn, artificial brain or artificial neuron networks are capable to machine learning and pattern recognitions. Neural networks are constructed with two components: the neuron and the linkage between neurons. These linkages are called synapses and the model an output from a neuron and an input for one or more neurons. Every neuron has a weight in the network. This weight determines the *importance* of a neuron in the neuron chain, in a problem solution. This weight is between 0 and 1. There are some constant values called *biases* that characterize one layer or one perceptron. [1]

Fig. no. 1. Feed forward simple artificial neural network



We present only that part of neural networks that we use for our modeling problem. The input layer has *n* neurons, that represents the number of factors we consider inputs in our system. The output layer consists of *1* to *m* neurons, depending how many outcomes are in the model. In our approach we analyze once all the five output targets together. Our analyses continue with the analyses of each output target in separate networks. Without a hidden layer, we do not solve sophisticated problems. Because our goal is to obtain a hidden layer with small number of neurons, we take into consideration the hidden layer from *1* to *n* neurons. The maximum number of hidden neurons is the number of input factors. Every neuron has a *weight* an *activation function and an optional bias*. The activation function is triggered by the "sum" of the input factors. The activation function "transmits" the information in the network across one neuron, if the neuron has enough inputs triggered with enough weights and bias value.

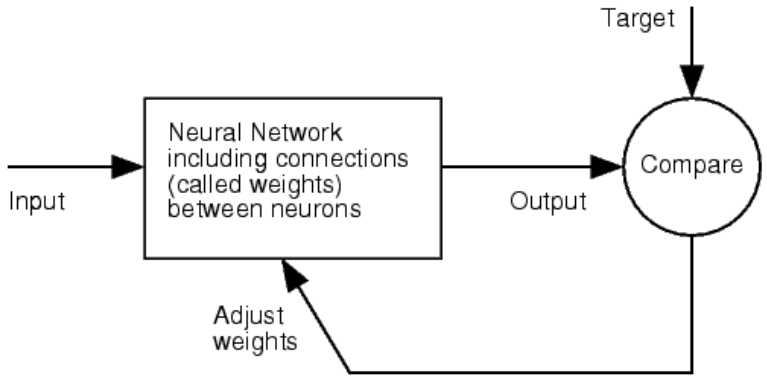
Fig. no. 2. Simple neuron



We can see in figure no. 2 the mathematical model of a simple neuron, the factors: *weight* (*w*), *bias* (*b*), *input* (*p*), *activation function* (*f*) and the *output* (*a*). If we have other inputs involved, the output transforms to: $a = f(\sum_{i=1}^{n} w_i p_i + b_i)$, where *n* is the number of inputs for the neuron.

To solve a problem, we have to train the network. This train may consist in (1) modifying the *weights* of the neurons, (2) modifying the *bias* values, (3) modifying the *number* of hidden neurons, (4) modifying the *structure* of the hidden layer. We use supervised learning. Supervised learning is presented in figure no. 2, and we obtain that from the Matlab™ documentation.

Fig. no. 3. Supervised learning (from Matlab™ documentation)



When we use supervised learning, we have prior knowledge about the problem or the domain. On supervised learning we have targets and outputs that are compared. If the mean-squared error is greater than an accepted error, we have to adjust the weights of the neurons. The most common learning method is the back-propagation algorithm.

Results

Our main goal is to discover the *minimal size* of hidden neuron layer to model our problem. We want to discover what output factors have the model, with minimal hidden neurons. The tool we used gives us minimal information about the solution, the structure and the parameters. Because this, we use this tool to observe the factors that are in closer relation with the inputs. If we have many neurons in the hidden layer, the problem gets out of human understanding and becomes an engineering solution, rather than a scientific approach.

We use the Neural Network Toolbox™ in Matlab™. We train a neural network to fit a function (nftool). We use feed-forward network with the default tan-sigmoid transfer function in the hidden layer and linear transfer function in the output layer. We train using the default algorithm: Levenberg-Marquardt back-propagation (trainlm).

First, the input layer has 6 neurons, the hidden layer from 1 to 6 and the output layer 5 neurons, because we want to solve the whole problem with one neuron network. We find a good solution with 2

neurons and a better solution with 6 neurons in hidden layer. We present the 2 neuron's result because we consider it to be better in the perspective of the dimension of the hidden layer. We train and retrain the network in every case, 20 times.

And the question arises: why has better solution a network with 2 neurons than one with 5 neurons? Because the complexity of the problem and the type of solution. This solution is a gradient type solution, and when we add a new neuron, we add a new dimension to the problem, involving exponentially growing of the solution space.

The "Regression R Values measure the correlation between outputs and targets. An R value of 1 means a close relationship, 0 a random relationship."(Matlab^{TM}) In figure no. 4 we have a good solution for 2 neurons in hidden layer.

Fig. no. 4. Regression diagrams for hidden layer with 2 neurons and 5 outputs

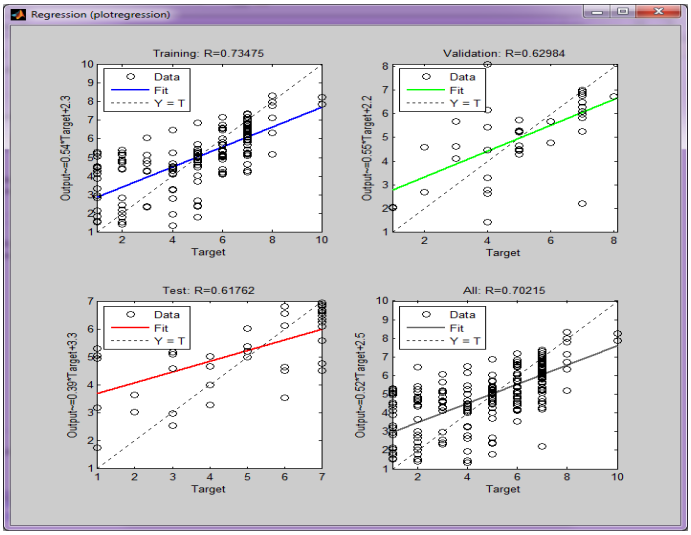
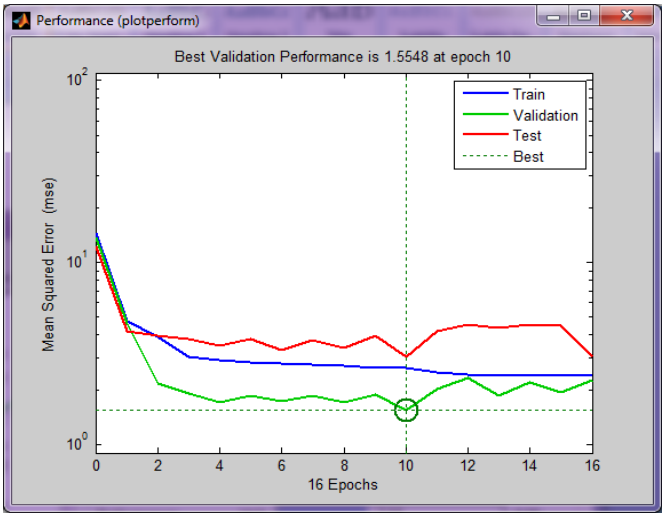


Fig. no. 5. Performance diagram for hidden layer with 2 neurons and 5 outputs



"Mean Squared Error is the average squared difference between outputs and targets. Lower values are better. Zero means no error."(Matlab^{TM}) The best validation performance is good also.

Fig. no. 6. Regression diagrams for hidden layer with 3 neurons and material realization output

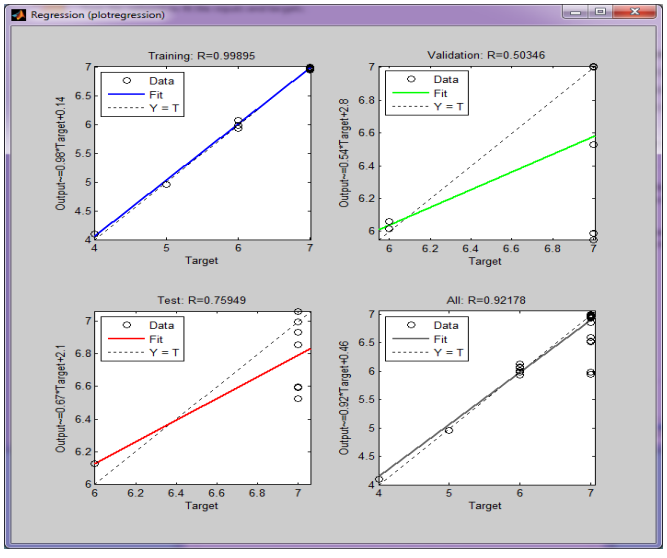
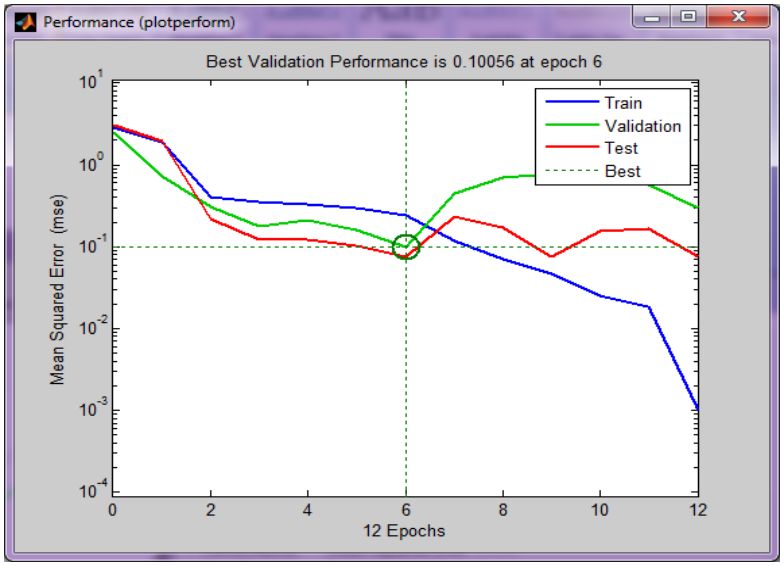


Fig. no. 7. Performance diagram for hidden layer with 3 neurons and material realization output



After analyzing the five outputs separately with hidden layers with 1 to 6 neurons, our result is that the most correlated output with the inputs is the *material realization*. We show the diagrams for this parameter in figures 6 and 7. The next is the professional advancement, and we show the descended order of correlation in table 1. It is interesting to see that the activity after returning home is the worst correlated parameter. This is, maybe because the people, after good material satisfaction, don't appreciate the jobs with low wages at home.

Table 1 - The ranking order of correlation outputs

Nr.	Output target name
1.	Material realization
2.	Professional advancement
3.	Self actualization
4.	Social and professional network construction
5.	Activity after return

Conclusion and future work

We assumed that if we have few neurons in hidden layer and the Neural Network performs well, the output factor has a stronger relationship with the input factors than otherwise. We discover that the *material expectation* factor is correlated better than others. We give the order of the correlated parameters. Because we used proprietary software, these results can help us to build our own network with free software components. We want to do this and to combine with evolutionary methods, the training of the network. Other approach could be the fuzzy approach, where we can find the rules even if our knowledge of the system is poor, by evolving the rules and give weights of the factors in the rules.

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Evaluating the Total Factor Productivity Growth in Manufacturing Industries of Iran (Data Envelopment Analysis Approach)

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Abstract
This paper examines the total factor productivity changes for 23 main manufacturing industries (2-digit ISIC group) and country's provinces using data envelopment analysis during 2005 to 2007. The results show 2.3% increase in the productivity of the whole sector (average over the studied period), while the productivity of the country's provinces decreases by 7.3%, in the same period. We find Food and Beverage products and Khuzestan province having the highest productivity growth. Non-optimal allocation of resources and using of old equipments are the most important drawbacks of productivity growth for 23 main ISIC groups and provinces. Finally estimation of the regression models by panel data method reveals the privatization and increasing of labor's available capital having a significant effect on productivity growth.
Keywords: total factor productivity, Malmquist index, panel data, manufacturing industries, data envelopment analysis

Introduction

An evaluation of the industrial sector of Iran

Manufacturing sector plays a key role in Iran economics. In the 2005 to 2007 period, this sector had approximately 13% in the GDP. Analysis of the value added in manufacturing industries showed that this sector produced about 338159 billion rials in 2007, so 15878 active firms created 21.3 billion rials on average. Large scale manufacturing plays a vital role in the industrial sector. A significant part of the added value is produced by these firms.

Assessments of firms labor force revealed that around 1102856 peoples worked in these firms in 2007. The number of employees differed according to the type of activities and their facilities. Industries like Food and Beverage, none-ferrous metals and transport equipments had the highest number of employees. Data showed that 14% of the productive employees were engineers and technicians, 41% of them were simple employees and the number of skilled employees was 44%.

In 2007, industrial firms paid 37000 billion rials to their employees and 34 million rials on average to each employee. Investment in the industrial sector was 58971 billion rials. In 2007, the ratio of investment to value added was 17.4%. Food and Beverage, chemical products, transport equipments, basic metals and none- ferrous metals had the highest investment.

Industrial firms totally exported 10 billion $ to other countries in 2007. Evaluation of industrial activities exports exhibited that chemical products, basic metals, food and beverage products, coal coke and refineries had 85% of the total industrial exports in this year. Industrial exports of these firms were respectively 55.4, 18, 6 and 5.6 percent of the total industrial exports. This shows a dramatically difference among the various industrial activities. Export share of total sales was 10%, which grow with 4% compared to 2005. This index shows the comparative advantage and market condition for the industrial activities. Data showed chemical products, leather products and basic metals exported 35, 28 and respectively 10% of their productions. The chemical industries didn’t have only significant shares of the total exports, but also noticeable portion of the industry productions exported. One of the significant points was the high share of exports from total productions in leather industry. Although, the share of this activity from total industrial productions was negligible, the ability of

exporting to other countries was higher than the other industrial activities (Statistical Center of Iran, 2007).

Table no. 1. Main indexes of manufacturing industries (2007)

Industry	No. of firms	No. of employees	Invest-ment	Value added
Food & Beverage products	2768	170591	5076	25138
Tobacco	2	6847	2	1175
Textiles	1337	93313	2633	9475
Wearing Apparel	165	7003	40	562
Leather Products	246	8778	86	852
Wood Products	137	7402	106	1135
Paper Products	318	18513	391	2743
Printing & Publishing	304	12724	70	1347
Coal Coke & Refinery	137	17467	1485	36107
Chemical Products	983	79879	17213	60917
Plastic Products	1055	52277	2222	8526
None – Ferrous Metal	3342	158455	6566	30006
Basic Metals	597	79128	6997	65297
Fabricated Metal Products	1285	72208	1756	14571
Machinery & Non-Classified Equipments	1081	82310	1378	15309
Official & Calculating Machines	32	2678	39	372
Electric Machinery	465	49164	735	9524
Radio & TV Products	73	8151	96	1650
Optical & Medical Equipments	163	12238	165	1461
Transport Equipments	750	127399	11204	47271
Other Transport Equipments	178	17906	521	2870
Furniture	448	18148	186	1821
Recycling	12	276	4	28

Literature review

Productivity growth and technical efficiency has been estimated in a lot of studies at sectoral level for different types of industries, using both, parametric and non-parametric methodology. In the parametric

methodology, stochastic frontier analysis is performed while in non-parametric methodology, the Data envelopment analysis is used.

The Malmquist index approach has been used in a variety of studies related to the financial sector, to measure productivity change. In particular, this approach has been applied in studies such as in those of Fare, Grosskopf and Lee (1995) who made an analysis of the productivity in four Taiwanese manufacturing industries during 1978-1989, by decomposing the Malmquist productivity change index into technical change and technical efficiency change. Further was also compared to traditional and parametric approaches. The results of this study suggested that TFP growth in long run was totally because of technical change. Further results suggested that technical efficiency and technical progress may not move together and technical change was positively related whit R&D.

Fare, Grasskopf and Margaritis (2001) analyzed the relative trend in total factor productivity in Australia and New Zealand for the manufacturing sector, during 1986-1996. Malmquist productivity index was used to calculate the total factor productivity. The results showed that New Zealand performed better than Australia in terms of total factor productivity for the manufacturing sector. The lower TFP in Australia was due to low capital intensity in the production process. Further, the major source of TFP growth in New Zealand was technical change, rather than efficiency change.

Jajri (2007) analyzed the total factor productivity growth in Malaysia during 1971-2004, in order to discuss factors that determine the TFP growth. Data envelopment analysis was used to estimate the changes in the production frontiers. Empirical results suggested that the economy needs an enhancement of their productivity based catching-up capability, specifically the effective use of human capital in the labor market; increase the number of skilled workers to operate a more sophisticated technology and the adoption of the new technology. The results of TFP growth model showed that openness to foreign companies and world economy, restructuring of the economy through the shift of resources between sectors, and the presence of foreign companies in Malaysia, is believed to be major contributor to the TFP growth.

Raheman et al (2008) analyzed the total factor productivity of major manufacturing industries of Pakistan with Malmquist productivity index during 1998 to 2007. The results showed a mixed trend for all

manufacturing sub sectors/industries in terms of TFP, technical efficiency change and technological change. Cement, oil and gas sectors depicted stable position. Most of the manufacturing industries had gained in terms of technical efficiency, but the technical change had a negative effect on productivity growth except few industries.

Vahid and Sowlati (2008) evaluated productivity changes of the manufacturing industries in the U.S from 1997 to 2002 with Malmquist productivity index. The results showed 5% increase in the average productivity of the whole sector over the studied period, while the productivity of the wood product manufacturing decreased by 1% over the same period. The efficiency decline of the industry was the main contributor to the decline of its productivity.

Senturk (2010) analyzed the total factor productivity growth of public and private manufacturing industries in Turkey over the period 1985 to 2001 using the linear programming technique. The empirical results indicated that TFP increased 56% for the entire manufacturing industry, 51% for the public sectors and 60% for private sectors.

Methodology

The Malmquist Productivity Index

Data envelopment analysis is a non-parametric linear programming methodology to measure the relative efficiency of a homogeneous set of decision making units (DMUs) on the basis of multiple inputs and multiple outputs (Charnes et al., 1978).

The concept of the Malmquist productivity index was originally introduced by Malmquist as a quantity for analyzing the consumption of inputs. Afterwards, Färe et al. (1992) constructed a Malmquist productivity index directly from input and output data using DEA. Specifically, the DEA-based Malmquist productivity index, hereafter referred to as DEA-MI, relies on firstly constructing an efficiency frontier over the whole sample realized by DEA and then computing the distance of individual observations from the frontier. In practice, this DEA-MI has proven to be a good tool for measuring the productivity change of DMUs over time and has been successfully applied in many fields.

To describe the method, we consider a set of n DMUs, or the 23 industrial activities in which each consuming m different inputs to produce s different outputs. x_{ij}^{t}, y_{ij}^{t} denote the ith input and rth output

respectively of jth DMU at any given point in time t. The DEA-MI calculation requires two single-period and two mixed-period measures. The two single-period measures are obtained by solving the basic DEA model. An adjusted output- oriented DEA model is proposed as follows:

$$
\begin{aligned}
& D_0^t(x_0^t, y_0^t) = \min \theta \\
& \text{s.t. } \sum_{j=1}^{n} x_{ij}^t \lambda_j \geq x_{io}^t, i = 1,...., m \qquad (1) \\
& \sum_{j=1}^{n} y_{rj}^t \lambda_j \leq \theta y_{ro}^t, r = 1,...., m \\
& \lambda_j \geq 0, \; j = 1,...., n
\end{aligned}
$$

This linear program is computed separately for each DMU, and the subscript, o, refers to the DMU whose efficiency is to be evaluated. $\theta(0\langle\theta \leq 1)$ is the uniform proportional reduction in the DMU_0's outputs. It's minimum amount is known as the DEA efficiency score for DMU_0, which also equals to the distance function of DMU_0 in year t, i.e., $D_0^t(x_0^t, y_0^t)$. As a result, if the value of θ equals to one, then the DMU is efficient and its input-output combination lies on the efficiency frontier. In the case that $\theta\langle 1$, the DMU is inefficient and it lies inside the frontier. In a similar way, using t+1 instead of t for the above model, we obtain the efficiency score of DMU_0 in the time period t+1, denoted as $D_0^{t+1}(x_0^{t+1}, y_0^{t+1})$.

For the mixed-period measures, the first one is defined as $D_0^t(x_0^{t+1}, y_0^{t+1})$ for DMU_0, which is computed as the optimal value resulting from the following linear programming problem:

$$
\begin{aligned}
& D_0^t(x_0^t, y_0^t) = \min \theta \\
& \sum_{j=1}^{n} x_{ij}^t \lambda_j \geq x_{io}^{t+1}, i = 1,...., m \\
& \sum_{j=1}^{n} y_{rj}^t \lambda_j \leq \theta y_{ro}^{t+1}, r = 1,...., s \qquad (2) \\
& \lambda_j \geq 0, \; j = 1,...., n
\end{aligned}
$$

This model compares (x_0^{t+1}, y_0^{t+1}) to the frontier at time t. Similarly, we can obtain the other mixed-period measure $D_0^{t+1}(x_0^t, y_0^t)$, which compares (x_0^t, y_0^t) to the frontier at time t+1.

The (output-oriented) DEA-MI, which measures the productivity change of a particular DMU_0 at time t+1 and t, can be expressed as:

$$MI_0 = \left[\frac{D_0^t(x_0^{t+1}, y_0^{t+1})}{D_0^t(x_0^t, y_0^t)} \frac{D_0^{t+1}(x_0^{t+1}, y_0^{t+1}}{D_0^{t+1}(x_0^t, y_0^t)} \right]^{1/2} \quad (3)$$

$MI_0>1$ indicates progress in the total factor productivity of DMU_0 from the period t to t+1, while $MI_0=1$ and $MI_0<1$ means respectively the status quo and decay in productivity.

Moreover, in contrast to conventional production functions or other index approaches, the DEA-MI can be further decomposed into two components, one measuring the change in efficiency and the other measuring the change in the frontier technology. Mathematically, these two components can be measured by the following modification of MI in (4):

$$MI_0 = \frac{D_0^{t+1}(x_0^{t+1}, y_0^{t+1})}{D_0^t(x_0^t, y_0^t)} \left[\frac{D_0^t(x_0^{t+1}, y_0^{t+1})}{D_0^{t+1}(x_0^{t+1}, y_0^{t+1})} \frac{D_0^t(x_0^t, y_0^t)}{D_0^{t+1}(x_0^t, y_0^t)} \right]^{1/2} \quad (4)$$

The first term, i.e., $EFFCH = D_0^{t+1}(x_0^{t+1}, y_0^{t+1}) / D_0^t(x_0^t, y_0^t)$ indicates the magnitude of the efficiency change from period t to t+1, which also reflects the capability of an industry in catching up with those efficient ones. The second one, i.e.,

$TECHCH = \left[\frac{D_0^t(x_0^{t+1}, y_0^{t+1})}{D_0^{t+1}(x_0^{t+1}, y_0^{t+1})} \frac{D_0^t(x_0^t, y_0^t)}{D_0^{t+1}(x_0^t, y_0^t)} \right]^{1/2}$ measures the shift in the technology frontier between two time periods.

In this study we will use the output oriented analysis because most of the firms have their objective to maximize output in the form of revenue or profits. It is also assumed that there are constant returns to scale (CRS) technology to estimate distance function for calculating Malmquist productivity index (Shen et al., 2010).

Table no. 2. Definition of variable

Output Variables	Input Variables
Value Added of manufacturing industries (million rials)	Number of employees Capital formation (million rials) Raw materials employed by manufacturing industries (million rials) Fuel employed by manufacturing industries (million rials)

To analyze the productivity of industrial firms, at first the total factor productivity of 23 main industrial activities based on ISIC (two-digit codes) and then the productivity of industrial sector of the provinces, during the 2005-2007 period, were investigated.

Empirical results

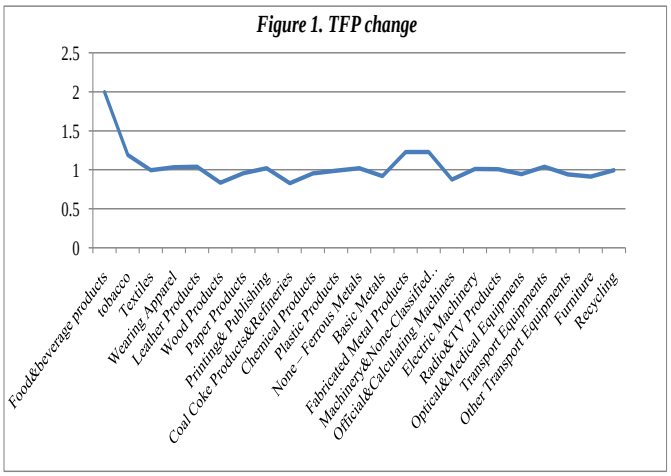
Total Factor Productivity Growth in the Industrial Sector (2-digit ISIC groups)

Table no. 3 shows that manufacturing industries experienced overall positive TFP growth (2.3%) during the 2005-2007 periods. The examination of industries reveals that 11 industries had positive TFP growth. The overall TFP is positive due to improvement in technology (5.2%). Technical inefficiency is the most important factor having negative effect on the total factor productivity growth. The overall technical efficiency in 14 industrial activities is less than 1. Technical efficiency change is a result of pure technical efficiency change and scale efficiency change. Pure technical efficiency change is one or less than one in the most industries. In the case of scale efficiency, the results are the same as the pure technical efficiency change; therefore, both scale efficiency and pure technical efficiency had the negative effect on improvement TFP growth.

The comparison of total factor productivity change in different industrial activities shows that Food and Beverage industry had the highest growth in TFP (99.65) on average during 2005-2007. The worst performance is related to the Coal Coke and refinery products. Total factor productivity of this activity decreased in average by 16.6%.

Table no. 3. Malmquist Productivity index (Means), 2005-2007

Industry	TFP change	TE change	Tech change	PE change	SE change
Food & Beverage	1.996	1.507	1.324	1.216	1.240
Tobacco	1.191	1	1.191	1	1
Textiles	0.994	0.9	1.104	0.888	1.014
Wearing Apparel	1.033	0.958	1.079	0.959	0.998
Leather Products	1.039	1.004	1.036	0.982	1.022
Wood Products	0.834	0.801	1.041	0.801	1
Paper Products	0.957	0.872	1.097	0.873	0.999
Printing & Publishing	1.019	0.905	1.126	0.938	0.965
Coal Coke Products & Refineries	0.828	1	0.828	1	1
Chemical Products	0.953	0.888	1.073	1	0.888
Plastic Products	0.987	0.940	1.050	0.958	0.982
None – Ferrous Metals	1.021	0.925	1.105	0.995	0.930
Basic Metals	0.920	0.855	1.076	1	0.855
Fabricated Metal Products	1.227	1.229	0.999	1.195	1.028
Machinery & None-Classified Equipments	1.229	1.232	0.997	1.185	1.039
Official & Calculating Machines	0.875	0.984	0.889	1	0.984
Electric Machinery	1.012	1	1.011	1.037	0.964
Radio & TV Products	1.008	1	1.008	1	1
Optical & Medical Equipments	0.944	0.889	1.063	0.915	0.971
Transport Equipments	1.038	1	1.038	1	1
Other Transport Equipments	0.941	0.951	0.989	1	0.951
Furniture	0.913	0.870	1.049	0.877	0.993
Recycling	0.994	0.892	1.114	1	0.892
MEAN	1.023	0.973	1.052	0.988	0.985



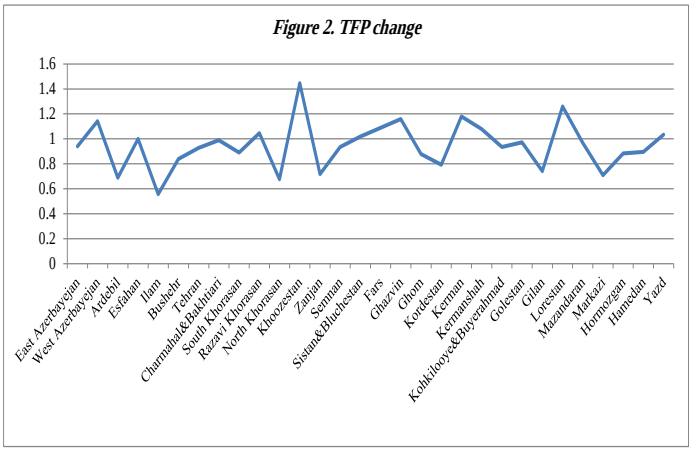
Total Factor Productivity Growth in the Industrial Sector (Regional Analysis)

Table no. 4 shows that total factor productivity growth among industrial sector of the provinces decreased with 7.3%, during 2005 to 2007. Only 10 out of 30 provinces experienced positive productivity growth. Among the provinces with positive productivity growth, Khuzestan had the highest growth in TFP (44.7%). Technological inefficiency is the most important factor of negative productivity growth among provinces, 29 out of 30 provinces had technological inefficiency, and only Khuzestan province experienced the positive growth in technological efficiency (17%). Technical efficiency changes are 1 or higher than 1 in the total provinces.

Table no. 4. Malmquist Productivity index (Means), 2005-2007.

Provinces	TFP change	TE change	Tech change	PE change	SE change
East Azerbayejan	0.940	1.392	0.676	1.031	1.350
West Azerbayejan	1.141	1.626	0.702	1.455	1.117
Ardebil	0.689	1.050	0.656	1.032	1.017
Esfahan	1	1.341	0.746	1	1.341
Ilam	0.557	0.810	0.687	1	0.810
Bushehr	0.838	1	0.838	1	1
Tehran	0.927	1.417	0.654	1	1.417

Provinces	TFP change	TE change	Tech change	PE change	SE change
Charmahal & Bakhtiari	0.990	1.448	0.684	1.494	0.970
South Khorasan	0.890	1.054	0.844	1.072	0.983
Razavi Khorasan	1.045	1.643	0.636	1.059	1.552
North Khorasan	0.677	1	0.677	1	1
Khuzestan	1.447	1.237	1.170	1	1.237
Zanjan	0.717	1.098	0.653	0.995	1.103
Semnan	0.934	1.350	0.692	1.189	1.136
Sistan & Bluchestan	1.018	1.377	0.739	1.354	1.017
Fars	1.088	1.480	0.735	1.170	1.265
Ghazvin	1.158	1.669	0.694	1.198	1.392
Ghom	0.878	1.414	0.621	1.335	1.060
Kordestan	0.792	1.064	0.745	1.055	1.009
Kerman	1.180	1.350	0.874	1.190	1.134
Kermanshah	1.078	1.624	0.664	1.487	1.092
Kohkilooye Buyerahmad	0.934	1.315	0.710	1	1.315
Golestan	0.972	1.496	0.650	1.522	0.983
Gilan	0.742	1.175	0.631	1.091	1.077
Lorestan	1.259	1.428	0.882	1.419	1.006
Mazandaran	0.968	1.523	0.636	1.190	1.279
Markazi	0.708	1.021	0.693	0.868	1.176
Hormozgan	0.883	1	0.883	1	1
Hamedan	0.895	1.322	0.677	1.311	1.008
Yazd	1.034	1.425	0.726	1.186	1.202
MEAN	0.927	1.284	0.722	1.143	1.123



Evaluation of Effective Factors on Productivity Growth in Industrial Sector among Provinces (Regression Analysis)

To determine more precisely the effective factors on productivity growth, the regression model with panel data method was estimated.

In this study, independent variables are share of wages in value added; ratio of private to public ownership, ratio of capital to labor and R&D costs and the dependent variable are the total factor productivity changes estimated with the DEA method.

$$\Delta TFP = (PP, WV, CL, RD)$$

PP: Ratio of Private to Public Ownership
WV: Share of Wages in Value added
CL: Ratio of Capital to Labor
RD: R&D costs

The model is estimated with pooled and fixed effect. Based on F test finally the pooled model is accepted for analyzing. R&D costs variable deleted due to statistically insignificant.

Table no. 5. The regression model of effective factors upon the total factor productivity growth

Variables	Coefficients	t	Standard Deviation
Intercept	1.0384	86.9	0.012
WV	0.0002	0.87	0.0002
pp	0.1834	3.31	0.0554
CL	0.0003	37.38	0.0098
R^2	0.97		
Adjusted R^2	0.97		
F	913.56		
DW	2.16		

The results show that coefficients of private to public ownership and capital to labor are positive and statistically significant, and privatization had noticeable effect on productivity growth.

Concluding remarks

The evaluation of total factor productivity changes for 23 main industries (2- digit ISIC groups) showed that firms had positive productivity growth during 2005 to 2007, while regional analysis depicted negative productivity growth in provinces.

More assessments of effective factors on productivity growth for 23 main industries (2-digit ISIC groups) revealed disability in optimal allocation of resources and acting in optimal scale were the most important factors for firms to promote their productivities.

The analyzing of productivity changes for provinces exhibited that the most drawback for productivity growth was the investment shortage for modern equipments. Regression analysis showed that privatization had noticeable effect on productivity growth. Continuing the privatization trend, we hope productions and export revenues of industrial firms will increase in future years.

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Current Trends in providing the Toys Security and Consumer Protection

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Abstract
The goods and services market is not in equilibrium. This affects continuously the consumers under multiple aspects: economic, educational, health insurance and security, and so on. Not even the toys market outlets or the toys trading market aren't trouble free.
Because publications in the toys consumer protection field are seldom (legislation is the starting point in analyzing this area), the checks carried out at national level which showed the marketed toys insecurity and the abuses of the economic agents in this sector determined us to analyze the degree in which people knows the toy-related injuries and the danger to which they expose their own children when purchasing dangerous toys. That's why a quantitative research was conducted, using the method of questionnaire, distributed through the Romanian consumers, with the aim to check the empirically awareness and the seriousness with which they relate the risks concerning the toys consume.

Keywords: Consumer protection, toys security, security standards, toys risk, consumer behavior

Introduction

The world we live in is constantly changing. The rhythms of the contemporary development cause relentlessly problems, conflicts and dramas aimed both, the production process as well as the exchange/consumption of goods and services. Regarding the second aspect, it should be noted that the market of goods and services are not in equilibrium. This always affects consumers under multiple aspects: economic, educational, health and safety etc.

Based on the foregoing, consumer protection - as an important side of social protection - aims to promote relentlessly the interests of consumers, building awareness regarding the rights they have, but also regarding the dangers posed by certain categories of consumption goods and services (Csorba, 1999).

After year 1989, by increasing the complexity of the Romanian society and through a stronger contact of the population of Romania with the realities of the Western civilization, the exigencies of the consumers have started to grow; they became more and more aware of the fact that with the broadening of the market have also increased the risks that could affect their health, safety and integrity.

In this context, "consumer protection" started to develop, nowadays becoming a science in its own right, covering all the areas of the economic activity: both, the protection of goods and services consumers. For the present study is of concern the toys consumer protection.

Because specialized work in the area of toys consumer protection are rare (the legislation was the starting point in analyzing this domain), checks carried out at national level which showed the marketed toys insecurity and the abuses of the economic operators in that sector determined us to analyze the degree in which people are aware of the dangers to which they expose their children when acquiring non-compliant or dangerous toys. For this purpose we developed a survey questionnaire which was implemented within the Romanian consumers, to test their awareness and their seriousness concerning the risks involved by using toys (Csorba, 2010).

Toys and the legislation in force

Community legislation in the area of consumer protection and in the field of products security is extremely large. As a result, the safety of toys offered to consumers is a field which can't be neglected, even more because the users are children (Patriche, 1998).

Distinction must be drawn between regulations and voluntary safety standards. The EU Council Directive 2009/48/EC refer on the safety of toys, as well as the EU Council Directive 88/378/EEC of 3 May 1988 regarding the approximation of the laws of the Member States concerning the safety of toys. Directive 87/357/EEC relates to dangerous imitations, and Directive 93/68/EEC has brought amendments to Directive 88/378/EEC, establishing the rules for the affixing and use of the CE conformity marking. Safety of toys Directive lays down essential requirements which toys must meet during manufacture and before putting them on the market. These requirements relate to physical, mechanical properties, to flammability, chemical properties, electrical properties, hygiene and radioactivity. This directive aims to cover all types of risks they might pose. All the toys that are sold on the EU market must meet the requirements of the above mentioned directives and can be traded without having to submit to legal local checks, as long as they officially posses the CE conformity marking. (Dinu, 2006)

Harmonized European standards were drawn up on the basis of the essential requirements by the European standardization organizations. These standards shall be notified by the Official Journal of the European Union; thus, any toy manufactured in accordance with the harmonized standards is deemed to satisfy the essential requirements of the European Single Market. Some of the toys safety standards existing at the international level include: ISO 8124-1:2000 Safety aspects relating to mechanical and physical properties; ISO 8124 – 2: 1994 Flammability etc. In the European Union, translating these standards means: EN 71 -1:2011 Safety of toys - Part 1: Mechanical and physical properties; EN 71 – 2:2011- Part 2: Flammability; EN 71 -3: 2013 - Part 3: Migration of certain elements; EN 62115: 2005 Safety of electric toys.

In our country, to ensure the user's safety, were developed two Government Decisions: no. 396/2003 and no.710/1999, both regarding the safety of toys.

We can't assume that all the existing articles in trade and intended to be used by children are toys. The existing law defines the toy as: "any product or material clearly designed to be used in play for children under 14 years". But not all the products which may be bought in stores for children's are toys.

From the perspective of the toy safety Directive, some products are not considered to be toys , like, for example: Christmas decorations; sports equipment; aquatic equipment for use in deepwater; hand-crafted popular dolls; decorative dolls and other similar articles for adult collectors; „professional" toys installed in public places (shopping centers, malls etc.); puzzles with more than 500 pieces or without picture; compressed air guns; fireworks; bicycles designed for sport or transport on public roads; video games that can be connected to a video screen operating at 24 volts; children's jewelry and so on.

Ensuring the safety of toys on age categories

To ensure the health and integrity of the consumers, the regulations use the age of the children as the main criteria for the classification of toys and the risks they pose. In this context, we distinguish:

Toys for children from 0 to 3 years

In the case of this age we are talking about the brightly colored and noise makers' figurines that can be hung from the cradle, at a low height, enough to be touched with hands or legs. Also, there are all sorts of other relatively simple toys which, given their unusual form, remove noises through movement, rolling and touch.

Dangers: Textile toys, especially the ones with hair and fluff, but also the toys with removable parts and components, may present an additional threat for children up to 3 years. The kids tend to taste everything. If component parts of toys are easily removable having also a small size, or if hair or fluff rips easily, there is a danger of injury, drowning or suffocation. That's why, consumers should not abandon plastic packaging near children; even if they are equipped with safety vents the risk of suffocation is huge.

Another danger comes from some filler used in the figurine type toys. On the market we can find many toys filled with shavings, bran, sharps, that sucked by the kids can cause drowning, suffocation and poisoning.

Toys for children over 3 years

They will be handed only by the children according to certain age groups, taking into account the degree of their psychic, intellectually and physically development, but also the characteristics of the age.

The 4-6 years old children are in a phase of initial training and curiosity, when are recommended toys capable to capture attention by their complexity, through their utility and similarities with the activities of the daily life. It is very important for them to get used to concentrate for 20-30 minutes on a task, so that they can cope with the demands of the school, later.

Children between 6 and 7 years are attracted by more complicated toys and games that capture attention, raising them. As the children approach the 10-12 years they will need more fun pursuits to enable them to implement the knowledge they have acquired over time.

Insecurity and the risks generated by toys

The large number of producers of toys from around the world, from Europe, but especially from the Far East, generates a fierce competition. Sure, the interest of all producers is to do absolutely anything to keep customers and attract new customers. An open European market facilitates the imports. But such a market is also a temptation for businesses seeking high and immediate profits. There are many companies who do not care about the continuity of their business, no client satisfaction, but they have the interest to furnish once a tremendous amount of questionable quality toys, after that they can charge huge sums of money. Such businesses give countless homework to the Consumer Protection Agencies around the world.

Due to these problems, the legislation established the "essential criteria" which toys must meet during manufacture and before being placed on the market. At the same time they have been formulated the risks that these toys can generate. These are divided into two major categories (Government Decision nr. 396/2003):

a) General risks: protection against the problems causing physical injuries and damaging the health of the user;

b) Special risks: include features related to the mechanical and physical properties, flammability, chemical properties, electrical properties, hygiene of toys, that all may be prejudicial to the consumer.

The risks of toys are more numerous than those already listed. Along with these, there are certain requirements in terms of physical and mechanical properties, flammability, chemical and electrical properties, the hygiene of toys, that all may be risky for the consumer. How dangerous toys are where have been amply reviewed in the paper „Danger in the toy box" (Stephenson, 2005). The analysis started from „The National Safe Kids Campaign", established in 2005 in the USA. This Safe Kids Campaign had meant to prove, even it is hard to believe that a toy, something that gives children joy and laughter, can cause harm, and in some cases, even death. Sadly it happens, and many times it could have been prevented. According to the National SAFE KIDS campaign in 2001, about 202,500 children under the age of 15 were seen in emergency rooms for toy injuries. In 2002, an estimated 165,200 children were seen for toy related injuries and at least 13 children age 14 years and under died from toy related injuries. Nowadays, children ages 4 and under account for nearly half of toy related injuries and 90% of all deaths (National SAFE KIDS Campaign, 2005).

In our country such statistics do not exist, even the cases of injuries and deaths of the kids. But, the risks generates by toys are published in the literature and in the legislation.

Exemplified on the types of toys available in trade, we emphasize the risks they may appear:

■ **The risk of injury, strangulation, suffocation, burns** (Foltran, 2012)

Functional toys (fulfilling the same functions, being scale models of certain products, appliances or installations intended for adults) must be used by children under the direct supervision of an adult and must not be left within the reach of kids.

Projectile toys, has to be used only with the missiles supplied by the manufacturer, in compliance with the instructions for use. There are many weapon-toys that replace the munitions, by imitating the noise or light signals, dangerous for kids. A study was undertaken to assess the danger posed by these toys and the regulations governing them. US Consumer Product Safety Commission (CPSC) data indicate that toy guns with projectiles cause relatively few injuries, mostly to young boys. The magnitude of the problem is smaller than that of non-powder and powder firearms. Most often, toy gun injuries are to the face and eyes (Kennedy, 2006).

The protective equipment did not assure protection (actually specified on the product), for example, the inflatable life preservers and jackets for water does not protect against drowning. That's why they must be only used in shallow water and under supervision. Aquatic toys and skateboards must be accompanied with warnings like: "Attention! Use only in shallow water and under the strict surveillance of an adult person" or "Attention! Wear protective equipment." (Stephenson, 2005).

Staples toy should not be used close to the eyes or the ears. Don't keep them in the pocket.

The toys that can be hung from the cradle, baby cribs, baby carriages, with a drawstring, elastic ropes or straps, must be removed when the child begins to rise in the hands and knees, to prevent a possible strangulation.

Objects which stimulate the growth of dentition, filled with fluid, will cool only in the refrigerator and they shouldn't be entered in the freezing compartment. The hygiene of these toys/objects must be carried out as often as possible.

Skates and skate-boards for children must be used with protective equipment: helmet, gloves, mudguards etc.

Toys designed to support the child's weight must be chose and analyzed carefully regarding the existence of the tracking defenders near the motion transmission systems, the braking and lighting systems.

To avoid injuries by Burns:

- textile toys should not be used or stored near heat sources;
- toys containing a heat source shall not be lit during the operation. A rise of the temperature of the parts designed to be touched with the hand (handles, knobs, levers) should not exceed certain limits; otherwise, it can cause scald, burns, or other injuries;
- the hair of the dolls, the animals fur, the beard, moustaches, wigs, masks, or toys that can be penetrated by the children, must be made of materials which are not too flammable and extinguish themselves after the removal of the source of flame;
- don't buy the kits (especially chemistry) for children under 12 years.

■ The risk of ingestion, inhalation, contact with the skin

To avoid injuries by ingestion, inhalation and contact with skin, mucous membranes or eyes:

- children should be supervised when playing with "the little chemist Kit" (or, the little physicist Kit), or with shave and haircut kits. Some chemicals from those kits can be ingested, inhaled or come in contact

with the skin, the eyes or the mucous membranes, causing serious accidents. Therefore, these toys are given only to those children who have the age and knowledge needed to become aware of the risk of an improper use;
- toys intended to be placed in the mouth, inside of which there are free objects, don't need to release an object that can be drawn;
- pencils, pen, make-up kits for dolls must not contain adhesives or solvents which are toxic;
- painted toys should be avoided, because, in the chemical composition of the paint are toxic substances, such as arsenic, cadmium, lead, chromium, etc;
- Latex balloons have caused numerous deaths. The balloon can be sucked and can block the airways of the child. Therefore it must be removed immediately the pieces of broken balloon and stored the unused balloons in places inaccessible for kids;
- toys must not contain toxic materials, with caustic, irritant or carcinogenic effects.

■ Risk of electric shock, electrocution

To avoid injuries by electrocution or electric shock:
- check the operation of the electrical and electronic toys before you give it to your kid and show him how to use the toy;
- your child should not take a battery-operated toy to bed, because it can cause burns and other injuries through leakage or overheating the batteries;
- the child must be within the age group for which the toy is intended for;
- the toy must be used only for the purpose for which it was designed.

■ The risk of infection, sickness or contagion

To avoid the risk of infection or contamination:
- toys must be made of materials that ensure the requirements of hygiene and cleanliness in order to avoid any risk of infection, sickness and contamination;
- in the case of toys with batteries, if the child swallows the battery (which is poisonous), you must immediately called a doctor or take the kid to the hospital.

To prevent risks that can occur when using toys, The Directive of Toys Safety sets some obligations for the manufacturers and distributors of toys from all the Member States of the EU. For example, manufacturers have to:

- give information to the consumers, regarding the risks which toys can generate. Must be identified - by name or trademark - the purchased product. The aim is to inform completely the consumers about the risks of the product;
- have detailed information about the design, the manufacture and the conformity of a toy and be able to identify the product itself, for example, through a product code. The objective is to facilitate the identification of the product and to enable actions at the most appropriate level;
- take appropriate measures after the product has been put on the market. For example: the testing of samples, handling the complaints and suggestions of the consumers and informing the distributors. The objective is to ensure preventive measures and to detect risks;
- inform the competent authorities and to cooperate with them concerning the dangerous products, for the prevention of the risk they pose. The goal is to give the authorities the possibility to take appropriate measures to reduce the risk and to assure concerted action for this purpose.

Conformity assessment of toys

The procedures for assessing the conformity of toys with the essential requirements are based on a modular approach, within the framework of Council Decision 93/465/EEC. Conformity assessment of toys must be carried out by the:

- Organizations designated by the Member States on the basis of common criteria evaluation;
- The manufacturers themselves.

It should be noted that the CE marking is not a guarantee of absolute safety. Any other marking which may be affixed on the toy, ensures that there is no risk of confusion with the conformity mark. Member States may adopt penalties if they prove that the CE marking has been improperly used.

Special recommendations for a safe play

The products safety depends on the consumer behavior at the purchasing moment (of the toy), as well as that from the playing moments.

Before buying a toy, the consumer must read carefully the information find on the packaging and the instructions that came with

the toy, when it's something more complex. The consumer must always choose the appropriate age groups articles.

Never buy toys whose instructions have not been translated into Romanian language.

Regardless of the age of the child, it must avoid toys that stimulate aggression, like: pistols, kits for small cops, bows with arrows, swords etc.

When purchasing a toy, the potential owners should remember that it may endanger the health or life of the consumer. That's why:
- it will purchase toys only from authorized locations;
-should be read carefully the instructions on the packaging of the toy;
-it must analyze if toys are marked with the conformity symbol;
- toys which did not comes either from the domestic market, nor from the European Union, shall be tested in the laboratories especially accredited for toy testing;
-consumers must be cautious at the warning from the label of the toy: "This toy is not appropriate for children under 3". Otherwise, children will suffer;
-consumers should be aware of the physical and mechanical properties of the toy. Sharp edges, shavings remaining from the manufacturing process, the easy removable parts, braking devices, the composition of materials and paints used must be carefully reviewed at the moment of purchasing.

For a safety play is recommended the child supervision. Toys must be checked often to remove the broken fragments, the sharp edges etc. Offer the child only the age-appropriate toys.

Toys may be placed on the market only if they do not compromise the safety and/or health of the users, when they are used in the prescribed manner or in a manner that is predictable, taking into account the normal behavior of the children. Toys that pose hazards run counter to the requirements of Directive 88/378/EEC. Through the risky toys that have been withdrawn from the market in advanced countries (for example, in Canada) are the baby steps that caused the death of children. If we consider the level of risk substantially, it is possible that the corrective action target the consumers and producers, both having to be involved immediately in order to:
-inform market surveillance authorities;
- isolate the own stocks of the manufacturer;
- isolate the products of the distributor;

- inform the suppliers about the issues;
- establish a communication programme with the consumers.

If the risk is moderate and corrective action involves only products from the distribution chain, it may be sufficient their withdrawal. If the toy can endanger the health or safety of the persons, they are needed urgent actions to protect consumers and to withdraw the products from the market. The Member State on whose market the dangerous toy is marketed shall immediately inform the Commission that will apply the rapid alert system RAPEX for unsafe consumer products and consumer protection.

As a result, in the area of toys consumer protection, Romania has a lot of homework's to do.

The toy consumer's behavior. Case study

In the cold season, but especially around the winter holidays, the consumer protection institutions carry out numerous checks at businesses that sell toys. Only in the second part of November 2013, The Bihor County Commissioner for Consumer Protection has given fines over 50,000 lei. During the period of 18-29 November, there where checked 21 operators, of which 20 have presented serious deviations from the legal rules, like: lack of identification data of the producer, importer or distributor of the toy; lack of translation elements needed to identify and characterize the toys; lack of warnings regarding the supervision of the kids by an adult, during the use of the toy; lack of instructions for use and installation etc, or other specific warnings from case to case and, finally, the lack of a clearly visible, easily readable, unequivocally display of the selling prices (www.eBihoreanul.ro, 2013).

Going forward, the media points out that the extremely dangerous toys banned from sale throughout Europe, are marketed without problems in Romania. Commissioners from Timiş county consumer protection institutions confiscated thousands of such products, because they put the children in life-threatening. Even more serious is that every time, even after controls and despite the fines imposed, traders don't put out from the shelves the merchandise with problems (http://www.digi24.ro/Stiri/Regional/Digi24+Timisoara/Stiri/Pericolul+de+la+standul+cu+jucarii, 2013).

To check empirically awareness of toys consumers regarding the risks involved and their behavior in the purchasing process, a survey

was conducted on a representative sample of consumers in Arad County.

Research objectives

- evidence the sources of information and factors underlying the toy purchasing decision;
- analyzing how informed consumers are regarding the toys risks;
- analyzing the behavior of toys consumers.

Research methodology

A quantitative research was conducted by using as a working tool the questionnaire of inquiry. The research took place between May to December 2013 in Arad municipality.

The method of questionnaire was face to face, using for this six interviewers. Were distributed a number of 1000 questionnaires and validated a number of 820 questionnaires. The elimination of the questionnaires was based on objective criteria (lack of answers, mismatch between answers and questions). The number of persons investigated corresponding to the sample is calculated using the formula:

$$n = \frac{t^2 * p * q}{e^2}$$

where,

t = corresponding theoretical probability value with which we are working (we took p = 95.5 % and z = 2)

p = percentage of the investigated population possess sample feature

q = 1- p

e = allowed representativeness error limit

$$n = \frac{2^2 * 0{,}5 * 0{,}5}{0{,}035^2} = 816,\ 32$$

As a result of the calculations made, the sample is of 817 people.

Results

It was found that parents often buy toys for children less than 3 years, and as the children grow, they are getting just a few toys from the parents. 83% prefer to purchase toys from authorized locations, thanks

to their quality and because it does not endanger the health or life of the consumer (the most often, consumers use to choose supermarkets), while 17% prefer to buy toys from unauthorized places, due to their low price.

86% of the parents take into account the age ranges in which falls the toy, while 14% do not take account of this aspect.

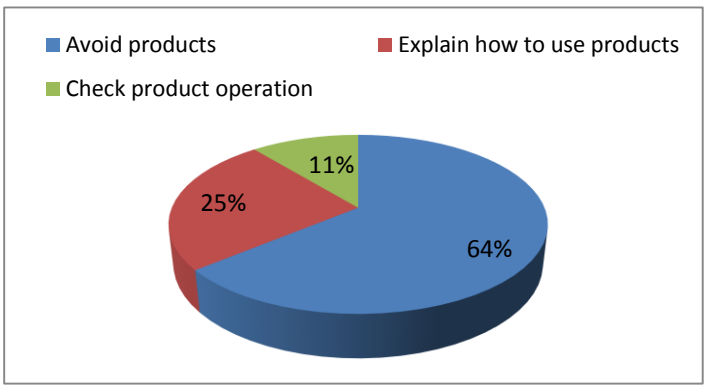
73% of the people interviewed say they use carefully read the information on the packaging, more exactly the instructions that came with the toy, verifying if it is marked with the CE conformity symbol.

Batteries are installed in the toys by parents, in the case of children under 5 years. If children are older, they alone use to install the batteries.

A very high percentage (98%) of the people surveyed responded that they check the physical and mechanical properties of the toy before buying it.

In the case of toys that pose risk of electric shock and electrocution, 64% of the people prefer to avoid such products, 25% prefer to explain the children how to use them, and 11% check the operation of such products before they give it to the child, to avoid possible accidents.

Chart no. 1 Purchasing behavior of toys with risk of electric shock

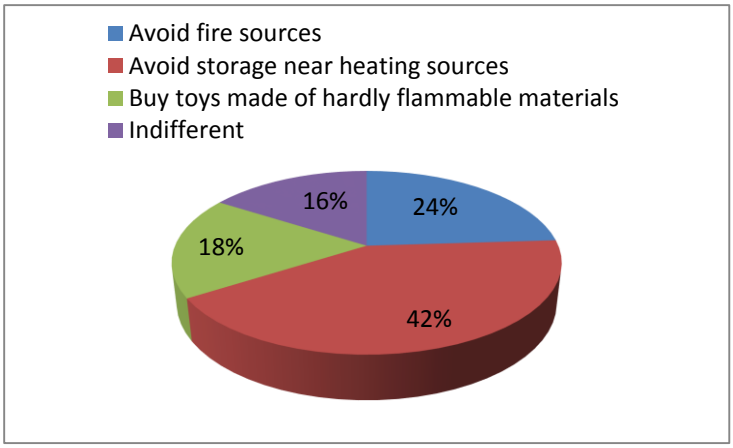


In order to avoid the risk of infection, sickness or contagion of children, 28% of the people prefer to buy just toys made from materials that ensure the requirements of hygiene and cleanliness; 51% said that

they regularly hygiene these products, while 21% do not take account of this aspect.

In order to avoid injury problems through burns, 24% of those polled say that they does not use toys made of textile materials in the vicinity of the heat sources, 42% say they don't store toys near heating sources, 18% always buy toys made of hardly flammable materials and 16% did not take account of this aspect.

Chart no. 2 Purchasing behavior of toys with risk of burns



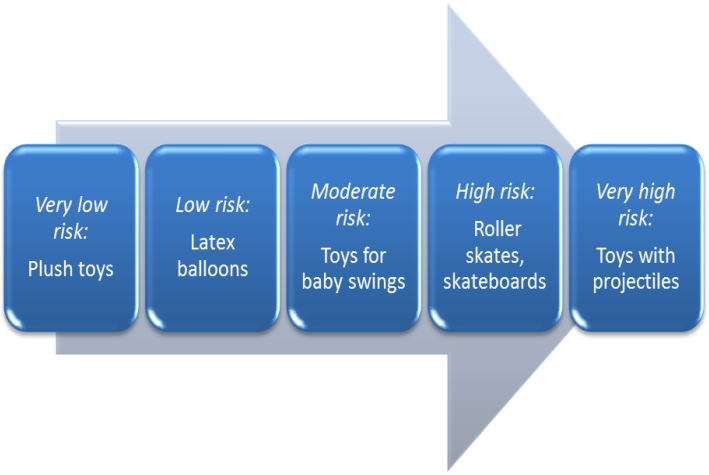
With regard to how high is the risk of a toy, on the 5th place (the toy with the higher risk degree) is the toy with projectiles, on the 4th are the skates and the skate-boards, on place 3 are the toys intended to be suspended from the cradle, baby cribs, baby carriages, on the second place is the latex balloon, and on the first place (the toys with the lowest degree of risk) are the plush toys.

In tabel no. 1 and figure no. 3, we present the toy classification, taking into account the degree of the perceived risk for the consumers.

Table no. 1. The classification of toys depending on the degree of risk

The criterion and toy type	**1: Very low risk**	**2: Low risk**	**3: Moderate risk**	**4: High risk**	**5: Very high risk**
Toy	Plush toys	Latex balloon	toys intended to be suspended from the cradle	Skates and Skate-boards	Projectile toy

Chart no. 3 Types of toys based on the degree of risk for children



Fortunately, the result of the study shows that parents are well informed of the possible inconveniences that might occur when using toys and they are very attentive to this aspect, avoiding the forbidden products, and also those that could affect the children's health.

Conclusions

Our research determine us to underline that, when selecting a toy, the purchaser should follow age recommendations. Many toy-related injuries occur when parents overestimate a child's ability to

handle a toy designed for an older age group. For instance, when a label says "This toy is not appropriate for children under 3," it is not because the manufacturer thinks the item might be too tough for a 24-month-old to figure out, but because the toy is small (or has small parts) and poses a choking hazard.

When purchasing toys, the parents should ask: Is it clean or washable? Is it right for my child's age? Are there any loose parts that could come off or any sharp edges? Stimulates the toy the child's aggression? Contains the product label all the necessary information, including the instructions and the CE marking?

Toys are dangerous, but risks can be prevented. This can be achieved only if the buyers/parents are aware of the potential problems which may appear and they will take the necessary precaution measures when selecting a toy. This requires a good information and knowledge of the market and a conscious purchase behavior.

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Market Potential Indicators- a Comparative Analysis of Brazil and India

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Abstract
This article analyzes the relations between the market potential indicators and their subsequent impact on the investment decision factors. After discussing the various elements in the form of index and their various dimensions that distinguish countries capabilities and their potentials, we will analyze how Brazil and India are coping with the requirement of the investment opportunities and how they fared when compared to each other. The last section systematizes a few perspectives regarding the two countries and what policies should be adopted by them to compete with the other developing and developed nations. The various economic reforms can help these two countries to be in the league of front runner among the emerging markets.
Keywords: market potential indicators, comparative analysis, market potential index for emerging markets, Brazil, India

Introduction

Market Potential Indicator is a measure of the market potential of a country using several dimensions, ratings, indexes and percentages. Currently, emerging economies comprise more than half of the world's population, account for a large share of world output and have very high growth rates, which mean an enormous market potential. With global marketing becoming more important, companies and marketers are

attempting to determine which international markets they would like to penetrate and the appropriate marketing strategy.

Using the market potential indicator, countries are distinguished by the recent progress they have made in economic liberalization using eight dimensions. Each dimension is given a weight to contribute to the overall market potential index.

Globalization and Foreign Direct Investment form an integral part of all the developed as well as developing economies. In fact, the growth of the underdeveloped economies is also dependent on these key factors. These components equip any nation with new skills, new items and provide smooth access to markets and technology. Today, every nation across the globe is looking for foreign and overseas investors. Whether it's India or China, everyone wants foreign investments. According to recent trends, India is only second to China in the league of favorite investment destinations.

Along with India, the others who are participating in the race of investment among the developing economies are China, Singapore, Malaysia, Russia and Brazil. Most of them are vying for contracts from USA and Europe.

Indicators used in developing the Market Potential Index

Recent decades have brought a pronounced increase in international trade. Before a business engages in marketing a product to another country, research is needed to ensure the market potential is high for a maximum profitability. The Market Potential Index for emerging markets is one valuable tool for firms interested in international trade. There are certain indicators used with this index, like: market size, market growth rate, market intensity, market consumption capacity, commercial infrastructure, economic freedom, market receptivity, country risk.

a) Market Size: *the country's population, especially those living in urban area.*

The first of eight indicators used in the Market Potential Index is the market size. Business website global EDGE weights this as the most important of the indicators. Urban population numbers and the amount of electricity consumed provide the basis for the market size indicator.

b) Market Growth Rate: *the country's real GDP growth rate.*

The market growth rate is based on a historical five-year average, along with a one-year current statistic. Growing markets will show increasing demand for products.

c) Market Intensity: *private consumption and gross national income per capita represent discretionary expenditures of citizens.*

Market intensity is figured by blending two statistics. First, an analyst must divide the gross national income by the population figures. Second, the statistician needs to calculate how much of the gross domestic product is being consumed in the private sector.

d) Market Consumption Capacity: *the percentage share of income held by the country's middle class.*

Analysis of the national income and consumption is necessary to ascertain the market consumption capacity.

e) Commercial Infrastructure: *characteristics such as number of mobile phone subscribers, density of telephone lines, number of PCs, density of paved roads and population per retail outlet.*

This statistic is calculated by examining the saturation and availability of common technology and communication devices. Ratios are based on the amount of TVs, telephone lines, personal computers, cell phones, Internet users, paved road density and percentage of people per retail outlet.

f) Economic Freedom: *the degree to which government intervenes in business activities.*

Economic freedom relates to the degree of citizens' autonomy. Included in this weighted ratio is the degree of political freedom the residents enjoy.

g) Market Receptivity: *the particular emerging market's inclination to trade with the exporter's country as estimated by the volume of imports.*

Some high-consuming countries rely heavily on imports, while others are able to produce the majority of products within the national borders. Reviewing the amount of imports in relation to the gross domestic product might reveal how willing the country is to try new foreign products.

h) Country Risk: *the degree of political risk.*

Euro money magazine calculates investment risk factor for many countries around the world. Local conditions may simultaneously create a low-risk opportunity in one country while producing a dangerous market in another.

Table no. 1. Dimensions and measures of market potential

Dimension	Weight	Measures Used
Market Size	10/50	Urban population Electricity consumption
Market Growth Rate	6/50	Average annual growth rate of primary energy use (%) Real GDP growth rate (%)
Market Intensity	7/50	GNI per capita estimates using PPP (US Dollars) Private consumption as a percentage of GDP (%)
Market Consumption Capacity	5/50	Percentage share of middle-class in consumption/income
Commercial Infrastructure	7/50	Main Telephone lines (per 100 habitants) Cellular mobile subscribers (per 100 habitants) Number of PC's (per 1000 habitants) Paved road density (km per million people) Internet users (per 100 habitants) Population per retail outlet Percentage of Households with TV
Economic Freedom	5/50	Economic Freedom Index Political Freedom Index
Market Receptivity	6/50	Per capita imports from US (US Dollars) Trade as a percentage of GDP (%)
Country Risk	4/50	Country risk rating

Market Potential Index (MPI) for emerging markets

Global marketing is becoming more and more important along the years with the increasing trend in internationalization. Having too many choices, marketers face the challenge of determining which international markets to enter and the appropriate marketing strategies for those countries.

The focus of this study is ranking the market potential of countries identified as "Emerging Markets" by The Economist magazine. These emerging economies comprise more than half of the world's population, account for a large share of world output and have very high growth rates.

This indexing study is conducted by (Michigan State University) MSU-IBC to help companies compare the Emerging Markets with each other on several dimensions. Eight dimensions are chosen to represent the market potential of a country, over a scale of 1 to 100. Each

dimension is measured using various indicators and are weighted in determining their contribution to the Overall Market Potential Index.

Table No. 2. Market Potential Index (MPI) for emerging markets (2011)

Country	**Rank**	**Market Size**	**Market Growth Rate**	**Market Intensity**	**Market Consumption**	**Commercial Infrastructure**	**Economic Freedom**	**Market Receptivity**	**Country Risk**
Singapore	1	1	100	72	65	83	80	100	100
Hong Kong	2	1	29	100	59	100	93	86	95
China	3	100	93	1	6	36	7	4	55
South Korea	4	10	41	59	92	88	83	16	71
Czech Republic	5	1	18	45	100	92	89	14	76
India	6	38	83	35	67	17	50	2	42
Israel	7	1	17	63	76	73	81	20	61
Poland	8	4	21	60	79	73	80	5	69
Hungary	9	1	4	65	83	81	83	17	47
Turkey	10	6	70	66	65	49	60	4	43
Brazil	11	20	57	47	42	51	58	1	54
Mexico	12	10	40	59	47	46	65	18	45
Argentina	13	4	65	62	64	59	51	3	18
Malaysia	14	3	41	29	59	61	53	22	57
Chile	15	2	21	44	43	53	100	11	74
Peru	16	2	67	49	58	36	72	4	42
Indonesia	17	12	69	25	70	28	53	3	45
Thailand	18	4	53	26	61	45	46	14	54
Russia	19	23	20	39	62	64	15	3	42
Egypt	20	4	53	67	77	41	28	3	18
Saudi Arabia	21	4	26	19	59	55	29	12	58
Philippines	22	5	28	49		28	48	6	38
Colombia	23	3	35	53	32	42	61	3	46
Pakistan	24	6	52	62	74	1	32	1	1
Venezuela	25	3	1	48	66	41	1	4	15
South Africa	26	6	23	35	1	17	68	4	47

Analysis

Taking into account the different dimensions and measures of Market Potential Indicators in Brazil and India, we have divided it into 8 dimensions and 19 measures. An overall weight of 50 has been assigned to analyze the different indicators. Furthermore, different dimensions, as mentioned before are sub-divided into measures.

Let's describe how each dimension has different measures and weightage assigned to them:

- **Market Size**: Have a maximum weightage of **10 out of 50** and consists of measures such as *urban population* and *electricity consumption*.
- **Market Growth Rate**: To the market growth rate has been given a weight of **6 out of 50** and has been divided into *Average annual growth rate of primary energy use* (%) and Real *GDP growth rate (%).*
- **Market Intensity**: Has a weightage of **7 out of 50** and has measures such as *GNI per capita estimates using PPP (US Dollars)* and *Private consumption as a percentage of GDP (%).*
- **Market Consumption Capacity**: Market Consumption Capacity denoted by *Percentage share of middle-class in consumption/income* has a weightage of **5 out of 50**.
- **Commercial Infrastructure**: The fifth dimension is Commercial Infrastructure which consists of *Main Telephone lines (per 100 habitants), Cellular mobile subscribers (per 100 habitants), Number of PC's (per 1000 habitants), Paved road density (km per million people), Internet users (per 100 habitants), Population per retail outlet, Percentage of Households with TV*. The combined weightage of all the major component of Commercial Infrastructure is **7 out of 50**.
- **Economic Freedom**: Economic Freedom has been assigned a weightage of **5 out of 50** and comprises of measures like *Economic Freedom Index and Political Freedom Index.*
- **Market Receptivity**: Market Receptivity includes *Per capita imports from US (US Dollars)* and *Trade as a percentage of GDP (%)* as it measures with a combined weightage of **6 out of 50**.
- **Country Risk**: The last major dimension to be considered is Country Risk which is denoted by *Country risk rating* with a weight of **4 out of 50**.

Table no. 3. Indicators and Measures used for Brazil and India

Indicator	Measures Used	Brazil	India
Market Size	Urban population Electricity consumption	168,628,700 455.7 billion kWh	368,608,900 600.6 billion kWh
Market Growth Rate	Average annual growth rate of primary energy use (%) Real GDP growth rate (%)	5.20% 1.3%	5.87% 5.4%
Market Intensity	GNI per capita estimates using PPP Private consumption as a percentage of GDP	11,000.00 60.57	3,400.00 56.96
Market Consumption Capacity	Percentage share of middle-class in consumption/income	Lowest 10%: 0.8% Highest 10%: 42.9%	Lowest 10%: 3.6% Highest 10%: 31.1%
Commercial Infrastructure	Main telephone lines Cellular mobile subscribers Internet hosts Paved road density Internet users Population per retail outlet Television broadcast stations	43.026 million 244.358 million 26.577 million 212,798 km 79,245,740 -- 138	32.685 million 893.862 million 6.746 million 3,320,410 km 91,846,070 -- 1,400
Economic Freedom	Economic Freedom Index Political Freedom Index	58 --	50 --
Market Receptivity	Per capita imports Trade as percentage of GDP (%)	$984.10 per capita 23.30	$204.01 per capita 46.32
Country Risk	Country risk rating	54	42

Table no. 4. Indicators, measures used along with weightage for Brazil and India

Indicator	Measures Used	Weight	Brazil	India
Market Size	Urban population Electricity consumption	10/50	6.3	10
Market Growth Rate	Average annual growth rate of primary energy use (%) Real GDP growth rate (%)	6/50	2.3	6
Market Intensity	GNI per capita estimates using PPP Private consumption as percentage of GDP	7/50	7	2.16
Market Consumption Capacity	Percentage share of middle-class in consumption/income	5/50	5	3.98
Commercial Infrastructure	Main Telephone lines Cellular mobile subscribers Internet hosts Paved road density Internet users Population per retail outlet Television broadcast stations	7/50	3.9	5.8
Economic Freedom	Economic Freedom Index Political Freedom Index	5/50	5	4.3
Market Receptivity	Per capita imports Trade as a percentage of GDP (%)	6/50	4.5	3.65
Country Risk	Country risk rating	4/50	4	3.11

The present study which is based on different dimensions and measures of the Market Potential Indicators undertook a comparative analysis of Brazil and India, coming on the following results:

1. Market Size:

India holds an upper hand in terms of Market Size with a significance difference in their score. India gets advantage in both the measures, *i.e.* urban population and electricity consumption and has a score with 37% more than Brazil.

2. Market Growth Rate:

India is way ahead in terms of the real GDP growth rate which is a major measure used for assessing this dimension. In the case of the other measure *i.e.* Average annual growth rate of primary energy use also benefits India with a slight advantage in terms of increasing percentage. Brazil with 2.3 is behind India with a score of 6.

3. Market Intensity:

Brazil gains a great advantage in terms of Market Intensity with a score with almost 70% more than India. The measure for evaluating this dimension is GNI per capita estimates using PPP and Private consumption as a percentage of GDP. Brazil leaves India behind in both these measures, with a cumulative score of 7, whereas, India manages just 2.16.

4. Market Consumption Capacity:

Both countries have shown a great response towards Market Consumption Capacity, with a slight difference and benefit to Brazil whose score is with around 20% higher than India. India manages a score of 3.98, while Brazil a score of 5.

5. Commercial Infrastructure:

This is one of the most important dimension on the grounds of which market potentials are evaluated. This also contains the maximum number of measures used for calculating the score. The cumulative score of India comprising of all the measures used for this dimension is 5.8, and that of Brazil is 3.9.

6. Economic Freedom:

The economic freedoms in both countries are almost alike with a slight better environment for Brazil. Economic Freedom Index places Brazil above India with a difference of around 14%. Brazil stays above with a score of 5, while India follows with a score of 4.3.

7. Market Receptivity:

This dimension has two major measures (Per capita imports and Trade as a percentage of GDP) which are used to evaluate the score. Brazil has Per capita imports, while India has a better rate of Trade as a percentage of GDP. Thus, the average score obtained by Brazil is 4.5, which is with around 19.5% higher than that of India, with a score of 3.62.

8. Country Risk:

The major measure of this dimension is the country risk rating. Brazil scores higher than India and thus bears a higher risk for the

attractive investors and also is a challenge in being the frontline of emerging markets.

Conclusions

After analyzing the various dimensions of Market Potential Indicators, it can be said that the measures used possess a certain co-relation or a degree of proportionality with each other. The comparative analysis of Brazil and India shows the true nature of emerging markets which varies according to the index and also depicts their potential towards fast growing adaptable environment. Both countries are in the frontline of emerging markets as far as study, analysis and evaluation of MPI's are concerned. India holds an upper hand as compared to Brazil in the field of emerging markets and thus has a wider scope. Brazil is not lagging behind and is in a position to attract investors on its own credentials. The scope of investment and growth in these two emerging countries is huge and that is going to boost and develop their economic growth, as well as other sphere which plays crucial role in attaining the power of developed nation.

The various dimensions or the indicators comprise different measures that are used to assess and evaluate the score of the countries, Brazil and India in our case. The Market Potential Indicators also shows the degree of importance in terms of variable measures which forms the base for calculation.

According to the Market Potential Indicators (MPI) for Emerging Markets (2011), India is placed on the 6^{th} position, whereas Brazil is placed on the 11^{th}. Brazil in spite of being lower in the rank as compared to India, still has an added advantage in half of the dimensions considered. This shows how the degree of importance or the weightage of various dimensions are crucial through their impact on the cumulative score of the countries and thereby, finally, in determining their rank. The countries with a higher rank are considered to be the best hub for the investors and are attracted according to the opportunity available. Thus, Brazil and India, promises for a conducive environment and offers great investment scenarios as they are among the leading emerging markets.

Suggestions

The thorough study and analysis of Market Potential Indicators brings forth the essential requirement a country should focus on in order to attract investors or be the new face of market leaders. The various dimensions used for assessing the market potentials cover the wide scope of requirement, resources, availability and necessity. Lagging behind in couple of the dimensions doesn't let you really fall behind, but ask you to go forward and use the other dimensions and be the change to capture the market by opening new opportunity for the investors and interested parties.

The comparative analysis of Brazil and India not only showed their growth as potential emerging markets, but also reflected their capability to improve and be the next best investment environment. This can be done with careful and rigorous monitoring on the weak points of the respective countries and focusing on their strength to use their potential and available resources to gain the momentum required to be called among the develop nation of the world.

***List of Suggestions*:**

- India should focus on Market Intensity, which is one of the major dimensions for assessing market potentials. The various measures used in this dimensions include GNI per capita estimates using PPP and private consumption as a percentage of GDP. Brazil though lies at 11th position and India at 6th; still they leave India behind by almost 70%, while considering this major indicator. This reflects that India need to focus on this dimension and its measure to be available as one of the leading markets in the long run.
- On the other hand, Brazil needs an extensive improvement in the field of Commercial Infrastructure. Even India have enough scope of improvement in this field as this is one of the most important as well as crucial dimension to be considered for assessing and evaluating their market potentials. The improvement in this dimensional area will definitely boost up the investment scenario of the country.
- Brazil has a tough task ahead as far as Market Growth Rate is concerned; India has an advantage of over 60% as compared to Brazil. Brazil needs to improve the real GDP growth rate to overcome the hindrance and be a compatible force in the race of emerging markets.
- India need to improve their Market Receptivity score to be in the frontline of potential markets. They can do it by increasing the

trade as a percentage of GDP, as well as by improving per capita imports.

- India also need to focus on the Market Consumption Capacity as the increase in this dimension can lead to attracting new investors and opening new scope for improvement, thereby increasing the rank alongside the market potential capabilities.
- Both countries need to assess the country risk rating, though this has the least weightage still its form one of the core reason for the change in the investors mind.

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Deforestation in Portugal

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Abstract
Deforestation is not a new problem although world-wide population awareness is increasing. This issue has terrible environmental, social and economic consequences due to the over-exploitation of the natural resources and to alternative land uses which are more profitable in the short term. The combat and mitigation of deforestation is one of the biggest challenges for the 21st Century in order to achieve the Millennium Goals and a global sustainable development at all levels of human activities. Therefore, this paper will address this concerns focusing on the causes and consequences of deforestation as well as on the actions carried out by the decision makers in order to provide solutions for this increasingly and alarming problem. This paper will also approach the concepts of sustainability as well as the economy and management of the natural resources aiming an insight of the past deforestation in Portugal, the present situation and a sustainable perspective regarding the future.
Keywords: deforestation, Portugal, sustainability, economy and management of natural resources

Introduction

Since the beginning, forests, as natural ecosystems, have played an essential role by providing the resources required for the human

species' survival. Later, man felt the need to control directly these ecosystems and developed agriculture and forestry, enabling the population to settle and cities to emerge.

This population concentration in urban areas increased the efficiency of society, thus resulting in more spear time. The spear time was used by the members of the communities to develop culture, art and technical knowledge that could add even more efficiency and value to human activities.

The increase and spread of people, domestication, took place in largely forested environments, where the axe and fire converted forests into croplands and animal grazing intensification led to massive deforestation, and subsequently to major impacts on the environment. As cities grown in demographic terms, so did the food and forestry production needs and the borders of the urban areas added pressure to the natural ecosystems, aiming the response to these needs.

This situation led to the over-exploitation of natural resources and resulted in the degradation of forest lands and woodlands, as well as deforestation, desertification and biodiversity loss, and led, ultimately, to an unsustainable and inefficient affection of these resources. The Earth we know today is therefore much different than it used to be before human activities started shaping the environment, leading to un-sustainability.

In the last decades, the environmental issues have raised the interest of the public opinion, the scientific community and the decision makers, at all levels.

In 1972, the UN Conference on Human Environment was held in Stockholm, Sweden, and a framework for future environmental cooperation was created. This led to global and regional monitoring networks, as well as to the elaboration of the UN Environment Programme (UNEP) and influenced the environmental policies of the EU.

In 1992, the UN Conference on Environment and Development (UNCED) was held in Rio de Janeiro, Brazil, which led to the creation of the UN Convention on Biologic Diversity (UNCBD) and UN Framework Convention on Climate Change (UNFCCC), which in turn led to the Kyoto Protocol. The Agenda21 was another result from this conference, regarded as an action plan to be adopted at global, national, regional and local levels.

In 2002, the World Summit on Sustainable Development (WSSD) took place in Johannesburg, South Africa, to discuss sustainable development and the Millennium Goals have been added to the Agenda21. Deforestation and desertification are major obstacles to achieve the Millennium Goals and the mitigation of these problems is perhaps the greatest challenge for the 21st Century.

Forests cover roughly 30% of the world's land area and deliver a multitude of economic and social benefits. They offer major environmental benefits related to biological diversity and climate change. Tropical forests are amongst the most important habitats for biodiversity and provide crucial ecosystem services such as water purification and erosion prevention.

The livelihoods of 1.6 billion people worldwide depend on forest resources to some extent and 60 million indigenous people depend directly on forests for their survival. Forests also store significant amounts of CO_2, thus preventing further increases in concentrations of greenhouse gases in the atmosphere.

The world lost over 3% of its forest cover between 1990 and 2005. The annual loss amounts to 13 million hectares, an area approximately the size of Greece. Some 96% of recent deforestation has occurred in tropical regions and the largest net forest cover loss between 2000 and 2005 was recorded in ten countries (Brazil, Indonesia, Sudan, Myanmar, Zambia, United Republic of Tanzania, Nigeria, Democratic Republic of the Congo, Zimbabwe and Venezuela).

Over the same period, forest cover has increased in other regions, including the EU, Japan and China while it has been relatively stable in India (CEC, 2008).

Although deforestation is decreasing, due to forestation and reforestation programs, net loss of forest is still increasing at global scale. Forest resulted from forestation and reforestations, however, take time to fully grow and don't have the same biodiversity, erosion prevention capacity, CO_2 storage capacity and productivity meanwhile.

The deforestation process continues as alternative land use usually brings increased economic revenues in the short term, and this is why the deforestation rate remains so high in many countries.

To address the challenges of deforestation, the EU has proposed the objective to halt global forest cover loss by 2030, at the latest, and to reduce gross tropical deforestation by at least 50% by 2020, compared to

current levels; therefore major climate changes as well as biodiversity benefits are expected.

The idea is to increase the forest net gain through reforestation and at the same time to decrease the net loss of forest, obtaining a positive balance from 2030 forward. Another related environmental issue is the global objective proposed by the EU regarding the Kyoto Protocol.

To meet the EU's objective of limiting climate change to 2°C above pre-industrial levels will require a cut of global emissions by at least 50% below 1990 levels by 2050, this reduction is impossible without substantial action to combat deforestation. This is very relevant when considering that "deforestation accounts for some 20% of total CO_2 emissions" (CEC, 2008).

Within Europe, in the last decades a lot of rural areas have undergone dynamic changes. In many places the importance of agricultural production is declining, while environmental and landscape functions are increasingly valued.

As a result of such ongoing changes in rural areas, the role of forestry is also changing. In the past, most attention was focused on the primary production function of forests in order to contribute to the rural economy. At present, however, greater emphasis is given to its role in maintaining ecological and social values (Elandsa, *et al.*, 2004).

In Portugal, a forestry policy was adopted in 1996, which led to the elaboration of the Sustainable Development Plan for the Portuguese Forest, in 1998. This National Action Plan is inserted in the National Forest Strategy, within the EU Forest Strategy, including a set of objectives to be achieved in the next decades. The guidelines for this strategy are the following (DGRF b, 2006):

- Minimization of the risk of fire and biotic agents;
- Territory specialization,
- Production improvement through forest sustainable management systems;
- Decrease of market risks and increase the products' value;
- Overall improvement of the sector's efficiency and competitiveness;
- Rationalization and simplification of the political instruments.

Portugal has one of the largest proportional forest areas of the EU, representing 39% of the territory, which resulted from endemic forests or from forestation and reforestation (Leitão, 2008).

Portugal has a population of approximately 10 million and a land area around 8.7 million ha, of which 3.5 million hectares are forest areas. The owners of these forests are mainly private (87%); public (3%), industry (6%) and local community (6%) are minor forest land owners (DGRF a, 2006).

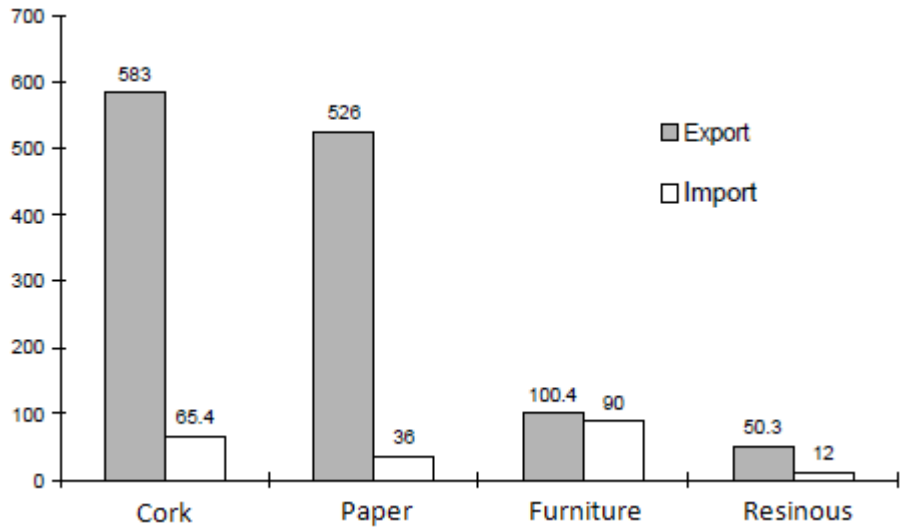
About 220,000 ha of forests are managed by the paper industry, while the remaining forest private areas are characterized by a high number of explorations (400,000), with a low average size (5.7 ha), making it very difficult to manage. In South Portugal, large area properties are dominated with Montado *Quercus* forests, typical of the Mediterranean basin, which are the source of half of the global cork production. Central and North Portugal forests are very different, they are mostly private micro-properties (<5 ha) dominated by maritime pine (*Pinus pinaster*) and by mix broadleaf and resinous tree species (DGRF a, 2006).

The paper industry is based on *Eucalyptus globulus* forests, mostly in north and center littoral Portugal, with sustainable management wood forests, ISO 9 001 and ISO 14 001 certification systems, aiming a high quality production, mostly for export.

Regarding the timber production, it's mostly based on reforestation and afforestation, mainly of *Eucalyptus globules*, *Pinus pinaster* and diverse deciduous *Quercus* wood forests in north and central Portugal, *Pinus pinea* and *Quercus suber* in south Portugal, and is increasing at an annual growth rate of 14 million m^3 (Leitão, 2008; DGRF a, 2006), being also mostly for export.

The Portuguese forestry sector plays an important role in the national economy, giving employment to a significant part of the active population. This sector is also regarded as an important contribution for the external commerce (fig. no. 1) and national budget, and provides environmental services and activities with a relevant impact on the economic and social benefits (i.e., tourism, recreational activities, fishing, bird watching, landscape and non timber forest products such as mushrooms, wood and fruits).

Fig. no. 1 – Forest products production in Portugal in 1992 (in millions of US$), adapted (Macedo, 2008).



Causes

The present driving forces of deforestation are diverse, and differ according to various geographic locations where it's occurring. The most important direct cause of forest destruction is changes in land use. Profitable alternative uses of land with a high market value, such as obtaining commodities, provide incentives for deforestation. In many cases infrastructure development, like river dams and touristic resorts, can also contribute to deforestation. The most important underlying cause is ineffective governance, linked to poorly enforced land use policies and uncertain land tenure regimes. To be effective, any global approach to deforestation will have to address these drivers directly (CEC, 2008).

Modern forestry methods only began to be introduced to Portugal in 1865 with the original aims of checking the loss of remaining broadleaf forests, expanding the areas under Montados and establishing plantations of maritime pine. Tree cover expanded, notably because farmers found the cultivation of cork oaks more profitable than wheat due to the overseas markets for cork (Canaveira *et al.*, 1998).

However, since the beginning of the wheat campaign in 1929, intense soil mobilizations, extensive agriculture mechanization and

shortage of land resting periods contributed to the *Quercus* trees debilitation and death. The high charcoal value during the wheat campaign and 2nd world war also contributed to cork and holm oaks from Montado cutting and subsequent inadequate cereal culture in these deforested areas (Oliveira, 1998).

In the 1950_s the dictatorship tried to reverse this policy with an imposed programme of afforestation on communal lands. The process was not welcome by local communities which objected to the "expropriation" of their lands, the loss of pastures and the repressive behavior of forestry officials. Incendiarism became a growing problem and by the time the dictatorship was restored, in 1975, the forestry service was seriously discredited. That year witnessed extensive fires especially in communal areas. A land reform initiated in 1976 restored communal lands to the villages and began to break up the properties of large landowners (Canaveira *et al.*, 1998).

During the 1980_s, the forestry service with World Bank support pursued policies of afforestation mainly with pine and *Eucalyptus* species but again met local resistance. However, since joining the EU in 1986, a new forestry approach has been adopted which prioritizes the restoration of mixed woodlands and closer collaboration with private forest owners (Canaveira *et al.*, 1998).

The rural areas human desertification in the last decades, at the country's inland, and especially at the primary sector, led to forest degradation. The house heating energy of the developed societies swift from biomass to fossil fuel, which lead to vertical and horizontal biomass accumulation and the subsequent increase of fire risk. Forest fires are the most direct cause of deforestation in Portugal. The risk of fire is higher at the resinous and *Eucalyptus* forests and is lower at agro-forestry and pastoral areas. A great effort is put into forest fire fighting every year, and prevention has been emphasized and underlined by institutions that struggle to decrease the effects of this cause on deforestation in Portugal. The access to the fire sites and to water resources is the major difficulty when fighting forest fires. On the other hand, the scarce means for an efficient monitoring system associated with lack of forest care by the population are the main restraints regarding forest fire prevention.

The forest distribution is also highly relevant. Because the *Pinus pinaster* and *Eucalyptus globulus* trees are so flammable, an extra care is required when managing these forests. The *Quercus* trees are remarkably

resistant to fire, although economic and ecological negative effects resulted from burnt cork, which is one of the most valuable resources in the national forest (in bio-economic terms).

Policies have also had a significant impact regarding the mitigation of the causes of deforestation in Portugal. Forests are often felt as belonging to the population, and recently their ecological and social values have been increasingly regarded by the potential users (the global population in a broader sense). Therefore, considering the current property regimes, in developing countries the areas affected by deforestation and desertification are decreasing in value, leading to biodiversity loss, which is the guarantee for their balanced and sustainable development. The main problem in these countries is related to land use rights and duties that are not clearly settled by property regimes. On the other hand, in developed countries, like Portugal, this issue has to do with the fact that private ownership does not reveal the public interests, only the private ones.

In addition, the poor and inappropriate land and forest management also contribute to forest degradation as well as deforestation. The Alqueva project is considered to be a great national achievement (yet to be fully explored). It is the largest artificial lake in Europe, although this has only been possible at the expense of the cutting down of the largest *Quercus rotundifolia* population in Europe, under the banner "National Interest". In return, large plantations have been carried out as compensation for the damage.

However, the surrounding areas of Alqueva Lake are increasing their land value, and urban and mass tourism pressures are increasing, despite the socially desired sustainable tourism for these inner regions. On the other hand, the above mentioned increasingly ecological and social values, regarding forest lands and woodlands, are being underused. The Natura2000 network is not responding to the raising public search for these special areas, because the potential benefits of combining sustainable tourism and leisure with sustainable agro-forestry systems are not sufficiently supported by policies, as national sustainable development guide lines recommend.

In Portugal, there are also other direct causes of forest net loss, such as the plant pests and diseases like *Bursaphelenchus xylophilus* (pine nematode) which is currently attacking the *Pinus pinaster* forests, and the *Phytophthora cinnamomi* and *Phytophthora cambivora*, that threaten the *Castanea sativa* and the Montado *Quercus* trees. The pine nematode

problem might cause private owners to swift forest stands from *Pinus pinaster* to the less sustainable *Eucalyptus globulus* species, causing also a major landscape change.

Consequences

Deforestation has enormous environmental, social and economic consequences, particularly on climate, biodiversity and poverty (CEC, 2008).

One of the main ***environmental consequences*** of deforestation is its huge contribution to global warming and climate changes, as deforestation accounts for some 20% of total CO_2 emissions (CEC, 2008). Forests also help to maintain the regional as well as local weather patterns balanced. Therefore, deforestation leads to serious environmental consequences, and they are certainly felt at the dry lands where aridity and droughts are becoming increasingly severe. Another very serious environmental consequence is the resultant biodiversity loss. This is most alarming in the tropical regions´ forest, where deforestation can pose a threat of extinction to a diverse range of plants and animals.

In developing countries, deforestation is responsible for major ***social consequences,*** because a significant part of the population depend on forests to live. It also contributes to desertification, and this indicates that poverty increases. But this also implies a major loss of fauna and flora, which is a guarantee for a sustainable development. As to developed countries, the loss of the environmental and landscape services is the main social impact of deforestation. However, in both developing and developed countries, this loss of value (environmental, social and economic) has a negative impact on poverty.

The European agronomic policies (PAC) were inadequate to Portuguese local forest realities and needs, and difficult to access from local small land owners; for example, *Pinus pinea* subsided plantation in southeast Alentejo region is interesting to recover soil degraded soils in a mix forest system with evergreen *Quercus* species, scheduling *Pinus* cutting in medium term; nevertheless caused abrupt landscape change, without *Pinus* timber or fruit production (Branco *et al.*, 2008).

Possible Solutions

Deforestation and desertification are being regarded as determinant issues in order to achieve the Millennium Goals.

Therefore, the multiple uses of forest resources has become a strategy to value forests, as a global initiative from the UN countries,

which led to the elaboration of national action plans, aiming at mitigating deforestation.

Meanwhile, the EU has been engaging a fight against illegal logging, although there is no law that prevents the import of illegal logging products into EU countries' markets. Another EU goal is to reinforce policies and institutions, in order to obtain real positive impact by rewarding the services provided by forests and by considering environmental, social and economic values as generators of greater wealth than short term profit based on the over-exploitation of natural resources.

At global level, the Global Forest Carbon Mechanism is a financial mechanism through which developing countries would be rewarded for emissions reductions achieved by taking action to reduce deforestation and forest degradation. This proposal intends to feed into the ongoing international negotiations on policy approaches to reduce deforestation and forest degradation in developing countries that were launched in December 2007 in the context of the Bali Action Plan. A major part of the EU contribution to the Global Forest Carbon Mechanism could come from proceeds of allowances auctioned in the EU Emissions Trading System (ETS). It is estimated that if 5% of auctioning revenue were made available to the Global Forest Carbon Mechanism (GFCM), this would raise €1.5 to 2.5 billion in 2020. These funds would complement and scale up traditional sources such as development aid, the Global Climate Change Alliance, and EU contributions to bilateral and multilateral sources of funding (UE, 2008).

Therefore, there would be a pilot phase to include the avoided deforestation in the carbon markets, in order to compensate for a country's excess of emissions, from 2020 forward. This would allow an excessive pollutant country to be able to proceed to forest plantation as well as afforestation in countries affected by deforestation, as a measure to compensate for the extra pollution and simultaneously contributing to decrease the forest net loss and to increase the forest resources' values. In underdeveloped countries, one of the major threats to forest is the lack of firewood to cook, so a possible solution would be a world technologic program that would help developing more sustainable cooking energies, like solar energy based cooking devices. However, evidences are being gathered worldwide that support traditional knowledge contribution to sustainability and forest conservation, for example the Contributions of

Ethnobotany to the sustainable use of native medicinal plants in a proposed protected area in south Brazil presented in the 13th Congress of the International Society of Ethnobiology; also in Brazil, the government requirement to reforestation after farming and its costs drove farmers to search for technical help, resulting in a list of trees of high economical value (fruits, shadow, fire resistance, etc.) that are saved from original cutting (Zank and Hanazaki, 2012).

Bearing the emerging ecological and social values of forest, at the EU level, the Natura2000 network is an approach to protect the most serious threatened habitats and species in the EU territory. This legislation, from the Habitats Directive, was adopted in 1992, and poses a complement to the Birds Directive of 1979. This network combines the Special Protection Areas (SPAs) with the Special Areas of Conservation (SACs), protecting about 18% of the Member-State's land. In Portugal, the Natura2000 network protects around 20% of the territory. The forests included in the national protected areas network are also safer from other land uses pressures. The implementation of the forest National Action Plan, the forest sustainable management plans and the fire defense forest plans, as well as the forest products certification, are useful tools aiming the sustainability of the Portuguese forest. However, the multiplicity of existing plans (forest management plans, municipality plans, water basin plans, etc.) could lead to confusion and inefficiency (DGRF, 2006).

The extensity UE LIFE project (Environmental and Sustainability Management Systems in Extensive Agriculture) is another ongoing Portuguese approach to sustainability in agro-forest systems based on pastures complemented with other extensive land uses like olive orchards and Montado forest. It aims the sustainable use of properties and its certification through and UE EC-label of their products (ISA, 2010).

Another step towards the forest sustainable management and diminution of forest fire risk is the ongoing development of regional biomass energy centrals, which will facilitate and make possible and profitable to clean the forest. However, this new biomass business opportunity could lead private land owners to change their forest from traditional sustainable forest species to less sustainable rapid growth species and can promote less sustainable forest practices that won't respect soil protection and biodiversity conservation (Celpa, 2004).

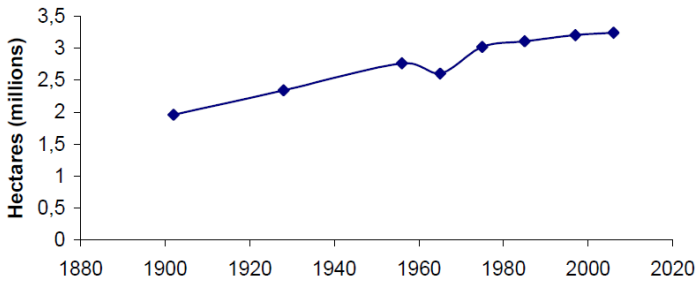
Discussion

Comparing wealth that can be generated indefinitely to an immediate wealth within a limited and short period of time, it's obvious that unsustainable ways of development, based only on the short term (and unstable) profit, do not produce as much wealth as sustainable development ways, focused on long term (but stable) profit.

Thus, natural resources' values are no longer regarded as economic only but instead as a convergence of these and the environmental and social values. Therefore, it is only a matter of internalizing externalities, in a way that responsibility and equality do add this full potential value to human activities, enabling society to achieve a sustainable development path (with maximum wealth and social equilibrium).

Despite the deforestation increase, at global level, forest net gain was registered in the EU. In Portugal, there was also a positive evolution of the forest total area (fig. no. 2). Nevertheless, this positive evolution has been characterized by a significant net loss due to forest fires and biotic agents, which was compensated with plantation, as well as forestation national campaigns. This indicates that deforestation is responsible for major forest net loss but plantation and afforestation accounted for a bigger net gain, resulting in an increase of the national forest total area.

Fig. no. 2 – Evolution of the forest total area in Portugal (ISA, 2006)



The associative organizations, local municipalities and the environmental organizations also have an important role in the present Portuguese forest management (DGRF, 2006). In central and North Portugal, where the micro private property (<1 ha; <5ha) are the majority, the management of the forest is only possible and profitable if the

associative organizations of forest owners are involved and supported by govern agencies.

The national programs to deal with pine nematode (PROLUMP) and scientific knowledge development and diffusion are also included in the sustainable forest action plan and could contribute to lower risk perception and increase private investment in forestry.

These last decades, deforestation has been a major concern. However, global policies addressing this issue did not have a positive feedback yet, because at some point of the decision making chain (regarding national, regional and local levels) the policies decrease in force and don't reach the target. This is the EU's main reason to reinforce policies and institutions, at all levels, taking the lead in the pursuit of a global answer to this issues.

The background issue is associated with the need of adding value to the natural resources, in order to achieve a sustainable development for global society. The unsustainable development is based on the short term profitability, as well as on economic competitiveness. On the other hand, sustainable development is focused on long term profit and cooperation.

A different approach could value forests by using the global certification systems Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification Council (PEFC), as funding channels regarding the sustainable agro-forestry systems (SAS) and simultaneously as a regulation aiming to respond to illegal timber trade.

This global certification certainly implies a clear definition of these different systems, depending on geographic location features. A clear definition of rights and duties by the local property regime surely has to be established. Although this would be a very big challenge at global level, it is indeed a necessary one, because people have to feel responsible (as owners) for the land use in order to use it in a sustainable way.

As a funding channel regarding to the SAS, this global certification would be a incentive sustainability, and by adding value to the primary sector, the rural areas abandonment could be reversed as the distribution of the population would tend to balance. At the same time, this could be a useful tool to monitor closely the human activities (for example, forest fires), penalizing unsustainable action through the

internalization of the negative externalities (tax), and using the income wisely to improve wealth distribution.

The Portuguese case presents a very interesting case with the traditionally managed *Montado* (cork oak and holm oak forests) ecosystem. This is a good example of sustainable land use in the Mediterranean area, with low fire risk. Multifunctional forest land uses aggregating agro-tourism, medicinal and aromatic plants production, mushrooms and wild fruits gathering or game hunting can origin important economic revenues and revitalizes the forest degraded areas.

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Consumer-Based Brand Equity: A literature review

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Abstract
The concept of brand equity has gained in popularity since the 1980s, and since then, the field has undergone significant development. The concept of consumer-based brand equity has become a central marketing concept due to the increasing scientific and business interest in brands, since the approach according to which brands constitute one of the most valuable intangible assets of the companies is becoming increasingly widespread.
The paper offers an updated literature review of this important research topic, providing a classification of brand equity models focusing on consumer based models. The most important models are critically reviewed from the perspective of model structure, methodology used and validity.
Keywords: brand, brand equity, brand valuation, structural equation modeling

Introduction

The concept of brand equity became widely used at the beginning of the eighties mainly in agency measures (Interbrand, Coopers & Lybrand, Arthur Young Australia). Since the conference organized by the Marketing Science Institute in 1988, the concept has been more precisely defined. An article by Farquhar, frequently quoted

in the brand equity literature that appeared a year later (Farquhar 1989), greatly contributed to the scientific acceptance of the concept.

The latest comprehensive literature review appeared in 2010 (Christodoulides and Chernatony).

The spread of the brand equity concept in the marketing scientific environment was greatly determined by the publications of Aaker (1991, 1994 and 1996) and Keller (1993, 2003).

In order to distinguish between consumer-based brand equity and brand equity expressed in financial terms, the english literature uses consumer-based brand equity (Keller 1993, Vázquez et al. 2002) instead of brand equity, this latter used without a distinctive epithet in the case of brand equity measures expressed in financial terms (Ailawadi et al. 2003, Srinivasan et al. 2005). Brand equity expressed in financial terms is sometimes mentioned as brand value, both having the same translation in Hungarian (Srivastava and Shocker 1991, Salinas and Ambler 2009, Interbrand).

Brand equity was traditionally measured at the level of consumer goods (Netemeyer et al. 2003, Yoo and Doonthu 2001, Vázquez et al. 2002, Lehmann et al. 2008, Martensen and Gronholdt 2004), but lately financial services (Chernatony et al. 2004), online services (Christodoulides et al. 2006, Chau and Ho 2008) and models suitable for measuring B2B brands (Jensen and Klastrup 2008).

Brand Equity. Definition of the concept

According to Farquhar (1989), brand equity is the added value endowed by the brand to the product. This definition stood at the basis of several further instruments measuring brand equity (Park and Srinivasan 1994, Srinivasan et al. 2005).

Aaker (1991) defines brand equity as a set of brand assets or liabilities that add to or subtract from the value provided by a product or service.

In Keller's interpretation (1993), brand equity is"the differential effect of brand knowledge on consumer response to the marketing of the brand", given by the difference between consumer response to the marketing of the branded and unbranded product. Consumers give a more favorable response to marketing mix in the case of brands with high brand equity, than in those with low equity. As a consequence, relative marketing costs decrease as the efficiency of marketing activities increase.

Srivastava and Shocker (1991) defined brand equity as consisting of two components, and their definition already entails the attempts of later approaches to associate consumer-level brand measurement and brand equity (Park and Srinivasan 1994, Srinivasan et al. 2005, Kartono and Rao 2006). According to the definition given by Srivastava and Shocker, brand equity consists of two components, brand strength and brand value, and while the former is based on consumer level measurements, the latter determines the financial benefit provided by the brand strength. Vázquez et al. (2002) defines brand equity as the utility that the consumer associates to the use and consumption of the brand. Srinivasan et al. (2005) defines brand equity as the difference between the choice probability for a certain brand and that of the base brand. In Simon and Sullivan's definition (1993), brand equity means the future cash flows that accrue to branded products over the sum which would result from the sale of unbranded products.

The impact of brand equity on financial performance

Owing to Aaker's publications (1991, 1996), there has been a great interest in the problem of financial returns generated by valuable brands (Fehle et al. 2008).

A company's protection against competitive attacks increases as the more differentiated brands result in lower price elasticity (Boulding et al. 1994), the company is more protected against competitive attacks (Srivastava and Shocker 1991), can apply premium pricing (Farquhar 1998), and can achieve a more successful brand extension (Keller 2003). Simon and Sullivan (1993) confirmed that stock exchange evolution contains information referring to brand equity as well.

There is also a positive relationship between new products and stock return, which is a strong one only when a company has introduced a great number of new developed products into the market (Chaney 1991).

Companies of high brand equity can expect significant market share increase if they cut prices, while their share decrease would be insignificant if they increased their prices (Ailawadi et al. 2003). However, this latter result is shaded by the fact that Ailawadi et al. defines brand equity in revenue premium, and we may rightfully presume that higher equity is achieved by companies with given asymmetrical price elasticity.

Several empirical researches have investigated the positive relationship between agency-based brand equity measures (BAV, Interbrand and Equitrend) and financial returns, as well as stock returns (Barth et al. 1998, Verbeeten and Vijn 2006, Fehle et al. 2008, Mizik and Jacobson 2008).

Investigating the brands valued by the Financial World, Barth et al. found that the financial brand equity has an explanatory power regarding the net income of stock returns. Based on the data of Techtel Corporation, Aaker and Jacobson (2001) confirmed that changes in attitude can predict financial performance by one or two quarters and they are positively related to current stock returns. The data of BAV (Brand Asset Valuator) have revealed similar connections. Investments in brand equity can determine financial performance in the long term (Verbeeten and Vijn), and brands carry information based on which investors update their future cash flow expectations (Mizik and Jacobson).

With the help of Total Research Corporation`s EquiTrend database, Aaker and Jacobson (1994) investigated the impact of quality-related information on stock returns. They could not prove that changes in quality perception can generate changes in share prices, but they managed to prove that information influencing significantly long-term returns of investors contains quality-related information as well.

The portfolio consisting of 111 firms on Interbrand's most valuable brands list between 1994 and 2006 had better performance than the overall market (Madden et al. 2006, Fehle et al. 2008). The brands on the Interbrand list generated a definitely higher net income than that of the market on average or the benchmark portfolio used as reference. The most valuable brands on Interbrand's list have not only outperformed the market average net income, but they also assure lower risk (Madden et al. 2006). Despite the fact that Fehle et al. managed to prove that financial brand value contains additional information, they could not reveal the nature of brand–share price relationship with the Fama-French methodology[1].

Kallapur and Kwan (2004) investigated firms on whose balance sheets brands appeared as intangible assets, when the value of the brand investigated was determined by managers rather than outside parties.

[1] Fama and French (1992) completed the classical CAP (Capital Asset Pricing Model) model with the Three Factor Model (Nagy and Ulbert 2007)

The assessment of bought brands is biased because of the managers' incentives to overvalue the brand equity recognized in books. These incentives to overvalue are the result of the fact that capitalized brands increase net asset values; thus managers can avoid having to ask for the London Stock Exchange's permission to realize their transactions. Despite managers' incentives to over valuate, the research has shown positive association between brand equity appearing on balance sheets and market value after having controlled numerous firm-specific and market factors. Their research has also confirmed the existence of a positive association between positive share price change and brand capitalization announcement.

Rao et al. (2004) analyzed branding strategies in the following categorization: corporate branding, house of brands or mixed branding (Laforet and Saunder's 1994). The benefit of corporate branding for the investor community can be cost-effective functioning, as the firm's marketing expenses are shared among its products. The house-of-brands strategy gives a firm the opportunity to enter several business fields, position itself in a different way, develop brand equity for every brand, demand more shelf space; at the same time, risk is shared among several brands, which presupposes high costs.

Investors attribute the highest brand equity to corporate branding and the lowest to the mixed one, so financial market actors under valuate the market segmentation resulting from the house-of-brands strategy and the benefits of the risk shared among brands (Rao et al. 2004). In contrast to this, Bahadir et al. (2008) found that acquirer firm managers prefer the brands of firms that possess a rich brand portfolio.

The contradiction can be explained by the different focuses of financial investor and manager: because of the lower perceived risk, investors place a higher value on corporate brands, while managers give higher valuation to the high brand portfolio diversity assuring various positioning opportunities.

The increasing popularity of brand valuation in the eighties is strongly associated with the acquisition wave (Farquhar 1988) starting to gain ground. One of the most important implementations of brand valuation appeared in the field of mergers and acquisitions (M&A), as the acquirer or merger firm has to assess the value of the intangible assets, including the brands of the target firm.

The estimated financial value of the target brands is influenced in different ways by the abilities and brand portfolio of the firms

participating in the transaction. Marketing capability is the ability of a firm to efficiently combine marketing resources, in order to attain its marketing goals (Bahadir et al.).

Firms with stronger marketing capability tend to attribute higher value to the brand portfolio of the acquired or merged firm; doing to their capabilities, they expect high returns. Firms with high brand portfolio diversity can adapt to different market demands more easily. Firms with a narrow branding strategy will attribute lower value to the acquired brand and abandon some of the acquired brands, because managing numerous brands would generate extra high costs to the firm.

In some cases, firms also abandon popular brands to assure efficiency (following the merger between AT&T and SBC Communications, AT&T abandoned the popular Cingular brand) or avoid cannibalism - when acquiring Gillette, Procter and Gamble divested its Right Guard brand (Bahadir et al.).

A comprehensive analysis of the marketing activity - stock returns relationship was carried out by Srinivasan and Hanssens (2009). The summary of the scientific debate generated by Srinivasan and Hanssens' article can be read in Kimbrough et al. (2009).

A comprehensive characterization of empirical non-consumer based brand equity models

The most commonly known and frequently referred-to brand equity measure categorization belongs to Keller and Lehman (2001). In their system, we can speak about three large categories: customer mind-set measures; product market measures and financial measures.

Customer mind-set measures mostly assess awareness, associations, loyalty and perceived quality (Aaker 1991, Keller 1993, Yoo and Donthu 2000, Christodoulides et al. 2006, Vázquez et al. 2002). Their advantages are that they assess brand equity sources, can predict brand equity changes and predict a brand's potential (Ailawadi et al. 2003).

Product market measures assess brand equity in the brand's market performance. The most common product-market measure is price premium (Randall et al. 1998, Aaker 1991, Sethuraman 2000). Further product-market measures use market share (Chaudhuri and Holbrook 2001) or revenue premium (Ailawadi et al.) to define brand equity. The advantage of these measures is that they can evaluate the result of the process by which the brand name adds value to the product;

that is, they quantify the performance due to the brand name. Their deficiency lies in data providing and analyzing methods. Revenue premium measures often refer to hypothetical situations, conjoint analyses are costly and they do not make continuous measures possible due to the difficulties of data collection and the complicated statistical methods used in the analyses.

Financial market measures assess the value of a brand as a financial asset, establishing a financial value of a brand. Measures often use the discounted cash flow model to assess financial value (Interbrand). The advantage of the financial value is that it can quantify future cash flow.

Product market measures

Before a detailed presentation of the product market measures, we will present the most important product market brand equity models and the complex models combining the advantages of customer mind-set measures with those of the product-market ones.

The results of product-market measures can often be deceiving. A brand whose brand equity was estimated high based on its market share will have a higher estimated value than if this share has been achieved through severe price cuts. If high brand equity is assessed on the basis of price premium, while measuring, we underestimate brands not applying price premium, but representing value to price-sensitive consumers and firms, for example, Southwest Airlines (Ailawadi et al. 2003). Product market measures can indicate cases when a brand faces difficulties or even gets stronger, but they cannot explain these phenomena. Ailawadi et al. qualified product market measures as an attractive middle ground and worked out a revenue premium model to measure brand equity. The revenue premium assures a better measurement in comparison to others (price premium, volume premium), since it gives a more comprehensive picture. There might be cases when a brand assures price premium as opposed to a private label, but private label sales may exceed brand sales, which can result in a negative income.

Table no. 1: Product-market measure models

	Brand equity measure basis	Method / Model	Measure level
Ailawadi et al. (2003)	Revenue premium	Revenue premium	Brand
Srinivasan (2005)	Brand choice probability Product-related and non-product- related attributes	Conjoint/ Logit	Individual
Kartono and Rao (2006)	Perceived quality Satisfaction Profit Profit premium Revenue premium	Structural	Firm
Srivastava and Shocker (1991)	Brand strength Brand's financial value	-	Individual Firm
Jourdan (2002)	The difference between subjectively and objectively assessed preferences	Conjoint	Individual
Kamakura and Russel (1993)	Brand utility	Logit	Segment
Srinivasan et al. (2005)	Brand choice probability Product-related and non-product- related attributes	Conjoint Logit	Individual
Sriram et al. (2007)	Brand intercept (β_0)	Logit	Segment

Ailawadi et al. used the private label as a basis of comparison in measuring brand equity. The widespread use of private label might be problematic since it is difficult to be found in several industries, and we cannot affirm that numerous private labels do not have brand equity.

One of the most complex models of brand equity research was introduced by Park and Srinivasan (1994), and its developed version was published in 2005 (Srinivasan et al.). Their research is based on the brand equity measures of cellular telephone brands. Srinivasan defined brand choice probability taking a multi-attribute model as a starting point. They also define brand equity with the help of the incremental choice probability, that is, brand equity is the difference between the choice probability of a certain brand and that of the base product. In

their model, the base product is neither a private label, nor a fictive brand. At individual consumer level, the model compares a certain brand to one in the sample in whose case the difference between product-related or awareness-related associations and objective measures is the smallest. Finally, brand equity in financial terms is given by the product of brand choice probability and its contribution margin.

Christodoulides and Chernatony (2010) considers it a deficiency that Srinivasan et al. did not decompose the non-attributes component, but this is not possible in the Srinivasan model since they calculated this component as the difference between brand preference and multi-attribute preference measured on the basis of product-related attributes.

A further deficiency of the Srinivasan is that the objective brand measure is based on a survey of experts, and the objectivity of expert opinions should be treated with reservation as a brand name may also have an impact on experts. We might assume that mobile telephone test results might have been a more reliable objective measure. The spread of the Srinivasan model will assumable be hindered by its complexity, just like other, similarly complex models that are not so popular.

The econometric model devised by Kartono and Rao (2006) is also linking the demand function measuring consumer mind-set and the supply function measuring firm-level brand equity. Similarly to the Srinivasan et al. model, it combines the advantages of consumer mind-set measures with those of the product market measures. The difference lies in the fact that in the Kartono and Rao's model, one element of the firm-level measure is represented by the revenue premium introduced by Ailawadi et al. (2003), which they associated with a profit premium element as well.

In the Srivastava and Shocker (1991) brand equity model, similarly to the previous one, brand equity is made up of two elements: brand strength and the brand's financial value. The Srivastava and Shocker model also combines consumer mind-set measures with product market measures; brand strength comes into existence based on consumer mind-set measures, while the second component, brand value defines the financial benefit for the firm.

Jourdan (2002), similarly to Srinivasan et al. (2005), used a multi-attribute model as a starting point in devising his brand equity model (Christodoulides and Chernatony 2008). Jourdan developed his own brand equity model from Srinivasan and Park's (1994) model.

Jourdan also measured brand equity as the difference between objective and subjective preferences, but their data collection referring to objective measures was not based on expert survey. Jourdan used one sample instead of two, and throughout the data collection built on the conjoint method, the members of the sample first had to assess attributes without knowing the brand name, later they re-assessed the attributes, this time in knowledge of the brand name.

Financial brand equity measures

Simon and Sullivan's (1993) model measures brand equity at macro and micro levels, at the levels of company brand and individual product. Owing to macro level measures, brand equity can be defined, while micro level measures help in defining the impact of various marketing activities on a brand. Simon and Sullivan define brand equity as the incremental cash flow which accrues to branded products over and above the cash flow resulting from the sale of unbranded products. The Simon and Sullivan model defined the intangible assets of a company with the help of Tobin's Q ratio[2]. They defined the impact of marketing activities on brand equity according to the logic of experiments, that is, they measured brand equity both before and after the experiment, and investigated the role of the factors causing changes in brand equity.

Table no. 2: Financial market measure models

	Brand equity measure basis	Method / Model	Measure level
Simon and Sullivan (1993)	Decomposing intangible assets Age of the firm Share of voice	Tobin's Q	Corporate brand
Interbrand	DCF Net present value	DCF Subjective assessment	Firm Brand

[2] The ratio of the market value of the firm to the replacement cost of its tangible asset. Here, a value of Tobin's ratio greater than 1 indicates that the firm has intangible assets.

The assessment of the financial value is mostly necessary in the case of acquisitions and mergers, when the acquired or merged firm's brand equity also has to be evaluated and registered. The FASB (Financial Accounting Standards Board) offers three methods to evaluate the equity of a brand as an intangible asset: market-based, income-based and cost-based approaches. According to the results of the qualitative partial research done by Bahadir et al. (2008) that is mostly based on interviews with experts, the most widespread method is the income-based brand equity assessment. This method consists of three stages. First, the acquirer or merger defines the present values of future cash flows and then this value is multiplied by a royalty rate estimated by setting up a hypothetical situation. In fact, they answer the question what the royalty rate for the brand would be if the brand were subject to a licensing deal. To determine royalty rate, similar brands are used as the benchmark, which have the same market share in the same category, under similar market conditions. In the third stage, based on the valuation made in the first two stages, an independent counseling firm (e.g. Intangible Business) assesses the brand's financial value. It is important to know that it strongly depends on the acquirer or merger firm's marketing capabilities and intentions, whether it retains-develops or abandons it.

Among the business models, the Interbrand's brand equity measuring method has become the most popular one, owing to the fact, among others, that it was the first to appear on the market in this field (Madden et al. 2006, Fehle et al. 2008).

Interbrand uses publicly accessible financial data in evaluating brands, based on which it determines the cash flow that can be attributed to the brand use. The result is weighted according to industry particularities, taking into account the fact that in the case of luxury products, a brand has an essentially greater impact on cash flow than in the heavy industry. As a next step in brand valuation, they determine the discounted cash flow value, then, considering the risk represented, they calculate the net present value of the future cash flow generated by the brand.

The brand strength index is calculated by considering seven factors: market, leadership, trend, diversification, support, stability, protection. The above factors are considered in every brand valuation. The final value of the brand is also weighted with brand strength.

One great deficiency of the Interbrand's method is the subjective assessment of multipliers (Fernandez 2002, Ailawadi et al. 2003). In evaluating the factors, it is difficult to measure the differences existing on different markets. For example, the Pepsi market share can vary from 1% to 100% on different markets.

Consumer mind-set measures

Through a consumer survey, measure concepts such as brand awareness, brand-related associations constitute the dimensions of a multidimensional brand equity in certain models (Yoo and Donthu 2001, Atilgan et al. 2009) and illustrate brand equity effects by investigating the relationships between them (Vázquez et al. 2002).

Conceptual brand equity models

Aaker (1991) defined brand equity as a multidimensional construct. The model is set up by the following dimensions: Brand loyalty, Brand name awareness, Perceived brand quality, Brand associations and other proprietary brand assets. The model defines the basic characteristics of brand equity: it is a set of brand assets and liabilities; is linked to the brand's name and symbol; can subtract from, as well as add to, the value provided by a product or service; provides value to customers, as well as to a firm

Keller (1993) defines consumer-based brand equity at individual level, taking brand knowledge as a starting point, which is conceptualized as an associative network, where the associations are nodes. In his interpretation, brand equity comes from the response difference owing to the brand, that is, brand equity is given by the difference between consumers' response to the marketing activities of a branded and an unbranded product.

A problem of Keller's consumer-based brand equity model is that he does not operationalize the concept of brand equity, in this sense we cannot speak about a real brand equity model. In his article published in 1993 he sets up the conceptual model of brand knowledge determining brand equity, but he does not give a clue how to measure the relationship between brand awareness and consumer-based brand equity. Despite the fact that Keller's model has become the most referred-to conceptual model, the author did not develop it further, and in his later publications he described brand equity with a different model without discussing the relationship between them.

Keller's model has brand knowledge in its focus. In the association network model, brand knowledge is the central node of the net, the other nodes and associations connecting to it. Brand knowledge is made up of two components: brand awareness and brand image.

A critical analysis of consumer-based brand equity measures

We present the most important consumer-based brand equity models, in the table below.

Table no. 3: Consumer mind-set measures

	Brand equity dimensions	Model/ Software
Vázquez et al. (2002)	Product functional utility Product symbolic utility Brand name functional utility Brand name symbolic utility	Structural equation (EQS)
Yoo and Donthu (2001)	Awareness/ Associations Perceived quality Brand loyalty	Structural equation (Lisrel)
Netemeyer et al. (2003)	Perceived quality Perceived value for cost Uniqueness Willingness to pay a price premium	Structural equation (Lisrel)
Erdem and Swait (1998)	Brand credibility Clarity Consistency Perceived quality Perceived risk Information cost Expected utility	Structural equation (Proc Calis - SAS)
Erdem et al. (2006)	Brand credibility Perceived quality Lower perceived risk Information costs saved Product consideration and purchase	Structural equation (Amos)
Martensen and Gronholdt (2004)	Rational evaluations Emotional evaluations Customer-brand relations	Structural equation (PLS)
Chernatony et al. (2004)	Brand loyalty Satisfaction Reputation	Factor analysis
Christodoulides et	Affective relationship	Structural

al. (2006)	Online experience Willingness to bilateral communication Trust Satisfaction	equation (Lisrel)
Chau and Ho (2008)	Trialability Personalisation	Structural equation (Lisrel)
Lehmann et al. (2008)	Comprehension Comparative advantage Interpersonal relations History Preference Attachment	Factor analysis Structural equation
Atilgan et al. (2009)	Perceived quality Brand associations Brand trust Brand loyalty	Structural equation (Lisrel)
Boo et al. (2009)	Destination brand awareness Destination brand experience Destination brand image Destination brand quality Destination brand value Destination brand loyalty	Structural equation (Amos)
Kim and Hyun (2010)	Awareness /Associations Perceived quality Loyalty	Structural equation (Amos)

Source: Own systematization

Vázquez et al. (2002) identified four dimensions of the consumer-based brand equity: product functional utility, product symbolic utility, brand name functional utility, brand name symbolic utility. Vázquez et al. defines brand equity as the utility associated to the use and consumption of the brand. In this sense they lay stress on the ex-post (after consumption) utility of the brand, in contrast with other researches that stress the ex-ante (before consumption) utility of it (Erdem and Swait 1998, Erdem et al. 2006). The basis of the dimensions created by Vázquez is the differentiation between functional and symbolic utility. The model includes both, brand-related abstract associations and concrete product attribute-related associations.

The advantages of the four-dimensional model developed by Vázquez et al. are that it can be easily applied, sheds light on the

sources of brand equity and makes individual-level measures possible (Christodoulides and Chernatony 2010).

The deficiency of the Vázquez et al. model is that it was developed for a concrete product category (training shoes), thus it can only be used as a basis of comparison with limitations. Christodoulides and Chernatony considers it a further deficiency that the model lays stress on the ex-post (after consumption) utilities, thus ignoring the ex-ante ones. Mention must be made here of the fact that the researches focusing on ex-ante (before consumption) utilities (Erdem and Swait 1998, Erdem et al. 2006) have a significantly different logics and theoretical basis, therefore we cannot expect a consumer-based brand equity model to meet the requirements of both approaches.

Kocak et al. (2007) repeated the research of Vázquez et al. in Turkey, but they could only retain 16 out of the original 22 questions. They drew the conclusion that the differences between the results of the two researches can be explained by the cultural differences. However, they did not support this conclusion with any empirical result.

Yoo and Donthu (2001) developed their consumer-based brand equity model based on Aaker's (1991) conceptual model, which they called MBE (Multidimensional Brand Equity) and introduced the OBE concept (Overall Brand Equity) developed to measure the validity of multidimensional brand equity.

The MBE is built on the four dimensions introduced by Aaker (1991). Yoo and Donthu did not find the fifth dimension (Other proprietary brand assets) relevant from the point of view of measuring consumer-based brand equity, since with the fifth dimension Aaker comprises patents, trade mark and channel relationships. As a consequence, the MBE includes the dimensions of Perceived Quality, Brand Loyalty, Brand Awareness and Brand Associations.

In Christodoulides and Chernatony's evaluation, Yoo and Donthu's model have the most strength and the fewest deficiencies. They consider one of the greatest values of the model the fact that it can be generally used, that is, it does not depend on product category, it is culturally valid, it can be measured at individual level and it can be applied easily.

Washburn and Plank (2002) also qualified the classification of brand awareness and brand associations into one dimension as a problematic question, although in their research repeating Yoo and

Donthu's (1997)[3] research they had the most acceptable data reduction solution when they classified brand awareness and brand associations into one dimension.

One of the main problems with the Yoo and Donthu (1997) model, namely that brand awareness and brand associations fell into the same dimension, could have been caused by the fact that the questions measuring Brand Awareness and Brand Associations were not properly chosen (Washburn and Plank). From the two dimensions, the items of Brand associations might have caused most of the problems, since they were formulated in a way to measure brand awareness rather than brand associations (e.g. *I can easily recall the logo of X brand*; *I have difficulty in imagining X (brand) in my mind*.)

Netemeyer et al. (2004) identified four dimensions of the consumer-based brand equity which they held most important: Perceived quality – PQ; Perceived value for cost – PVC; Uniqueness; Willingness to pay premium price. They could not treat the two constructions (PQ - PVC) as separate dimensions, because the lack of external validity unambiguously signaled that the two constructions measured the same phenomenon. The explanation might lie in the fact that the perceived value for cost may be determined as the antecedent of brand equity, rather than part of it. From among the advantages of the Netemeyer et al. research, we must emphasize the strict investigation of the model's validity, the fact that, unlike other researches, it was not done among students and that they set up a model easy to apply. According to the simple and intuitive logic of the Netemeyer et al. model, PQ/PVC and uniqueness positively determine the willingness to pay price premium, which in its turn determines willingness to purchase.

In the signaling theory approach, Erdem and Swait (1998) stress the brand's ex-ante advantages and regard the decrease of the perceived risk and information cost saved as the antecedents of brand equity. In fact, they claim that we can only speak about brand equity when risk and information cost have decreased. Further on, they consider brand loyalty an important component of Aaker's (1991) model, as a consequence of brand equity, as opposed to Aaker's.

Erdem and Swait discuss it as another important characteristic of the signaling theory approach that it does not compulsorily connect

[3] We consider it as the antecedent of Yoo and Donthu (2001)

brand equity with high quality brands. Brand equity is not primarily determined by high quality but by the authentic information referring to high quality, that is, the greatest utility to the consumer is provided by the brand communicating in a reliable way, the one that always offers what it promises.

The structural equation model estimated by Erdem and Swait describes the following process: due to the investments and consistency, the brand will be authentic and its message unambiguous, which positively influences the perceived quality, reduces risk and information cost which, in their turn, positively contribute to the utility expected by the consumer.

The importance of measuring cultural factors has recently appeared in the branding literature. In the brand extension literature, concerning Hofstede's (1980) cultural dimensions, there are significant differences at the level of various cultures in what concerns the success of extension (Henseler et al. 2010). In the consumer-based brand equity literature, Erdem et al. (2006) confirmed the cultural validity of brand equity. Erdem et al. extended their research to seven countries, owing to which they successfully proved the cultural validity of the Erdem and Swait (1998) model, and they found that the uncertainty avoidance index amplified the effect of credibility on brand choice, while in the case of the power distance index this effect could not be detected.

Martensen and Gronholdt (2004) distinguished between two ways of brand equity development, the rational and emotional approaches, and they also investigated the combination of these two. The independent variable, the brand-consumer relationship is determined by two dimensions, the rational and the emotional evaluation of the brand. In the structural model, the brand's rational evaluation is determined by product quality, service quality and price, while the emotional evaluation (feelings associated to the brand) is determined by differentiation, promise and trust. The applicability, reliability and validity of the model were controlled in later researches (Martensen and Gronholdt 2006).

Jensen and Klastrup (2008), leaning on Martensen and Gronholdt's brand equity model, made an attempt to develop a model suitable for investigating the brand equity of the brands present on business-to-business markets. By applying the Martensen and Gronholdt model for measuring business brands, they also wanted to find out the role the emotional dimension plays in B2B branding. They investigated

the model on two different samples, industrial original equipment manufacturer customers and consulting engineers. In both cases, the model had a high explanatory force, but in neither case could they prove the external validity of the model. They could not significantly differentiate between the brand's rational evaluation and customer-brand relationship dimensions either, both constructions measuring the same reality in fact.

Jensen and Klastrup (2008) could not unambiguously answer what role the emotional dimension plays in the case of B2B brands. On the one hand, from the model they considered valid, the two dimensions of rational and emotional evaluations from the Martensen and Gronholdt (2004) model had to be left out. On the other hand, in data collection, the responses to the questions meant to measure the emotional dimensions confirmed the arguments according to which B2B branding is primarily built on rational elements. While brand equity models were developed for products for a long time, in the past years several brand equity models referring to online or business markets, appeared.

Chernatony et al. (2004) developed a three-dimensional model for financial services. The model found brand loyalty, satisfaction and reputation as the most suitable measures for measuring the brand equity of financial services, and eventually these came to be the three dimensions of the measure.

Christodoulides et al. (2006) developed a measure suitable for online brand measurement. The authors find the following five dimensions as the most suitable for measuring online brands: affective relationship, online experience, willingness to bilateral communication, trust, satisfaction.

We can consider it as an important characteristic of the Christodolulides et al brand equity model, that they planned the dimensions of their model following Vargo and Lusch's (2004) approach. In the interpretation of Vargo and Lusch's dominant logic, a consumer is not a passive actor any more, but an active participant in production. By consuming a product, the consumer can acquire several experiences that can help the producer make spectacular, useful developments. In the case of online services, the active consumer's concept is unambiguously grounded, since the consumer's active participation is much more likely in setting up online services, than in the case of products. Measuring active consumer participation might

have several exciting results in brand equity research, which will surely be discovered in the future.

Berry's (2000) model seems to be a little random. He identifies two dimensions of the service brand equity, namely brand awareness and brand meaning, but we do not find out the way he would operationalize these dimensions. However, the model presented by him proves to be a salient visual aid and an introduction to the practical examples written in an enjoyable and convincing way.

Chau and Ho (2008) also developed a brand equity measure, applicable in services. More specifically, they investigated the opportunities of service brand building via the Internet. They built their model on two independent factors, triability and personalization, and successfully confirmed their influence on brand equity (in the author's formulation, Consumer-based Service Brand Equity). The triability and personalization dimensions, besides their direct influence on the CSBE, have an indirect influence on it as well through the dimensions of information-gathering and information-processing cost savings and the perceived benefits of the brand.

It is important to present here the result of the Lehmann et al. (2008) research despite the fact that the authors do not claim their work to belong to the brand equity literature, and they do not call the result fitted into the structural model a brand equity model, but a brand performance model.

Lehmann et al. investigated several models developed for measuring brands. They considered the scientific models of Aaker (1996), Fournier (1998), Keller (2002, 2008), Keller and Lehmann (2003) and Ambler (2003) as their starting point and they included in their research the dimensions of the agency models of BAV developed by Young & Rubicam, BrandZ developed by Millward Brown and the Equity Engine model developed by Research International. They used a construct measuring 27 brands in total, and in order to control the cultural factor, they did the research in the USA and China.

Despite the fact that in the factor analysis, most of the 27 constructs sat on only one factor, they found the following six-factor solution the best, with the respective dimensions:

1. Comprehension: presence, awareness, knowledge.
2. Comparative advantage: differentiation, esteem, performance, advantage and acceptability.
3. Interpersonal relations: caring, prestige, service, innovation.

4. History: heritage and nostalgia.
5. Preference: bonding, loyalty, willingness to purchase, value for money, attitude and extension potential.
6. Attachment: persistence and attitude.

The components of the brand performance model developed by Lehman et al. were investigated with a structural equation model. The model fitted in a hierarchy of effects structure similar to the AIDA model, and follows the logic below: Brand Awareness positively determines the three dimensions (advantage, relations and history) describing brand image and associations, which build brand preference that, in its turn, builds brand attachment.

Agency-based brand equity models

Young & Rubicam - Brand Asset Valuator

BAV (Brand Asset Valuator) developed by the Young & Rubicam agency is the consumer-based brand equity measure with the greatest data base on the world. Young & Rubicam have carried out measures on 19,500 brands along 55 parameters since 1993, asking approximately 350,000 consumers. One of the results of these measurements is the BAV consumer-based brand equity model popular with both, the business and scientific community.

BAV is a relative brand equity measure, that is, it establishes the equity of brands in relation to each other; the measurement is an output rather than an absolute value as in the case of the Interbrand. The BAV cannot explain the differences between industries (Verbeeten and Vijn 2006), but the measurement was devised to measure brand equity at a global level, independent from industries.

BAV is made up of four dimensions: Differentiation, Relevance, Esteem and Knowledge.

Differentiation: It measures the brand's perceived differentiation that Aaker (1996) declared to be the most important synthesizing measure of associations. Thanks to it, a brand is able to stand out among competitors.

Relevance: measures the extent to which a brand is relevant to a customer. With this level in fact BAV estimates the probability of the consumer's willingness to purchase a certain brand. The Relevance dimension must be regarded as one completing Differentiation, since a brand's uniqueness cannot assure firm success in itself.

Esteem: Esteem measures associations related to perceived quality, reliability and brand leadership.

Knowledge: It measures familiarity with a brand.

The four dimensions eventually summarize the information related to the brand in two second-rank dimensions. Multiplying Differentiation by Relevance we get Brand Vitality (or Brand Strength). The importance of this new dimension lies in the fact that Differentiation cannot determine brand equity in itself; a brand which is unique (e.g. Jaguar) but without relevance or willingness to purchase has low brand equity. Multiplying Esteem by Knowledge we get Brand Stature whose development has its starting point in the fact that the two dimensions can only determine brand equity together, since brands with knowledge (Exxon) but less esteem will have low brand equity.

BAV is basically a tool suitable for measuring consumer-based brand equity, but starting with 2004, the Landor agency, the parent company of the Y&R, has prepared the Breakaway Brands research, which, combining the methods of the BAV and that of the Stern Stewart Economic Added Value (EVA), selects the financially most performing brands out of the 2,500 investigated brands from the BAV data base and publishes the list of the top ten. The research, however, does not end with the assessment of a brand's financial value with the help of the EVA, but they also research, involving the students of the Wake Forest University's Babcock School of Business, the most important factors of the selected brands' success.

Milward Brown – BrandZ

BrandZ is the brand of brand equity measures developed by the Milward Brown agency. Milward Brown is a member of the Kantar and WPP groups.

BrandZ illustrates brand equity in a hierarchical structure assuming that brand equity is the result of the consumer's following the stages below: presence, relevance, performance, advantage, bonding.

The presence dimension measures familiarity, brand knowledge, that is, the extent to which a brand is present in the consumer's mind. Relevance measures the extent to which a brand is relevant to the consumer's needs from the point of view of price and offer, that is, if it is included in the product category considered. Performance measures whether a brand's performance meets the consumer's expectations, while Advantage investigates the advantages of a brand over other

brands. Bonding is on top of the pyramid and it measures the attachment to the brand to the exclusion of other brands. (http://www.brandz.com).

Research International –Equity Engine

The Equity Engine brand equity measure developed by Research International is one of the most popular agency-based brand equity models that functions similarly to the logic of the consumer-based brand equity model, i.e. it measures the sources of brand equity.

Numerous scientific articles refer to that model (Ailawadi et al. 2003. Lehmann et al. 2008, Keller and Lehmann 2003, Christodoulides et al. 2009), or the scales it developed are used by them (Lehmann et al. 2008).

Similarly to the Martensen and Gronholdt (2004) model, Equity Engine defines two large dimensions of brand equity: affinity, performance

The model also shows similarities with the Vázquez et al. (2002) model in the sense that the Vázquez et al. model attempted the separation of functional and symbolic advantages.

At present, this model is not available on the market. Research International developed the model and introduced its brand equity solutions under the Brand Action umbrella brand. The so-called Energy Diagnosis Engine, which developed from the original Equity Engine, was part of this umbrella brand. The difference between the two models lay in the fact that, while preference was the dependent variable in Equity Engine, the so-called Brand Energy came to be the dependent variable in Energy Diagnosis Engine, which measured present status and future development potential.

Research International, which developed the model, merged into TNS[4] that does not make available the brand equity measures developed by Research International, but offers its own solutions marketed under such brand names as NeedScope, Conversion Model, BPO (http://www.tnsglobal.com/).

Conclusions

Brands stand out of the other marketing mix elements owing to the fact that they are capable of incorporating the positive effects of all

[4] Both agencies are members of the Kantar group, which is the information and counselling division of the WPP group in its turn.

marketing activities and by this they become effective signals of quality (Erdem et al. 2006), and they are able to stay on the market in the long term until products transform or disappear (Kapferer 1992), that is why it is worth investing in developing brands.

Research related to brand management is included among the research priorities indicated by the Marketing Science Institute (MSI 2010) for the 2010-2012 period, which shows the great importance the prestigious institute attributes to brands, since brand and brand equity related research was equally determined as research priorities in the past two periods.

In light of the foregoing, brand equity appears as a concept with the help of which we are able to measure the equity of the brands becoming increasingly important to companies. Two great fields of measuring brand equity are constituted by measuring financial value and measuring consumer-based brand equity, from which the present paper focuses on the latter.

There is a widespread supposition in the literature according to which consumer-based brand equity is a multidimensional construct. We propose as further research to test the multidimensionality of this concept, as several empirical findings suggests a simpler structure. We also propose the development of new models. The development of a new consumer-based brand equity model is justified by the fact that the models developed till now are either conceptual (Aaker 1991, Keller 1993, Keller 2003), or they could be applied to a certain product category only (Vázquez et al. 2002), or they did not prove stable enough when repeated (Yoo and Donthu 1997, Yoo and Donthu 2001, Washburn and Plank 2002, Vázquez et al. 2002, Kocak et al. 2007). The models of Erdem and Swait (1998), Erdem et al. (2006) have proved to be repeatable and culturally valid, but they did not operationalize brand equity as a concept. Several brand equity models were developed for a certain market only (Chau and Ho 2008, Christodoulides et al. 2006, Chernatony et al. 2004, Jensen and Klastrup 2008), thus they are not able to generally explain the opportunities hidden in the brand name in the way the agency-based brand equity models (BAV, BrandZ, EquityEngine) do, about whose scientific fastidiousness and details of methods we know a little.

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Relationship between the Institutional Ownership and non-Executive Directors in Iran

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Abstract
In every financial market, one of the most significant topics in investment is the liquidity rate of assets. The role of liquidity in asset prices, the distribution of financial risk and the reduction of transaction costs are important factors. The current study aims to investigate the role of non-executive directors and institutional ownership in assuring liquidity. Thus, the sample of the study includes 69 listed companies on the Tehran Stock Exchange during 2008-2011. The results reveal that there is a negative relationship between the balance of institutional ownership and liquidity.
Keywords: liquidity, non-executive directors, institutional ownership, corporate governance, Tehran Stock Exchange

Introduction

For years, economists have assumed that all groups of companies operate for a common purpose. However, in the last 30 years many cases of interests conflicts between groups and how companies' exposure with such conflicts have been raised by economists. These issues are discussed under the agency theory in management accounting.

With the separation of ownership from management, managers run the company as a representative of the owners. That way, conflict occurs between managers and shareholders. It means that managers use to have an opportunistic behavior, adopting decisions which sometimes are contrary to the interests of the shareholders. Berl and Means (1932) stated the lack of corporate governance mechanisms. This enables administrators to replace their personal interests instead of the interests of shareholders. One of the ways that has effective external control is growing the institutional shareholders. In addition, the board members have a duty as internal controls, which can have a decisive role in corporate governance (Mehrani et al, 2010).

Separation of ownership from management leads to a well-known organizational problem, called agency problem. Researchers have addressed this issue from different angles. An agency problem shows the necessity of management control by the shareholder of the companies (Hassas Yegane, 2005).

In addition, according to Gillan and Starks (2003), shareholders have major role in the corporate governance systems. There is a group of shareholders owning a significant part of the stock, enjoying a considerable influence in these companies. Institutional owners and the owners make up the largest group, their role in supervising the procedures adopted by management being important. Nevertheless, non-executive directors are professionals. The research literature suggests that a non-executive director protects the interests of their shareholders and representatives (Setayesh and Kazemnejad, 2010).

Therefore, in the current study liquidity is very important. Liquidity is known for years as one of the most important areas of financial innovations. Therefore, one of the effective factors in buying a share can be the power of its liquidity. The transaction costs and other signs of liquidity can be dropped in the pricing of financial assets. Because of that, investors use to keep the assets with higher costs, for longer periods. Recent studies points that these hypothesis does not occur in practice. In other words, recent texts have proved empirically that liquidity changes over time and these changes may cause increased risk (Nobahar, 2009).

The importance of the study

One of the main functions of financial markets is to facilitate and accelerate the process of converting assets to cash, and vice versa.

This feature which referred to the liquidity of financial markets is a vital artery. Therefore, operators attempt to increase the attractiveness of financial markets through improved mechanisms and laws, risk reduction, disclosure of information and transparency. Liquidity is the main characteristic of shares, which play an important role in the investors' decision, to buy or sell their stock. Certain level of liquidity is needed when buying and selling stocks. Willingness to investigate this issue derived from the fact that liquidity is one of the main investor in stock market (Nobahar, 2009).

Research methodology

According to the objectives of the study, one main hypothesis and two sub-hypotheses are postulated in the study.

The main hypothesis: There is a significant relationship between institutional investors, the member of non-executive directors and stock market liquidity.

The sub- hypotheses are:

1. There is a significant relationship between the percentage of ownership institutional shareholders and stock liquidity.
2. There is a significant relationship between the percentage of the non-executive directors, the total members of the board and stock liquidity.

Research's variables

Independent variables

Institutional investors are natural and legal persons who have noticeable shares of the company's stock (Setayesh and Kazemnejad, 2010). According to the Tehran Stock Exchange Act (2004), the institutional investors are:

1) Banks and insurances sectors
2) Holding companies, investment companies, pension funds and stock funds, which have registered.
3) Every natural or juridical person who has more than 5% or more than 5 billion IRR purchased shares of par value.
4) Organizations, institutions and governmental companies.
5) The members of the board.

Non-executive directors are members of the board that have no formal executive responsibility in the company and usually work on behalf of the shareholders. This criterion is used to evaluate the strong or weak corporate governance (Setayesh and Kazemnejad, 2010).

A) The criteria of institutional investors or owners are used to measure institutional ownership.
B) The percentages of non-executive directors are used as a criterion to measure this variable.

Dependent variables

The liquidity issue was introduced as one of the important topics in financial management in the middle of 1980. Liquidity can be a mean to quickly convert assets into cash. The lack of liquidity can affect negative the stock value.

Stock liquidity is a common criterion of liquidity, which in Cueto's (2009) research, Agarwal (2008), Rubin (2007), Gerald et al., (2006), Wyss (2004), Izadi Nia and Rasaeian (2010) have been used including: the number of transactions calculated annually, the transaction value, the stock turnover (the number of circulating shares), the illiquidity criteria .

Further, we calculated the daily and annual average values (Badavar Nahandy and Maleki Nazhad, 2010).

The research study described above founds a high liquidity.

NST = number of stock traded;
NSO = number of stock issued;
TURNOVER = turnover number of stock.

$$\text{TURNOVER} = \frac{NST}{NSO} \times 100$$

Illiquidity criteria of relative stock price gap are a detail which is not available in the Tehran Stock Exchange. Therefore, in this study is used bid price in a day (for example, Badavar Nahandy and Maleki Nazhad; Rahmani et al.; Ezadi Nia and Rasaeian, 2010). First, according to the following formula, the criteria are calculated on a daily basis, and so the annual average is obtained.

$SPREAD_i$= total percentage price gap relative to firm i in period t
AP (ask price) = the best ask price in period t
BP (bid price) = the best bid price in period t

To calculate the power of liquidity, a measure introduced by the use of daily data on returns and trading volume may assess. This is the larger scale that represents the lowest liquidity of the shares (Amihud, 2002):

$$ILLIQ_t^i = \frac{1}{Days_t^i} \sum_{d=1}^{Days} \frac{|R_{td}^i|}{V_{td}^i}$$

R = the daily return and is calculated with the formula:

$$R = (P_t - P_{t-1}) / P_{t-1}$$

P = the daily stock price;

V_{td} = The trading volume in month t of day t;

"Days" = the number of trading days in month t

AMIVEST = value transactions / returns contribution

The ratio (Fratio): The waiting time divided by the number of trading days gives the trading stock (Rahmani et al., 2010).

Control variables

In order to identify other factors that affect the dependent variables, the following variables are taking into consideration: share price, return volatility (an indicator of risk control), the stock price in t day, size of the company, the volume of stocks, the trading days (%) and the number of shareholders.

Data collection

Required data in the current study is collected from the Tehran Securities Exchange Organization, Tadbir Pardaz software and information systems company of Tehran Stock Exchange.

Developing models and methods of data analysis

For testing, the hypotheses regression model is employed in the current study.

Model 1 - number of transactions (TRANS)

Model 2 - transaction value (VALUE)

Model 3 - trading turnover (TURN)

Model 4 - price gap (SPREAD)

Model 5 - illiquidity (AMIHUD)

Model 6 - AMIVEST

Model 7 - flow rate (FRATIO), is considered as a dependent variable.

$$\text{LIQUIDITY MEASURES}i,t=\alpha+\beta_1 OPER_{i,t}+\beta_2 OUTDIR_{i,t} + \beta_3 NINST_{i,t}+ \beta_4 SIZE_{i,t} + \beta_5 PRICE_{i,t} + \beta_6 DAY_{i,t}+\beta_7 VOLATIL_{i,t} + \beta_8 VOL_{i,t} + \varepsilon_{i,t}$$

Where:

$\text{LIQUIDITY MEASURES}_{i,t}$:Various liquidity criteria (seven criteria) for company i in period t.

Where:

OPERi,t: the percentage of shares owned by institutional owners of the company i in period t (independent variable).
OUTDIRi,t: the percentage of non-executive directors in the number of the members of the board of directors (independent variable).
NINSTi,t: the number of shares of the company i in period t (control variable).
SIZEi,t: the size of company i in period t (control variable).
PRICEi,t: the stock price of company i in period t (control variable).
DAYi,t: the percentage of the trading days of the company i in period t (control variable).
VOLATILi,t: return volatility of the company i in period t (control variable).
VOLi,t: the volume of shares traded by the company i in period t (control variable).
$e_{i,t}$: the error for company i in period t.
α: a constant.
βi: the coefficients of variables in the regression model.

The statistical types and methods used in this study are: Descriptive Statistics, Regression, correlation, Kolmogorov–Smirnov test (K-S. test), Fisher F- test, (T- test), Durbin-Watson test, collinearity test. The application and use of them is described below.

The results of the study

Normality test of the variables

The results of table no. 1 show that the data of the study do not have normal distribution.

Table no. 1. Testing the normality of variables

Variables	The statistic Z	Significant level	Result
Dependent variables: liquidity criteria	TRANS	2.46	0.000
	VALUE	2.13	0.000
	TURN	1.81	0.003
	SPREAD	0.702	0.708
	AMIHUD	2.42	0.000
	AMIVEST	2.64	0.000
	FRATIO	2.32	0.000
Independent variables	OPER	1.25	0.088
	OUTDIR	0.76	0.600
Control variables	PRICE	1.51	0.020

	VOLITIL	1.37	0.450
	SIZE	0.59	0.870
	VOL	1.01	0.250
	DAY	0.97	0.290
	NINST	2.53	0.000

It is observed that some variables are not normal. So, the abnormality of the data should be solved. Therefore, the natural logarithm of the calculated values of the variables is used.

It is clear that the data distribution shows a strong relationship, with the cumulative distribution of log –normal. The results are presented in table no. 2.

Table no. 2. Normal distribution of the logarithm

Variables	The statistic Z	Sig.	Result
Dependent variables: liquidity criteria	TRANS	1.13	0.15
	VALUE	0.89	0.40
	TURN	1.04	0.22
	AMIHUD	1.10	0.17
	AMIVEST	0.72	0.68
	FRATIO	0.78	0.56
Control variables	PRICE	0.81	0.51
	NINST	0.67	0.75

Table no. 3. Results of significant regression models

LIQUIDITY MEASURES=$\alpha+\beta_1 OPER_{i,t}+\beta_2 OUTDIR_{i,t} + \beta_3 NINST_{i,t} + \beta_4, SIZE_{i,t} + \beta_5 PRICE_{i,t} + \beta_6 DAY_{i,t}+\beta_7 VOLATIL_{i,t} + \beta_8 VOL_{i,t} + \varepsilon_{i,t}$								
Regression models	Model Number	Model1	Model2	Model3	Model4	Model5	Model6	Model7
Analysis Variance	F statistics Significant	267.64 (0.00)	86.22 (0.00)	5.71 (0.00)	13.02 (0.003)	33.08 (0.00)	59.65 (0.00)	85.25 (0.00)
Model pro.	R^2 (adj R^2)	0.951 (0.915)	0.87 (0.86)	0.31 (0.25)	0.44 (0.41)	0.67 (0.65)	0.78 (0.77)	0.89 (0.88)

R^2 values in table no. 3 indicate a control power over the independent variables, while explaining the variability of the dependent variable. In model 1, R^2 has a value of 0.95, in model 2, 0.87, in model 6, 0.78 and in model 7 are 0.89.

The coefficients of these variables are not significant in this model and are not enter into the model. Significant levels of control variables, stock price (PRICE), trading volume (VOL) and the number of shareholders (NINST) are less than 5%. The coefficients of these variables are significant in the model and enter in the model. Therefore, other variables had not the parameters to enter into the model and are not given in the column of model 1. Durbin - Watson statistic is equal to 2.05 in this model and is located at a distance of 1.5 to 2.5, which indicates the error terms of observations. After the adjustment for other variables in the main model and an effective elimination, model 1 has been rewritten with acceptable coefficients, which can be seen at the end of table no. 4.

The results of model 2:

It shows that between the non-executive directors and the share liquidity, there is no significant relationship. After doing adjustment in the main model and the elimination of ineffective variables, model 2 has been rewritten with significant coefficients, which can be seen in table no. 4.

Table no. 4. The results of model 2

The dependent variable		Liquidity criteria		Its correlation	Results
Variables Independent and control		TRANS Model (1)	VALUE Model (2)	Negligible amounts of the models	
Intercept	quantity Fixed	-7.47	-2.69	0.92	The first hypothesis is rejected in model 1 and is confirmed in model 2
OPER	Coefficient	0.0002	-0.007		
	T -statistics	0.12	-2.2		
	Significant	0.89	0.031		
OUTDIR	Coefficient	0.168	0.48	0.86	The second hypothesis is rejected in model 1 and model 2
	T -statistics	0.93	1.38		
	Significant	0.35	0.17		

PRICE	Coefficient	0.236	0.616	0.57	
	T -statistics	5.32	6.1		
	Significant	0.00	0.00		
VOLITIL	Coefficient	---	---	0.86	
	T -statistics				
	Significant				
SIZE	Coefficient	---	0.43	0.43	
	T -statistics		6.22		
	Significant		0.00		
VOL	Coefficient	0.799	0.62	0.34	
	T -statistics	24.28	9.1		
	Significant	0.00	0.00		
DAY	Coefficient	---	---	0.60	
	T -statistics				
	Significant				
NINST	Coefficient	0.069	---	0.51	
	T -statistics	1.92			
	Significant	0.051			
Durbin-Watson statistic model 1 = 2.05				Durbin-Watson statistic model 1 = 2.05	

The results of model 3

In this model, the variable of circulating levels of turnover (TURN), as a measure of liquidity, is considered a dependent variable. According to table no. 5 for independent variables OUTDIR OPER, the significant level is more than 5%. There is an absence of a relation between the percentage of institutional property owners and non-required number of the board members. Therefore, the coefficients of these variables are not significant and cannot enter into the model. Significant levels of control variables, stock price (PRICE), firm size (SIZE) and trading volume (VOL) are less than 5%. Durbin-Watson statistic is equal to 2.13 and is located at a distance of 1.5 to 2.5. This indicates error terms of independence or autonomy.

The results of model 4

In this model, the price gap variable (SPREAD), as one of the liquidity criteria, is the dependent variable. Independent variable is less than 5% significance level for OPER, so it is not zero. The price gap criterion is a measure of liquidity. There is another way to express the analyzed relationship: between the percentage of institutional property

owners and liquidity, there is a negative relation. In addition, the coefficient of this variable is significant and enters into the model.

Significant levels of control variables, the trading volume (VOL) and the percentage of trading days (DAY) are less than 5%. Therefore, the coefficients of these variables are significant. We have no other variables entered into the model, given in column 4, which are not related to the model. Durbin-Watson statistic model is equal to 1.87 and is located at a distance of 1.5 to 2.5, which indicates the error terms of independence or the independence of observations.

The results of model 5

AMIHUD variable in the model as one of the liquidity criterion is given in tables' no. 4 and 5 for independent variables OPER. Significant levels of control variables, stock return volatility (VOLITILE) and trading volume (VOL) are less than 5%. The coefficients of these variables are significant and enter into the model. No other variables entered into the model. The model is shown in column 5. Durbin - Watson statistics in this model is equal to 1.78 and is located at a distance of 1.5 to 2.5, which indicates the error terms of independence or the independence of observations. After the adjustment of variables, model 4 is rewritten in table no. 5.

Table no. 5. The results of the models

The dependent variable		Liquidity criteria		Results
Variables Independent and control		TRANS Model (3)	SPREAD Model (4)	Confirm or reject the hypothesis
Intercept	quantity Fixed	-4.591	0.313	The first hypothesis is rejected in model 3 and is confirmed in model 4
OPER	Coefficient	-0.005	0.005	
	T -statistics	-0.92	4.28	
	Significant	0.36	0.028	
OUTDIR	Coefficient	0.773	-0.021	The second hypothesis is rejected in model 3 and model 4
	T -statistics	1.28	-0.17	
	Significant	0.20	0.86	
PRICE	Coefficient	0.682	---	
	T -statistics	3.93		
	Significant	0.00		
VOLITIL	Coefficient	---	---	
	T -statistics			
	Significant			

SIZE	Coefficient	-0.524		
	T -statistics	-4.41		
	Significant	0.00		
VOL	Coefficient	0.576	-0.059	
	T -statistics	4.94	-3.17	
	Significant	0.00	0.002	
DAY	Coefficient	---	-0.0591	
	T -statistics		-3.41	
	Significant		0.001	
NINST	Coefficient	---	---	
	T -statistics			
	Significant			

The results of model 6

Variables in model AMIVEST, as liquidity, is dependent. Durbin-Watson statistic is equal to 1.88. The main model was rewritten. The results are illustrated in table no. 6.

Table no. 6. The results of the models

The dependent variable		Liquidity criteria		Results
Variables Independent and control		AMIHUD Model (5)	AMIVEST Model (6)	Confirm or reject the hypothesis
Intercept	quantity Fixed	-2.56	-13.7	The first hypothesis is rejected in model 5 and model 6
OPER	Coefficient	0.002	-0.004	
	T -statistics	1.77	-0.67	
	Significant	0.047	0.50	
OUTDIR	Coefficient	0.582	0.521	The second hypothesis is rejected in model 5 and model 6
	T -statistics	0.29	0.85	
	Significant	0.77	0.39	
PRICE	Coefficient	---	0.277	
	T -statistics		2.18	
	Significant		0.033	
VOLITIL	Coefficient	---	---	
	T -statistics			
	Significant			
SIZE	Coefficient	0.131	1.203	
	T -statistics	5.36	14.001	
	Significant	0.00	0.00	
VOL	Coefficient	-1.11	---	
	T -statistics	-10.53		
	Significant	0.00		
DAY	Coefficient	---	---	
	T -statistics			

	Significant		
NINST	Coefficient	---	---
	T -statistics		
	Significant		

The results of model 7

After the adjustments made in the original model and after the removal of ineffective variables, model 7 is rewritten with significant coefficients in table no. 7.

Table no. 7. The results of the model

The dependent variable		Liquidity criteria	Results
Variables Independent and control		FRATIO Model (7)	Confirm or reject the hypothesis
Intercept	quantity Fixed	1.676	The first hypothesis is confirmed in model 7
OPER	Coefficient	-0.007	
	T -statistics	-2.06	
	Significant	0.043	
OUTDIR	Coefficient	0.492	The second hypothesis is rejected in Model 7
	T -statistics	1.34	
	Significant	0.85	
PRICE	Coefficient	0.624	
	T -statistics	5.93	
	Significant	0.00	
VOLITIL	Coefficient	---	
	T -statistics		
	Significant		
SIZE	Coefficient	0.482	
	T -statistics	6.58	
	Significant	0.00	
VOL	Coefficient	0.625	
	T -statistics	8.28	
	Significant	0.00	
DAY	Coefficient	1.099	
	T -statistics	2.18	
	Significant	0.033	
NINST	Coefficient	---	
	T -statistics		
	Significant		
Durbin-Watson statistic model 7=1.85			

Conclusion

Non-executive directors should take into account the views of shareholders and other stakeholders, because these views may provide different perspectives on the company and its performance.

It can be concluded that there is no significant relationship between the number of non-executive directors and liquidity.

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Organisational Social Capital through Corporate Social Performance

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Abstract

The purpose of this study is to identify the correlation between the corporate social responsibility performance and the Organisational Social Capital. Inductively, through grounded theory, this paper uses secondary data to develop a theoretical model which presents the relationship between the following concepts: business codes, stakeholders, Corporate Social Performance (CSP) and Organisational Social Capital (OSC). This study brings together two main areas of research, namely: Organisational Social Capital and business ethics. This represents a gap in the literature, to which this research will address.

Three propositions are put forward and discussed using secondary data collection methods. The findings suggest that there is a strong correlation between the characteristics which improve the quality of organisation-stakeholders relationship and the effectiveness of implementing business codes and, therefore, the increasing Corporate Social Performance. The proposed ethical framework has, at the same time, a similar effect by incrementing Organisational Social Capital, because it shares similar features with the

relation between organisation-stakeholders, business codes and CSP.

Keywords: Organisational Social Capital, Corporate Social Performance, Business Codes

Introduction

The concept of social capital is becoming increasingly popular in a wide range of disciplines including economics, sociology or political science and is considered to be a complex subject of research as the theoretical underpinnings and the concept itself are still debated in the research community. Social capital has had an impact on the study of families, social class, adolescent behaviour problems, education, public health, community life, democracy, economic change and general problems of collective action (Adler, 2002). The concept of social capital has its roots in sociology and political science where it is seen as the sum of resources available to individuals through their associated behaviours and membership in the community networks (Kawachi, 1999).

Research issue

This research refers specifically to the Organisational Social Capital and the aim of this study is to identify whether through implementing business codes in an organisation and therefore generating an increase in Corporate Social Performance (as empirically proven by Kaptein M. S., 2008), would also determine a potential increase in the Organisational Social Capital. In the social capital literature, OSC has been described as an important resource of an organisation, whereby the company is seen as a network where values, norms and procedures are being shared by its employees (Rhys, 2010).

The association of OSC with business codes derives from the fact that through the effective implementation of business norms, a company creates and cultivates a set of norms and values, through which it develops and maintains its relationships with other "*organisational networks*", such as stakeholders (i.e. employees, suppliers, competitors, communities, governmental bodies, etc.). The relationship between stakeholders and business codes is strongly analysed in the literature (see Erwin, 2011; Kaptein M. S., 2008), but

not from OSC perspective. From the reviewed literature, the association between business codes, Corporate Social Performance and Organisational Social Capital represents a gap in the field of social capital research, a gap investigated through this study. In order to analyse this distinct relationship, this research will use a model of the effectiveness of implementing business codes, developed by Kaptein M. S. (2008), to which it applies the Corporate Social Responsibility Performance and the Organisational Social Capital theory.

Literature review

Social Capital

In the reviewed literature, social capital - as a concept - is addressed from two different perspectives, according to the focal point of interaction. These two approaches are mainly distinguished through the definitions of social capital of two key authors in this field of research: Pierre Bourdieu and James Coleman. Bourdieu regards social capital as the "*sum of resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintance and recognition*" (Bourdieu, 1992, p. 119). Coleman defines social capital by its function underlining the fact that "*it is not a single entity, but a variety of different entities having two characteristics in common, they all consists of some aspect of social structure and they facilitate certain actions of individuals who are within the structure*" (Coleman, 1990, p. 302). Bourdieu sees the focus of social capital in the relations an individual maintains with other actors, while Coleman emphasises social capital in the structure of relations among individuals, within a group or community (Adler, 2002). Both authors draw attention to the intangible character of social capital, relative to other forms of capital i.e. physical, economic (Portes, 1998).

The aforementioned perspectives are divided into: "*structuralist*" approach, which considers social capital according to the connections of an individual, and "*interactionist*" approach, which regards social capital as being generated by social interaction (Rutten, 2010). According to the *structuralist* approach, an individual with many connections has more social capital than one with fewer connections and therefore the focus of this approach is on the number of social ties a person has.

The association of social networks and social capital has been studied by many researchers (Burt, 1992; Adler, 2002) who investigate the impacts and benefits of network structure on the network itself and on the individuals within that network (Rutten, 2010). Within the association of social capital and social networks, two distinct forms of social capital have been identified, "*bridging*" and "*bonding*" social capital (Rutten, 2010; Adler, 2002). Bridging social capital acts as a "*bridge*" between an individual and unrelated individuals in the same network, whereas "*bonding*" social capital arises in the networks where individual are strongly connected to each other and interactions between them are likely to be frequent. Both these forms of social capital arise from the *network structure*, rather than the simple interaction between individuals.

Therefore, the *interactionist* approach tries to take a step further by emphasising that the norms, values and trust that shape and create social interactions are the actual generators of social capital. This perspective argues that there are certain distinct features of social interactions that are different from one network to another (different norms and values), and therefore they generate various forms and types of social capital (Rutten, 2010). This approach stresses that the distinction between *bridging* and *bonding* social capital is a matter of perspective and that the behaviour of social capital is not only related to the structure of the network but to norms, values and trust encountered in social relations (Adler, 2002). Moreover, *interactionists* provide an explanation for the negative aspects of social capital on the basis that when norms, values or trust are broken, this may lead to detrimental results for individuals or groups (Rutten, 2010).

Organisational Social Capital

From an organisational point of view, social capital is considered to be a valuable resource that has the potential to generate positive outcomes. Portes (1998) argues that the novelty of social capital comes from the fact that a nonmonetary form of capital is an important source of influence and power through the creation of positive effects of sociability. Researchers have been criticising the importation of economic concepts into the social capital literature (Baron, 1994; Pawar, 2006). However, Adler (2002) provide a comprehensive list of characteristics which argue the validity of social capital as an important

and valuable resource of an organisation by comparing this form of capital with others i.e. physical, financial and human.

Social capital is an asset into which other resources can be invested with the future expectation of benefits, although not guaranteed (Adler, 2002; Rhys, 2010). Social capital is "*appropriable*" (Coleman, 1988) as an individual's network can be used in various ways, and also "*convertible*" into other forms of capital, for example, by taking an economic advantage of one's position in a social network (Adler, 2002). Similar to other forms of capital, social capital can act as a substitute or a complement for other resources. In situations where a lack of financial or human capital is present, this can be substituted by the potential given by a superior "*connection*". Lazerson (1995) argues that social capital can help improve the efficiency of economic capital by reducing transaction costs, and therefore acting as a complement for other kinds of capital.

Moreover, similar to physical and human capital, social capital has to be maintained so that it can grow and develop in order to make use of its potential benefits (Adler, 2002). At the same time, social capital is a "*collective good*" (Coleman, 1988) as it is not privately owned, but rather its availability can be accessed by a group or community and therefore, located in the relations among individuals (Burt, 1992).

Lastly, investment in social capital cannot be quantified; however, in particular cases the benefits of investment in social capital can have a degree of measurement. Fernandez (2000) has managed to identify the bonus paid by a call centre company to its employees, who used their connections for recruitment purposes. However, they have not identified the investment in creating and maintaining these social relations (Adler, 2002). These characteristics are essential when considering the benefits of social capital in a business environment and thus, they show how significantly important such an intangible asset can be, considering also the fact that although being an asset, it does not depreciate, nor it cannot be taxed.

Furthermore, social capital has become increasingly used as a concept for explaining different issues encountered in an organisation:

1) Social capital influences ones' career (Burt, 1992; Gabbay, 1998; Podolny, 1997)
2) Social capital helps individuals find jobs (Granovetter, 1973, 1995; Lin N. D., 1996; Lin N. E., 1981)

3) Social capital stimulate product innovation; Hansen, 1998; Tsai, 1998; Perry-Smith, 2003), the creation of intellectual capital (Hargadon, 1997; Nahapiet, 1998) and cross functional team effectiveness (Rosenthal, 1996)
4) Social capital reduces the turnover rates (Krackhardt, 1993), facilitates entrepreneurship (Chong, 1997) and the formation of start-up companies (Walker, 1997)
5) Social capital strengthens supplier relationships (Asanuma, 1985; Dore, 1983; Uzzi, 1997) and inter-firm learning (Kraatz, 1998)

According to Rhys (2010), Organisational Social Capital consists of three key dimensions: *structural* (connections among actors), *relational* (trust among actors) and *cognitive* (shared goals and values among actors) (Nahapiet, 1998). These dimensions have a great influence on organisation outcomes by facilitating transactions which result in knowledge diffusion and collective action (Rhys, 2010).

Moreover, considering the aforementioned perspectives of social capital, i.e. *structuralist* and *interactionist,* these dimensions relate to both these approaches as firstly, they take into consideration the network structure and secondly, they stress the importance of sharing norms, values and trust among individuals. Therefore, when discussing OSC, the organisation is regarded as a network where employees who share similar goals, norms and values, generate *bonding social capital* through their social relations within the organisation and *bridging social capital* through their social relations with the organisations' external environment.

Cognitive Social Capital

Cognitive Social Capital is defined as "*the resources providing shared representations, interpretations and systems of meaning among parties*" (Nahapiet, 1998, p. 244). Tsai (1998) argue that it provides a shared vision which embodies collective aims and ambitions which in actual fact represent a shared culture (Inkpen, 2005). The notion of shared culture talks about the level to which norms of behaviour guide relationships, whereas collective aims refer to "*the degree to which parties share common understanding and approach to the achievement of common tasks and outcomes*" (Villena, 2011, p. 562). Entities that share similar cultures assist individual actions and promote collective interests (Coleman, 1988). Common actions within a social structure i.e.

an organisation, are facilitated by a set of norms which have the purpose of guiding appropriate behaviour (Gulati, 2000). Moreover, the establishment of similar goals have the potential to guide the nature, direction and magnitude of parties' efforts (Jap S. A., 2003). Adhering to similar goals reduces the existence of conflicts (Jap, S., 1999) and improves joint returns for the parties involved because they perceive this relationship as a potential to generate positive outcomes (Tsai, 1998).

Therefore, the cognitive dimension of social capital refers to a form of shared culture and similar goals through which the parties involved achieve a better perception of the behavioural norms and common aims within the existing relationship (Villena, 2011). Thus, the role of OSC relies on the establishment of the relationship between parties which share similar cultures, are committed to common goals and appreciate the relation as a potential to generate positive results.

Relational Social Capital

Relational Social Capital refers to "*trust, obligations, respect and friendship that actors have developed with each other through a history of interactions*" (Villena, 2011, p. 563). Relational capital enhances the strength of the relationship between parties, whereas Cognitive Social Capital relies on the commitment of the parties involved (Villena, 2011). One of the key elements of Relational Social Capital is trust, which is built through repeated actions and therefore, the parties involved tend to be less concerned about the potential egocentric behaviour of others (Blau, 1964; Jarillo, 1988). Hughes (2009) examine the relationship between buyer-supplier through social capital, mainly focusing on how OSC is built over time and it is reshaped when organisations consolidate their network, thus emphasising the relational dimension of OSC. Hence, Relational Social Capital has the potential to reduce opportunistic behaviour and develops cooperative behaviour among parties.

Structural Social Capital

Structural Social Capital refers to the way connections between parties are established (Burt, 1992). This dimension is concerned with the configuration of the connections within a social structure (Nahapiet, 1998) and it is analysed through the perspective of social ties (Inkpen, 2005). Coleman (1990) argues that these social ties have the potential to

generate access to valuable knowledge. Structural Social Capital refers to the existence and configuration of connections within a social structure, unlike Cognitive Social Capital which relies on shared cultures and goals or Relational Social Capital, which refers to the strength of connections (Villena, 2011). Moreover, involved parties which improve the frequency and interaction of contacts at different levels (managerial, technical) or functions (engineering, marketing) provide the basis of the creation of a social structure that enhances the volume and diversity of shared information (Villena, 2011). Many scholars have investigated this dimension of social capital, explicitly in the field of purchasing. The study of Seevers (2010) examines how a retail buyer's network of industry peers influences retails performance and social capital through its structural properties and resources generated through an individual's relationship in a network. This study mainly focuses on the Structural Social Capital as it develops a framework which argues that through network configuration and contacts, an individual can have access to resources i.e. "access, referral and influence", provided by the buyer's network and therefore a significant impact on performance outcomes taking into consideration variables such as industry experience or organisational prestige.

Business Codes and Corporate Social Responsibility Performance

In nowadays economy, organisations have increasingly expended their level of operations across international borders and therefore, their ethical conduct becomes a social concern for both - the countries there are operating in and the organisation itself. Businesses have a great potential to transform people's lives by alleviating poverty through generating economic growth and creating jobs. However, an organisation must fulfil, at the same time, the wishes of its stakeholders. Ethical problems have increasingly arisen in the international business environment as the interconnectedness character of the world's economy is a generator of ethical concerns.

Kaptein M. S. (2008, p. 113) define a Business Code as a "*distinct and formal document containing a set of prescriptions developed by and for a company to guide present and future behaviour on multiple issues of at least its managers and employees toward another, the company, external stakeholders and society in general*". The focus of business codes can be internal, i.e. reflect how

management and employees should conduct business, and external, i.e. how management addresses the company's stakeholders (Mathews, 1997) and society in general (Ferrell, 1994).

McWilliams (2001) define Corporate Social Responsibility as the actions of an organisation that can generate social good beyond the interests of the company itself. Also, CSR actions would normally go beyond any legal requirements and can range from adopting human management programmes to supporting local business or abating pollution. Corporate Social Performance has not been defined by its creator but rather explained through its characteristics i.e. *defensive*, *reactive* and *responsive*. The CSP's function is that of assessing how socially orientated an organisation is (Sethi, 1975).

Wood (1991) has developed a model of determining the CSP of a company based on Corporate Social Responsibility (CSR) principles and processes that guide the organisation's activities - namely, social policies which define the organisation's values and goals in relation to the social environment, social programmers which refer to the norms followed in order to implement social policies and social impacts which are the changes suffered by the company as a result of implementing social policies.

Regarding the association of business codes with "*ethics*", many scholars have argued that the adjective "*ethics*" is "superfluous" (Kaptein M. S., 2008, p. 113), whereby the nature of business codes already addresses the fundamental issues concerning ethics. However, this study discusses both the subject of business codes and ethics to a certain degree, as they are integrated in the Corporate Social Responsibility (CSR) of a company, and therefore, it believes that business codes incorporate ethical aspects and so does CSR, as it is formed by considering business codes. Hence, business codes are seen as the foundation of CSR, whereby ethical aspects are a part of both - business codes and CSR.

The link between business codes and Corporate Social Responsibility Performance has been theorized by many scholars who were investigating the effectiveness of whether business codes can lead to forming a Corporate Social Responsibility culture (Erwin, 2011). Erwin reviewed the literature that investigated this connection and reported that the majority of the empirical research done has stated a significantly positive effect of business codes on CSR. However, the results also show weak or no effects of business codes on Corporate

Social Responsibility which may occur from the use of different methodological approaches in the studies, industry related characteristics or country specific factors (Schwartz, 2001; Emmelhainz, 1999; Bondy, 2004). Erwin (2011) argues that the explanation of the mixed results from these studies comes from the fact that business ethical codes differ in terms of the quality or comprehensiveness of these codes and their implicit effect on CSR performance. Empirical studies have compared organisations based on the presence or absence of business codes rather than focusing on the quality and purpose of these codes (Kaptein M. S., 2008).

Erwin (2011) used qualitative and quantitative measures of code quality and CSR performance and conducted two analyses: a test to show whether organisations with high quality business codes are more represented in top CSR ranking systems and a second test to identify the relationship between code quality and CSR performance across a larger scale of ethical rankings. Therefore, Erwin research on the effects of code quality on CSR performance concluded that higher quality business codes were maintained by the companies that appeared in top of CSR raking lists.

According to Kaptein M. (2004), 52.5% of the 200 largest companies in the world have a business code and the ones that do not have one, are strongly pressured by their stakeholders or forced by law to develop a code (Waddock, 2004). Many studies have examined the effectiveness of having a business code and the results are mixed from ineffective (Ladd, 1985), uncertain (Myers, 2003), little impact (Lere, 2003), necessary (Cooper, 1990), valuable (Wood G. R., 2003) or successful (Dobson, 2005; Kaptein M. S., 2008). The empirical evidence analysed by Kaptein and Schwartz concluded that assessing whether business codes are effective is a matter of proving the effectiveness for the particular population of the specific research. Therefore, Kaptein and Schwartz developed an integrated research model for assessing the effectiveness of business codes which has been highly regarded in the literature (Erwin, 2011). Moreover, in their study, Kaptein and Schwartz argue that the effectiveness of a business code should be measured against stakeholders' expectations and this is the factor that guides and determines what effectiveness means for a particular organisation. What is important to mention here is the fact that business codes are a means of meeting stakeholders' expectations,

and this is an argument that would contribute to the discussion related to Organisational Social Capital.

Using Kaptein and Schwartz integrated research model for assessing the effectiveness of business codes and also Erwin's adaptation of this model in terms of business codes quality, this study builds on these models the Organisational Social Capital theory in order to identify the link between these concepts, i.e. business codes, stakeholders, CSP and OSC.

Research methodology

This research aims to answer the following questions:

1) Do widely acknowledged Global Codes of Ethics provide the basis of the development of business codes?

2) Do organisations improve their stakeholders' relationship and CSP by implementing business codes?

3) Does organisation-stakeholder relationship and CSP increase OSC?

The article includes a theoretical foundation in order to provide a better understanding of the research context incorporating social capital theories relevant to this study and detailed illustrations on the specific dimensions of Organisational Social Capital. Next, business norms and Corporate Social Performance are introduced and explained in the context of the relationship between an organisation and its stakeholders. Based on the existing literature and theoretical foundation of the two concepts, in the next section, this study puts forward three propositions in relation with the integrated research model proposed by Kaptein and Schwartz. Using keywords that on one hand, describe OSC, and on the other, stakeholder-organisation relationship, these propositions are argued and discussed with the aim of generating a theoretical model of the source OSC through CSP. In the following section, the limitations of the theoretical model are discussed and recommendations are given for further research.

Results of the study

Proposition 1

Widely acknowledged global codes of ethics provide the basis of the development of business codes.

The first component of the model is represented by global codes of ethics. Global codes of ethics consists of a voluntarily set of standards that offer norms, values and procedures for overcoming ethical decisions

regarding social and environmental issues (Gilbert, 2008). These are aspirational codes, derived mainly from various frameworks of moral philosophy (Laczniak, 2011). The most widely known codes of ethics that organisations rely on when conducting business are Caux Round Table Principles (CRT), Corporate Kyosei, Organisation for Economic Co-Operation and Development Guidelines for MNCs (OECD), the UN Global Compact (UNGC).

The CRT Principles are the results of a widely and extensive debate among an international network of business leaders that pursue moral and sustainable ways of conducting business (Laczniak, 2011). The CRT Principles promote three main ethical foundations for responsible business and for the fair functioning of society, namely: responsible stewardship, living and working for mutual advantage and the respect and protection of human dignity (CRT, 2009). Kyosei is defined as *a spirit of cooperation* in which individuals and organisations work together for the *common good* (Kaku, 1997).

A company that established Corporate Kyosei business code follow five stages: economic survival (establishing a predictive stream of profits and good market position), *cooperating* with labour (management and employee are working cooperatively), cooperating outside the company (treating stakeholders respectfully – suppliers and customers and becoming loyal and competitors become partners, organisation is assuming local social responsibilities), global activism (expanding production abroad and considering global social actions such as environment protection) and *governmental collaboration* (addressing global imbalances) (Kaku, 1997) (see table no. 1).

The OECD Guidelines is a forum of democratic governments that work together in order to promote principles such as sustainable development, respect for human rights, employee training and non-discrimination (Laczniak, 2011). Lastly, the UN Global Compact consists of principles concerning human rights, labour and worker responsibilities, environmental protection and anticorruption.

Laczniak argue that the UNGC is the largest corporate citizenship in the world and enables organisations to collaborate with governments, *civil society*, *labour* and other parties to enhance the importance of an ethically responsible business.

These global ethical norms are voluntarily by their nature and therefore cannot be imposed on organisations. However, businesses which adhere to be ethically driven incorporate these norms, values and procedures

into their Corporate Social Responsibility allowing them to take the required actions of an ethically responsible business (Erwin, 2011). Business ethical norms represent a fundamental Corporate Social Responsibility tool that companies use to create and communicate responsible business practices and promote their ethical driven organisation culture (Collins, 2004). Moreover, these business norms are the foundation of an organisation's specific codes which are generated with the scope of meeting stakeholders' expectations (Kaptein M. S., 2008).

In order to establish its own business code, an organisation has to follow essential steps including code development and content which are to define the code quality (Erwin). These steps are considered to be part of the formulation process whereby code development is considered to be a prerequisite for code content (Erwin; Kaptein M. S., 2008). Code development implies issues which are consistent with stakeholder values and expectations (Stevens, 2005; Weaver and Trevino, 1999) and corporate values and objectives (Kaptein M. W., 1998; Webley, 2008).

According to Erwin, CSR performance is seen as a measure to determine the real and perceived ethical behaviour of a company and includes *meso-effectiveness metrics* i.e. stakeholder effects (corporate citizenship and ethical behaviour) and *macro-effectiveness metrics* i.e. social effects (public perception and sustainability) (Kaptein M. S, 2008). Erwin argues that the relationship between code quality and CSR performance is an empirical aspect of the theoretical framework of code effectiveness provided by Kaptein M. S. Therefore, the relationship between business codes and CSR performance is extremely important as it provides empirical evidence of the quality of business codes through Erwin's study.

Moreover, the implementation of code development and code content has a downstream effect on management, employees and the organisation itself (Erwin). Weaver (1999) states that business codes are considered ineffective if not distributed to employees and management. However, through their framework, Kaptein M. S. divides the impact of the effectiveness of business codes into micro-, meso- and macro- effectiveness. *Micro-effectiveness* is perceived as "*the degree of convergence between the objectives the company has with its code and the consequences for the company*", *meso-effectiveness* refers to *"the degree of convergence between what stakeholders expect and the extent to which their expectations are realised*" and *macro-effectiveness* refers to "*the degree of convergence between meso- and macrocodes and the social effects*" (Kaptein M. S., 2008, p. 120).

These three levels are extremely relevant to this study as they provide the basis of the discussion of the potential generation of OSC through business norms. Therefore, this study comes to the following proposition.

Through business codes, an organisation integrates social and environmental concerns into its business operations and interaction with all stakeholders (Roberts, 1992). The relationship between an organisation and its stakeholders has been mainly the focus of discussion for marketing scholars (Wilson, 2010). Freeman (1984) defines a stakeholder as "*any group or individual who can affect or is affected by the achievement of the firm's objective*".

The *primary stakeholders* of a company consist of shareholders, employees, investors, suppliers, customers, whereas the *secondary stakeholders* are governmental bodies, political groups, communities, associated corporations, prospective employees, prospective customers, environmental groups, competitors (Bisignano, 2012). Smudde (2011) argue that for an organisation to survive it must promote itself in a way in which stakeholders can find them valuable, therefore the relationship between the organisation and its stakeholders is linked through *shared values*, character of Relational Social Capital (see table no.1). The power of stakeholders is unquestionable and therefore an organisation needs to regard their wishes and even more, include them in any undertaken strategic decision (Roberts, 1992).

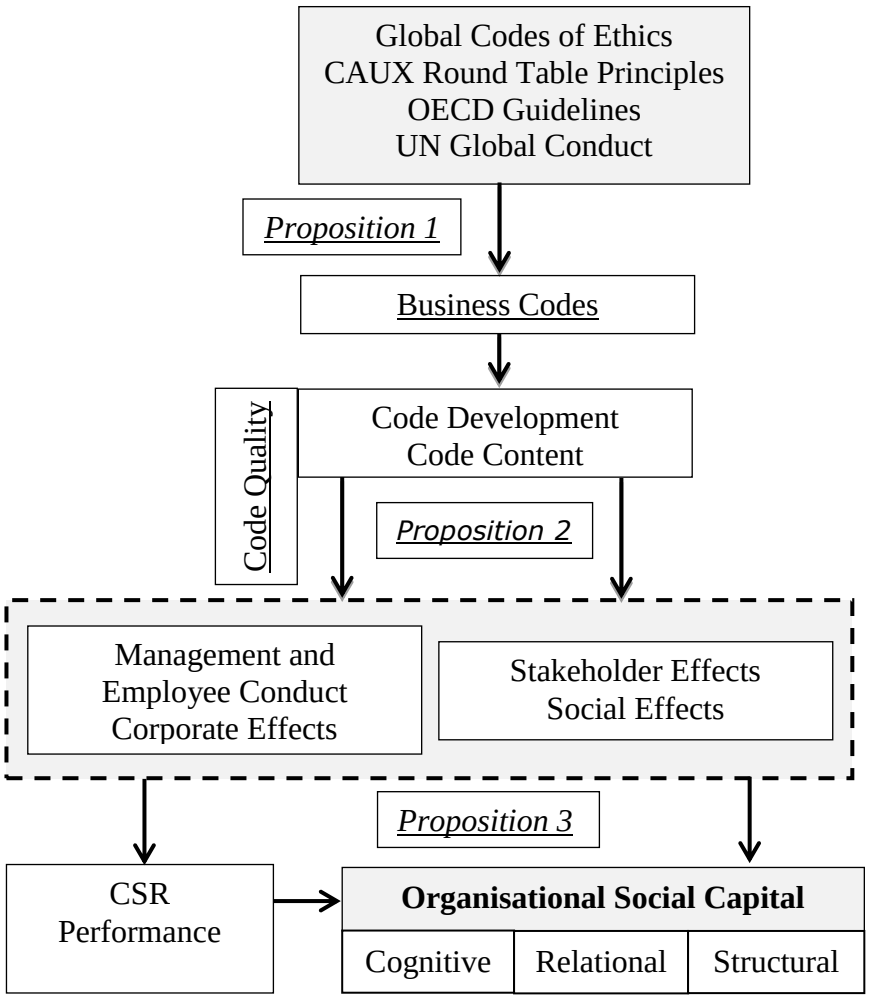
Proposition 2

Organisations which implement and adhere to business codes, improve their stakeholders relationship and the development of CSP.

The benefits of having a reputation as a socially responsible company has been empirically proven to enhance the overall company performance including increased financial performance (Orlitzky, 2003; Vershoor, 1998), reduced cost structures (via recycling), product differentiation, brand equity (Chen, 2005; Erwin, 2011). One of the most important benefits is considered to be the fact that through Corporate Social Responsibility a company aligns its products with consumer values and therefore it effectively manages its relationship with one of the its key stakeholder group (Erwin, 2011). Moreover, the negative impacts of violating ethical principles have increasingly become a real aspect of the business world with the existence of environmental fines or guidelines for corporate misconduct, thus proving strong incentives for organisations to

adapt and also communicate its ethical principles to all its stakeholders (Thompson, 2003).

Fig. no. 1. A Model presenting the Relationship between Business Codes, CSP and Organisational Social Capital through Stakeholders'



Ullmann (1985) developed a framework in which a three-dimensional model is presented to explain the correlations among a company's social disclosure with regard to its Social Corporate Responsibility and its economic performance. One of these dimensions is stakeholder power which explains that a company will be responsive to the

intensity of stakeholders demands (Roberts, 1992). Ullmann describes the influence of stakeholders' power over a company as a function of control over the company's resources and therefore the greater this control is, the more it will be addressed by corporate management (Roberts, 1992).

Roberts argues that if social responsibility activities are seen as an effective strategy of a company for dealing with stakeholders, then a positive relationship between stakeholder power and social performance of the company is expected. Moreover, Roberts provides evidence that suggest Corporate Social Responsibility activities are essential for developing and maintaining sustainable relationships with stakeholders and gaining a social responsible reputation is a strategic way for managing stakeholder relationships. Therefore, through the disclosure of corporate social responsibility activities, a company can effectively develop and maintain the relationship with stakeholders.

However, following Freeman's (1984) definition of stakeholder, the nature of the relationship between an organisation and its stakeholders has expanded its focus beyond that of the simple consideration of consumers and the business partners within a company's marketing channel (Wilson, 2010). Studies have analysed and examined this relationship in order to identify strategies for managing stakeholders, however a key contribution for arguing *Proposition 2*, is the work of Wilson, which sees this relationship as a social partnership defined as "arrangements working toward some common and among otherwise independent organisations" (Waddock, 1989, p. 79).

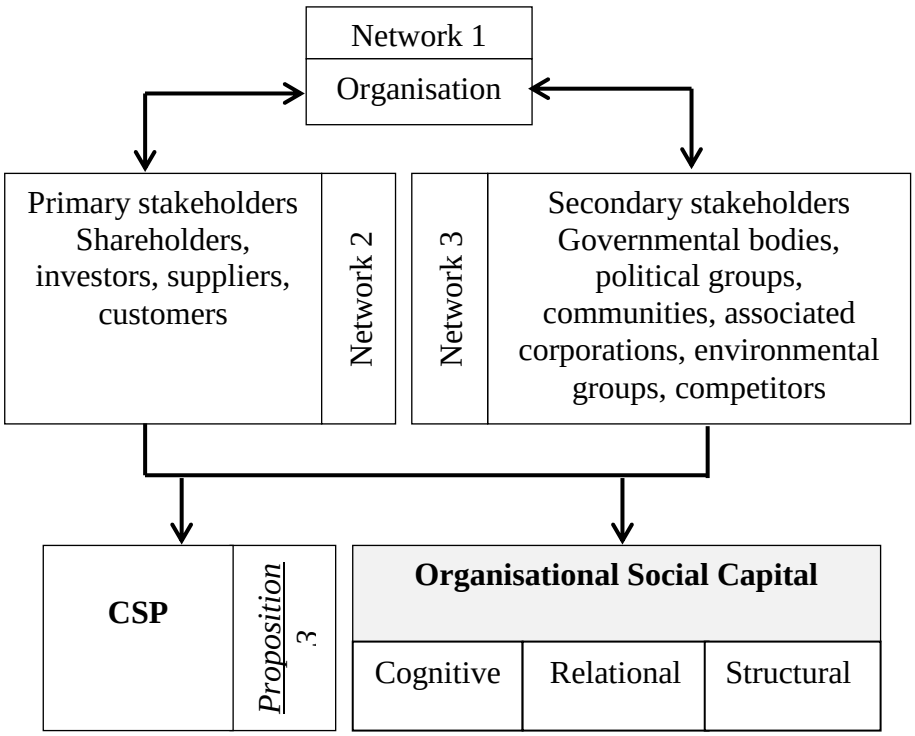
In their study, Polonsky (2002) argue that the organisation-stakeholder relationship is influenced *by trust, reciprocity, commitment, communication and power* (see table no. 1). These, are key elements of the dimensions of OSC. Given these previous arguments, this study develops a framework (see figure no. 2) which emphasis the relationship between organisation and stakeholders as a generator of OSC by considering its dimensions i.e. cognitive, relational and structural. However, the process of developing stakeholder relationships is in fact, as argued by Kaptein M. S. (2008), an effect of implementing business norms and therefore, the argument here is that stakeholder relationships is the link between OSC and Corporate Social Performance. Hence, CSP incorporates a certain degree of the quality of Organisational Social Capital.

Proposition 3

Organisation-stakeholder relationship and Corporate Social Performance enhances Organisational Social Capital through cognitive, relational and structural dimensions.

Wilson (2010) argues that the relationship between an organisation and its stakeholders is a "*social partnership*" whereby parties come together to resolve "*messy problems*" that cannot be addressed by a single entity. Even though Wilson sees this relationship from a project perspective, there is a strong case to argue the presence of Organisational Social Capital. Namely, the involved parties have initially different goals; however the social partnership creates a shared goal between parties whereby the aim is to solve a distinct problem.

Fig. no. 2. *A Model presenting the Organisation-Stakeholder and Corporate Social Performance Relationship through Organisational Social Capital*



Therefore, this underlines the presence of *Cognitive Social Capital.* Moreover, another characteristic distinguished by Wilson with regard to social partnership is the fact that the common goal cannot be achieved without an intensive interaction and *collaboration* within the collectivity of

the parties involved. These are clearly features of *Structural Social Capital* (see table no. 1) which refers to the importance of the structure of connections to ease the knowledge transfer i.e. *collaboration* between the involved parties.

Moreover, the study of Wilson (2010, p. 76) argues a *cross-sector collaboration* which is explained using the example of the introduction of "*green*" and environmentally friendly products – "*collaboration of organisations across public and private sectors to develop new technologies for the benefit of society*". These organisations include investors, suppliers, legal, governmental and environmental bodies, etc. Therefore, not only the social structure across sectors is identified, but also the shared goal among these parties i.e. developing the new "*green*" technologies.

Furthermore, using the same example of green products, the parties involved are developing environmentally friendly products which appeal to consumers who share a concern for the environment. Therefore, as Edwin (2011) argues an organisation aligns its products with consumer *values* and therefore it effectively manages its relationship with one of its key stakeholder group. This effectively generates *Relational Social Capital* through the shared concern for the environment between an organisation and its consumers and also between the parties involved in developing green products (sees table no.1). Moreover, considering the aforementioned perspectives towards social capital i.e. *structuralist* and *interactionist*, the relationship between stakeholders and organisation falls into both categories.

Firstly, from a *structuralist* point of view, the more relations an individual has, the more is the potential to access resources provided through these relations. Therefore, in the above mentioned example considering the development of environmentally friendly products, the higher number of parties involved in the development of such products and consequently, the existence of a large number of relations among these parties, the more achievable the goal is.

Table no.1. *Shared Features between Organisation Social Capital, Stakeholder, Business Codes and CSP*

Organisational Social Capital Dimensions	Organisational Social Capital Characteristics	Organisation – Stakeholder –CSP Relationship	Business Codes and CSP
Cognitive Social Capital	Shared culture and vision, common goals	Shared goals, shared values	Responsible stewardship, common good
Relational Social Capital	Trust, friendship, respect, obligations, cooperative behaviour	Trust, reciprocity, commitment, communication	Respect, mutual advantage, spirit of cooperation
Structural Social Capital	Connections, social ties, frequency of interaction, structure, network	Cross-sector collaboration	Governmental, labour, civil society and local authorities collaboration

Furthermore, as figure no. 2 shows the relations among the three networks (organisation, primary stakeholders, secondary stakeholders) and provide the means of Organisational Social Capital from a *structuralist* perspective, the relations between Network 1 and Network 2 is considered a "*bonding social capital*", as the interaction between the individuals of these two networks is likely to be frequent, whereas the relation between Network 1 and Network 3 is a "*bridging social capital*", as the interaction is less frequent. Secondly, from an *interactionist* point of view, the common values, norms and procedures that these networks share are the key generators of Organisational Social Capital. Using the same example, the common goal of providing green products and thus appealing to consumers' values, is the basis that shapes the Organisational Social Capital generated from the relation between organisation and stakeholders.

Recommendations

This study tried to answer whether a CSP increase is related with an Organisational Social Capital increase through the stakeholder-organisation relationship. Many scholars have identified the following relationships: business codes-stakeholders, stakeholder-CSP and business codes-CSP. However, the theoretical novelty of this study is based on the existence of a positive correlation of Organisational Social Capital and CSP. This relationship has been theoretically discussed in this research; however, further research is necessary to empirically apply this theoretical model. Moreover, this model needs to be further evaluated by considering the nature of stakeholder-organisation relationship from a social capital perspective by applying the Social Network Analysis theory (Rhys, 2010).

Furthermore, Organisational Social Capital has a wider meaning than that of a company. It can include projects, non-for-profit organisations, voluntary associations, cooperatives, political parties or other organisational social groups. Therefore, the theoretical model identified in this study, is valid not only for companies, but also for any organisation which implements and adheres to business codes and develops and manages stakeholder relations as an effect of their Organisational Social Responsibility. Hence, the empirical studies needed to prove the proposed theoretical model, can also consider or include these organisations in their study.

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Estimating the liaison between Unemployment and GDP beyond the Mean of the Distribution

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Abstract
Okun law postulates a negative relationship between the movements of unemployment rate and the real gross domestic product. This study applied Quantile regression analysis to estimate the relationship between unemployment and its predictor GDP, and compared the results to parameter estimates using OLS regression. Conditional mean has been used as a solution to minimize the error variance. Time series annual data has been used from period 1973 to 2010. Predictor of unemployment used was GDP. Empirical Results of quantile regression analysis showed that for GDP parameter estimates were significant only for certain quantiles. Parameters for GDP were significant only for 5%, 10%, 95%. The GDP parameter had non- significant on OLS but not on all quantile from quantile regression.
Keywords: Okun law, Quantile Regression, OLS regression, GDP parameter

Introduction

Conventional regression analysis usually depends on the mean to summarize the relationship between the response variable and predictor variables by describing the mean of the response for each fixed value of the predictors, using a function we refer to as the conditional mean of the response. The thought of modeling and fitting the conditional mean function is at the heart of a extensive family of regression-modeling approaches, including the proverbial simple linear regression model, multiple regression and models with heteroscedastic errors using weighted least squares.

In situations in which the model assumptions were not met or there were outliers, the conditional mean cannot accurately reflect the conditional distribution of the data. If the effect of predictors was different across varying percentiles of conditional distributions, then the effect of the predictors on the upper tail of the distribution may be cancelled out by the effect or predictors on the lower tail of the distribution, which in turn make the effects seem to be zero.

For the results of the study to be accurate, what is needed is a statistical technique that can provide more information about the relationships between variables at varying locations of the distributions of the data. Another limitation in parameter estimation using OLS that was not investigated in the previous research is that of parameters estimated by OLS procedure being influenced by outliers. The existence of outliers violates one key model assumption: only one regression line is needed to represent the relationships for the whole distribution.

It was suggested that the outliers can be excluded from the analysis if they were, from thorough investigations, proven to be non-valid observations. But when the outliers are valid, it can give new insights about the nature of the data. It means that a statistical technique is needed, that will capture the outliers in the analysis and yet is less influenced by their presence.

An alternative technique that has more capability to solve some issues mentioned earlier is called quantile regression. Quantiles are values that give us information about location of a case in a distribution related to proportion of cases having smaller values. It was developed from a conditional median regression introduced by Boscovich in the 18th century, even before the idea of least squares regression estimators emerged (Koenker, 2005; Koenker and Bassett, 1978). Quantile regression was developed by applying estimation and minimization

methods for the conditional median, which is quantile.5, and to other quantiles, rather than the conditional mean, as is done in OLS regression.

Quantile regression has some advantages over OLS regression. It provides information of location shift not only in terms of central tendency location but also other quantile locations. This means that we may have more than one regression line can be modeled, covering the whole conditional distribution including the outliers. For this reason, quantile regression may give us more information about relationship between variables, not only the relationship in term of location shift but also distributional shift including scale shift and skewness shift.

OLS-R is claimed to produce parameters with desirable characteristics - best, linear, unbiased estimators (BLUE). This means that parameters estimated using OLS-R have the smallest variance, model a linear relationship between response and outcome variables, and resemble value of parameters in population. However, these characteristics only hold if there are not serious violations of the model assumptions or presence of influential. Heteroscedasticity will make parameter estimates no longer BLUE, while the presence of influential outliers will cause the regression line to be leveraged in the outliers.

OLS-R still has inherent disadvantages even when procedures to overcome effects of violation assumptions and outliers are applied. Models suggested by OLS-R cannot be immediately extended to other locations in the distribution that may be more interesting to be investigated in other studies. For example, the study of unemployment focuses on over-achieving or under-achieving students.

OLS-R also assumes that response variables only affect the location shift of the conditional distribution, while response variables may affect other parameters of the distribution in some instances. This means that OLS-R provides limited information about the relationship between variables. OLS-R may give inaccurate information about the nature of the relationship between variables. When heteroscedasticity occurs and the slope of the regression line on the conditional mean is zero, OLS-R or related approaches to overcome heteroscedasticity will suggest no relationship between variables, although there are relationships between variables on non-central locations or on other distributional parameters (e.g. scale, skewness).

Another advantage of using quantile regression is its monotone equivariance property. Hao and Naiman (2007) explain that if we apply a monotone transformation to the outcome variable and then conduct a quantile regression analysis, the predicted values from this procedure will be approximately the same with predicted values from a procedure in which we conduct quantile regression first and then apply monotone equivariance to its prediction. But in OLS the mean does not have transformation equivariance since

$$Eh(Y) \neq h\,(E(Y)$$

Applications of Quantile Regression are still limited to economics or environmental studies, but currently there are more and more studies using Quantile Regression as a data analysis tool. The current paper will apply quantile regression on data of Unemployment and its predictor GDP. The term relationship is meant to be used in a broader sense: not only relationships in term of conditional locations but also conditional distributions. This study will also compare information provided by this method to those provided by OLS regression to get the sense of how both methods provide different information about the data. This study gauges what is the relationship between educational attainment and its predictors either using OLS regression or quantile regression methods. Last but not the least is there any differences in information given by OLS regression and quantile regression.

Methodology

A Quantile is a value that gives us information about the location of a case or a score in a group corresponds to a specified proportion of the sample or population. A person's score on a test is said to be in the p-th quantile in his/her group if his/her score in the test is bigger than a proportion of p of his/her group and smaller than a proportion (1-p) of his/her group. The median is at the 0.5 quantile, because there is half of the group that have values bigger than the median, and half of the group that have values smaller than the median. The lower quartile is at .25 quantile and the higher quartile is at .75 quantile. A function that gives us the value of a certain quantile is called a quantile function (QF) denoted as Q (p). For example, if a median of a group has a value of 50, it can also be said that Q (.5) is 50. The quantile function is an inverse of cumulative distribution

function (CDF) denoted as F (x). The CDF can show us a proportion of a group that has a value equal to or smaller than a certain value of x. It can be formulated as:

$$F(x) = P(X \leq x) \qquad (1)$$

The relationship between quantile function and CDF is denoted as

$$Q^{(p)} = F^{-1}(p)$$

OLS-R uses conditional mean E (yi | xi) on the solution of minimization problem while line, which is the regression lines on the conditional mean

$$E(yi \mid xi) = ß_o + \Sigma\, ß_i^{(p)}\, x$$

While Quantile regression can produce more than one regression line, one for any quantile of interest

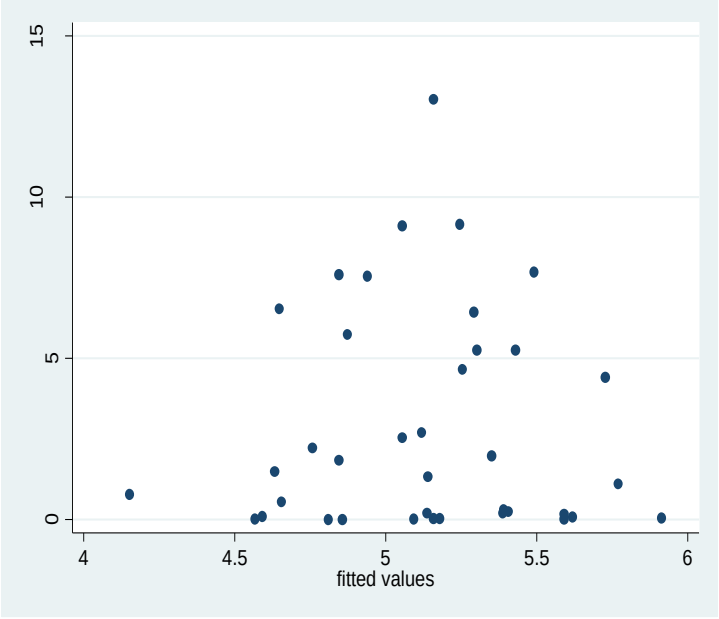
$$Q^{(p)}(yi \mid xi) = ß_o + \Sigma\, ß_i^{(p)}\, x$$

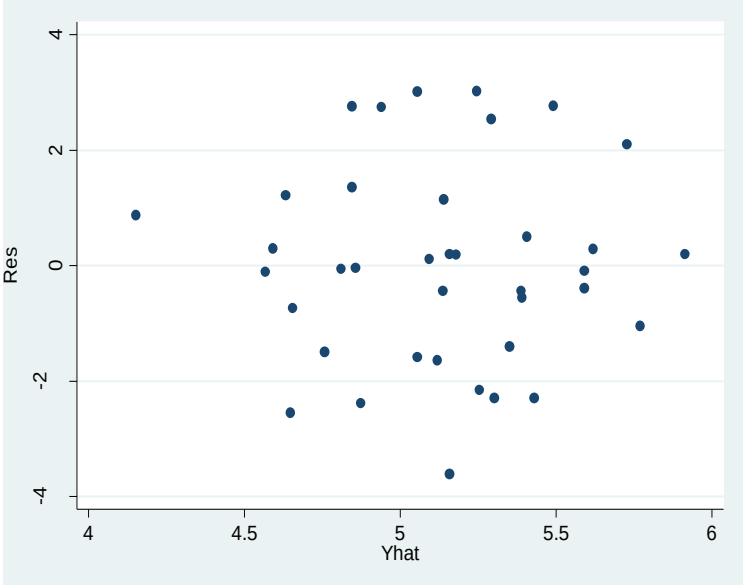
Results and Discussion

Quantile Regression can provide a regression line with non-central locations because of its ability to examine the relationship between variables on any quantiles in a conditional distribution. This will enable researchers to conduct inequality studies involving non-central area of the conditional distribution.

Assumption Check and Diagnostic for OLS regression

Homogeneity Assumption





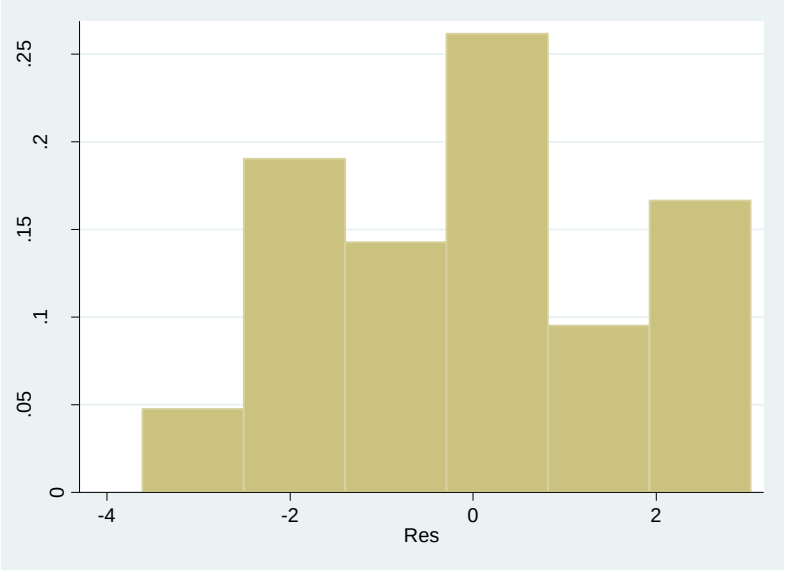
Homogeneity assumption was checked by plotting residuals and predicted values. If the plots form a megaphone-like pattern, we concluded that the heterogeneity assumption was violated. The plots are shown in the figures above. Based on the plots, it can be concluded that there is no violation of homogeneity assumptions.

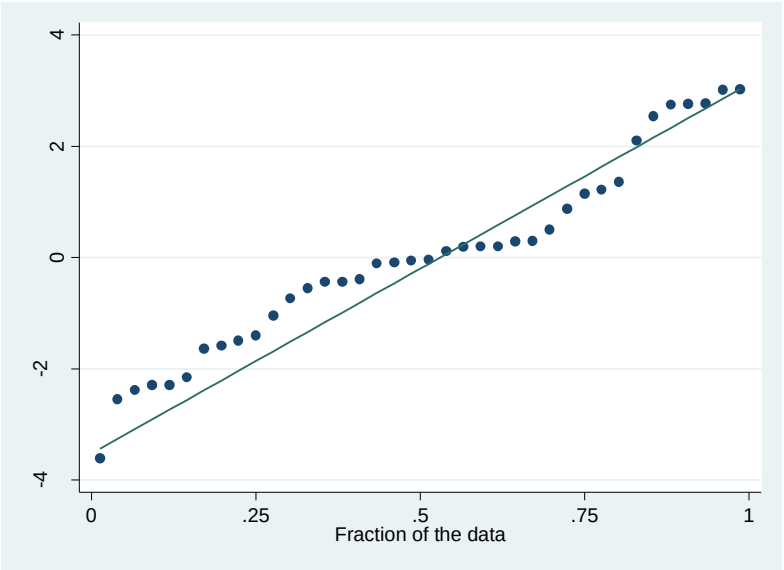
Linear Relationship between Variables

The linear relationship assumption was investigated using the same plots to check the homogeneity assumption. It can be seen that there are no patterns suggested that the relationship between variables is not linear.

Errors term are distributed normally

Normal distributions of error term can be confirmed from the Q-Q plot of the residuals, as it can be seen in Figure below. From the plot, it can be seen that there is no violation of the normality of error distribution. It can be confirmed also that there are some potential outliers to be checked.





Descriptive Statistics

Descriptive statistics for each variable can be seen in the table below:

Variable	Obs	Mean	Std. Dev.	Min	Max
Y	38	5.132632	1.768097	1.55	8.27
X	38	5.095	2.011632	1.01	10.2

Summary Tables for OLS Regression and Quantile Regression on each Quantile

Parameters, Standard Error, t-Value and p-Value for OLS Regression

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	| 6.1069	.78182	7.81	0.000	4.521296	7.692505
GDP	-.1912206	.1429806	-1.34	0.189	-.4811986	.0987574

Small parameter differences between median regression and OLS regression were due because the assumptions of OLS regression were not violated and there were no influential outliers. The conditional distribution was also normal and symmetrical which makes the mean and median have relatively similar values.

Comparison to other Quantiles

Regression parameters for other quantiles were also estimated. The parameters of several important quantiles can be seen below

Parameters, standard error, t-value and p-value for Quantile Regression Q.05 (5%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	4.048802	.4900027	8.26	0.000	3.055031	5.042574
GDP	-.2567238	.0543921	-4.72	0.000	-.3670361	-.1464114

Parameters, standard error, t-value and p-value for Quantile Regression Q.10 (10%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	4.142515	.9575896	4.33	0.000	2.200433	6.084596
GDP	-.2690059	.133747	-2.01	0.052	-.5402573	.0022456

Parameters, standard error, t-value and p-value for Quantile Regression Q.25 (25%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	5.21483	1.034103	5.04	0.000	3.117573	7.312088
GDP	-.2754717	.1809402	-1.52	0.137	-.6424354	.091492

Parameters, standard error, t-value and p-value for Median Regression Q.50 (50%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	5.978125	.6845197	8.73	0.000	4.589854	7.366395
GDP	-.1770833	.125756	-1.41	0.168	-.4321283	.0779617

Parameters, standard error, t-value and p-value for Quantile Regression Q.75 (75%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	7.130151	1.564695	4.56	0.000	3.956802	10.3035
GDP	-.1660377	.2701254	-0.61	0.543	-.7138774	.3818019

Parameters, standard error, t-value and p-value for Quantile Regression Q.90 (90%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	8.897292	.5828414	15.27	0.000	7.715235	10.07935
GDP	-.1979167	.1142385	-1.73	0.092	-.4296032	.0337697

Parameters, standard error, t-value and p-value for Quantile Regression Q.95 (95%)

UN	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
constant	9.705716	.2396031	40.51	0.000	9.219778	10.19165
GDP	-.3190479	.045639	-6.99	0.000	-.411608	-.2264878

Summary of tables

UN	**constant**	**GDP**
OLS	6.1069**	-.191221
5%	4.048802**	-.256724**
10%	4.142515**	-.269006*
25%	5.21483**	-.275472
50%	5.978125**	-.177084
75%	7.130151**	-.166038
90%	8.897292**	-.197917
95%	9.705716**	-.319048**

Interpretation of a constant

In the median regression the constant is the median of the sample while in the .75 quantile regression the constant is the 75th percentile for the sample.

The parameters for Quantile Regression on quantile .05 and .1 were significant (b.05=-.256724, $p<.05$; b.1=-.269006, $p<.05$) but those from OLS regression (b=-.191221, $p>.05$) and Quantile Regression on all other quantiles ($-.275472 \leq b \leq -.166038$, $p>.05$) were not significant. This means that GDP was related to unemployment only in lower quantiles.

Conclusion

These results suggested that the relationships between unemployment and its predictor might differ at different location across conditional distributions. We apply a monotone transformation to the outcome variable and then conduct a quantile regression analysis, and then apply monotone equivariance to its prediction. But in OLS the mean does not have transformation equivariance. This information could not be obtained if researchers only used the OLS regression method to analyze the data. Suggesting relationships as they were presented only by OLS regression could neglect important issues, for example using OLS regression it would be suggested that there was

no relationship between unemployment and GDP, while actually there was significant relationship on only the very low quantiles.

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A Survey on Agricultural Trade Policies in Bangladesh: theoretical Insights and empirical Evidence

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Abstract

The purpose of this paper is to review the theoretical insights and empirical evidence on agricultural trade policies and their impacts on the Bangladesh's economy, with a view to presenting both, the positive and negative effects of trade liberalization. Theoretically, while advocates of trade liberalization argue that free trade is an engine of growth and protection leads to wasteful use of resources, critics argue that openness has its costs and sometimes it could be detrimental to the economic development. The empirical evidence in Bangladesh was consistent with the ongoing debate on the effects of trade liberalization on economic development. The evidence remained mixed and loaded with criticisms on the grounds of choice of liberalization determinants, model specifications and methodology, as well as other measurement shortcomings. The review suggests that the literature is inconclusive and outcomes are largely case-specific.

Keywords: Agricultural trade policies, trade liberalization, Bangladesh

Introduction

Bangladesh is an agricultural country. More than 80 percent of its population depends directly or indirectly on agriculture, for their livelihoods. This segment of the population is also predominantly made up of rural households. The agricultural sector contributed around 20% to gross domestic product (GDP) and employed more than 60% of the total labor force of the economy in 2010 (Ministry of Finance, 2012; World Bank, 2011a, 2011b). Bangladesh went through a series of deregulation and agricultural trade liberalization measures in the late 1980s and early 1990s. As a result of agricultural trade liberalization, the economy experienced significant technological transformation and productivity growth in agriculture during 1985-86 and 2010. Despite this impressive growth performance, the rate of decline in the incidence of poverty was rather insignificant over the same period (less than 1 percent), leaving poverty at a remarkably high level – with more than 40 percent of the country's population and the majority of them in rural areas (BBS, 2007: 57; Klytchnikova and Diop, 2006: 2; Ministry of Finance, 2010: 177). Thus, a significant question arises – to what extent has agricultural trade liberalization influenced the welfare of rural households in Bangladesh?

In spite of significant structural transformation and policy changes, there was no systematic and dynamic attempt to survey the impact of agricultural trade liberalization on productivity, price change, income distribution and poverty. Furthermore, given the significant impact of agricultural trade liberalization policy-exercise on more than 80% of the country's population (dependent on agriculture and predominantly rural households); there is a strong justification for a study into its consequences and implications.

Therefore, the purpose of this paper is to review the theoretical insights and empirical evidence on agricultural trade policies in Bangladesh, with a view to comparing evidence in the context of the ongoing debate on the effects of agricultural trade liberalization on economic development. The following sections include agricultural trade policy-scenarios, theoretical insights of agricultural trade policies, empirical studies on agricultural trade liberalization and conclusion.

Agricultural Trade Policy-scenarios in Bangladesh

Like many other developing countries in the world, Bangladesh had pursued inward-looking policies and strategies for trade and development since its independence in 1971. These policies involved high government interventions in almost all economic activities including agriculture (Ahmed *et al.*, 2007: 2, 7; Draper and Sally, 2005: 3; Hoque and Yusop, 2010: 1; Rahman, 2008: 5). Bangladesh encouraged cooperative farming with a view to developing a socialist system of agriculture during the 1970s. The government controlled the procurement and distribution of seeds, fertilizers, pesticides and all other agricultural inputs and equipment (Ahmed, *et al.*, 2007: 2, 7; Ahmed and Sattar, 2004: 11; Salim and Hossain, 2006: 2568).

The government adopted import substitution policies with restrictions on imports to protect and support domestic production. It controlled the foreign trade and exchange rate system for making interventions effective (Ahmed and Sattar, 2004: 11; Krueger, 2010: 2; Nahar and Siriwardana, 2009: 327; Salim and Hossain, 2006: 2568). A series of measures including quantitative restrictions, highly differentiated tariff rates (ranging from 0 to 400 percent), huge production subsidies and overvalued exchange rates were put in place to protect domestic production from world competition (Ahmed, *et al.*, 2007: 7; Ahmed and Sattar, 2004: 11; Nahar and Siriwardana, 2009: 327; Salim and Hossain, 2006: 2568).

The government reinforced this protective environment with domestic market policy interventions in the form of credit ceilings, price controls and arbitrary licensing such as import license. These licenses were granted only when there was no domestic source of supply available (Ahmed, *et al.*, 2007: 19; Islam and Habib, 2007: 10, 14; Krueger, 2010: 2; Salim and Hossain, 2006: 2568). Moreover, traditionally, a government department – the Bangladesh Agricultural Development Corporation (BADC) had the sole authority and responsibility for procurement and distribution of agricultural inputs including fertilizers, irrigation equipment, pesticides and seeds (Ahmed, *et al.*, 2007: 19, 21; Islam and Habib, 2007: 10, 14; Rahman, 2008: 13; Salim and Hossain, 2006: 2568).

However, these inward-oriented trade policies were not successful in terms of trade expansion as well as import substitution. These policies did not result in a sustained increase in production and productive efficiency. Rather, the gap between demand for and supply

of agricultural goods widened over the years (Ahmed, *et al.*, 2007: 7; Hoque and Yusop, 2010: 39; Salim and Hossain, 2006: 2568). With a growing dissatisfaction regarding inward-looking trade and development policies, the sustainability of the government interventions towards long-term food-grain availability was questioned due to the increased inefficiency and corruption in the public management system and the heavy budgetary burden imposed by these operations (Ahmed, *et al.*, 2007: 6, 7; Dorosh and Shahabuddin, 2002: 38; Hoque and Yusop, 2010: 39; Krueger, 2010: 5; Salim and Hossain, 2006: 2569).

Realizing such inefficiencies as well as constant pressures from the donor countries and international development agencies such as the World Bank and the IMF, the government started to pursue a policy-shift from state intervention to more market-oriented policies in the mid 1980s, with a view to achieving high economic growth and reducing poverty (Ahmed, *et al.*, 2007: 9; Hoque and Yusop, 2010: 39; Hossain and Verbeke, 2010: 78; Islam and Habib, 2007: 3; Nahar and Siriwardana, 2009: 327; Rahman, 2008: 11; Salim and Hossain, 2006: 2567, 2569). Deregulation and agricultural trade liberalization generated a momentum that began in the late 1980s and peaked in the early 1990s. Major reforms in agricultural policy included liberalization of input markets, shrinking the role of government agencies in distribution of inputs, substantial reduction and rationalization of tariffs, removal of quantitative restrictions, moving from multiple to a unified exchange rate and from fixed to a flexible exchange rate system (Ahmed, *et al.*, 2007: 9; Ahmed and Sattar, 2004: 11, 12; Hoque and Yusop, 2010: 39; Hossain and Verbeke, 2010: 78; Islam and Habib, 2007: 4; Salim and Hossain, 2006: 2569).

Similarly, the government pursued a wide range of policy reforms to liberalize agricultural input markets, including privatization of the distribution system of key agricultural inputs, initiatives for deregulation measures to improve the investment climate for private enterprises, gradual elimination of subsidies on fertilizers and small irrigation equipment, and improving the maintenance of agricultural equipment through encouraging participation of the private sector (Ahmed, 2004: 11, 12; Ahmed, *et al.*, 2007: 9; Klytchnikova and Diop, 2006: 3; Salim and Hossain, 2006: 2569).

As a consequence of these reforms, the fertilizer trade was almost entirely handled by the private sector in 2005 (Ahmed, *et al.*, 2007: 19, 20; Ahmed and Sattar, 2004: 13, 19; Klytchnikova and Diop,

2006: 3; Salim and Hossain, 2006: 2569). Further policy reforms included: rationalization or elimination of import duties on agricultural inputs and spare parts, elimination of the government monopoly in fertilizer imports, abolition of standardization requirements (Ahmed, *et al.*, 2007: 19, 20; Ahmed and Sattar, 2004: 13, 19; Klytchnikova and Diop, 2006: 3; Salim and Hossain, 2006: 2569).

There were encouraging responses to these liberalization and reform initiatives from market forces. Therefore, the private sector participation in the input market rose sharply. Irrigation equipment became cheaper and farmers had easy access to the equipment. Different types of high yielding variety (HYV) seeds were available to farmers, thereby promoting both, extensive and intensive cultivation by increasing the irrigated area and use of fertilizers (Klytchnikova and Diop, 2006: 3; Salim and Hossain, 2006: 2569).

Consequently, agricultural trade liberalization generated significant impacts on economic growth through productivity improvement, in the agricultural sector. It contributed to technological innovation in agriculture, leading to the productivity improvement of agricultural inputs (Ahmed and Sattar, 2004: 19; Islam and Habib, 2007: 4; Klytchnikova and Diop, 2006: 3). The reform measures – including liberalization of the input markets for fertilizers, pesticides, irrigation equipment and adoption of high yielding variety seeds for rice production – led to major structural reforms and technological transformation, resulting in a significant increase in productivity and growth in the agricultural sector. Technological changes in agricultural production enabled the country to achieve self-sufficiency in food-grain production in the early 1990s (Ahmed and Sattar, 2004: 19; Islam and Habib, 2007: 4; Klytchnikova and Diop, 2006: 3). The rising volume of rice production was accompanied by a decline in rice prices during 1990-2009. Moreover, because of significant structural transformation and technological changes, productivity of this sector was at its highest level (BBS, 2009: 3; Klytchnikova and Diop, 2006: 2; Ministry of Finance, 2010: 84).

These structural transformations reflected the government's efforts to open the economy, liberalize agricultural trade and reform domestic markets in the 1980s and 1990s (Ahmed and Sattar, 2004: 12; Klytchnikova and Diop, 2006: 2). They enabled the economy to achieve a significant growth in the 1990s – increase in real GDP by an average of 4.2 percent per year and significant increases in agricultural

production (Klytchnikova and Diop, 2006: 2; Salim and Hossain, 2006: 2570).

Agricultural Trade Liberalization: Theoretical Insights

Trade liberalization has gained popularity since David Ricardo's analysis of *comparative advantage* which explained how trade would benefit economies with differences in opportunity costs of production (Amoroso *et al.*, 2011: 1; Rahman, 2008: 1; Whaples, 2006: 1; Zhang, 2008: 25). However, the effects of trade liberalization on development have been a subject of debate for centuries (Chang *et al.*, 2009: 1; George, 2010; Gingrich and Garber, 2010: 1; Nicita, 2004: 1; Rahman, 2008: 1). Ever since David Ricardo's critique on the Corn Laws through to the current debate on globalization, few topics in economics have been more seriously contested as the importance of trade liberalization for economic development (Chang, *et al.*, 2009: 1; George, 2010; Gingrich and Garber, 2010: 1; Nicita, 2004: 1). The arguments in favor of free trade are well known and date back at least to Adam Smith's analysis of market specialization and the principle of absolute advantage in 1776 (Chang, *et al.*, 2009: 1; Rahman, 2008: 1; Zhang, 2008: 24, 25). Classical economists argue that free trade is an engine of growth, while protection leads to wasteful use of resources, thereby adversely affecting economic development (Chang, *et al.*, 2009: 1; Krugman and Obstfeld, 2006: 218, 219; Rodriguez and Rodrik, 1999: 8; Stiglitz and Charlton, 2007: 32, 33; Stone and Shepherd, 2011: 5; UNIDO, 2010: 1). On the contrary, critics argue that openness has its costs and sometimes it could be detrimental to economic development (Chang, *et al.*, 2009: 1; Rodriguez and Rodrik, 1999: 8; Stiglitz and Charlton, 2007: 32, 33; Stone and Shepherd, 2011: 5; UNIDO, 2010: 1).

According to arguments for trade liberalization, agricultural trade liberalization was likely to direct scarce resources into areas of Bangladesh's comparative advantage, promoted specialization resulting in higher productivity and growth, accelerated investment by allowing access to bigger markets and permit economies of scale, encourage imports of previously unavailable or scarce capital goods and intermediate inputs for agriculture (Ahmed and Sattar, 2004: 1; McCulloch *et al.*, 2003: 15, 16; Montalbano, 2011: 1; Stone and Shepherd, 2011: 5; Zhang, 2008: 175). Liberalization of import markets for fertilizers, pesticides and irrigation equipment might have facilitated farmers' access to the improved production technology and enabled

Bangladesh's agriculture to reallocate resources for specialization in efficient rice crop cultivation (Ahmed and Sattar, 2004: 1; McCulloch, *et al.*, 2003: 15, 16; Montalbano, 2011: 1; Stone and Shepherd, 2011: 5; Zhang, 2008: 175). However, this argument assumes that resources such as land and labor would be fully employed in the first place, whereas in Bangladesh unemployment is persistently high. Therefore, agricultural trade liberalization could result in labor temporarily going from low-productivity protected sector to zero-productivity unemployment (Chang, *et al.*, 2009: 1; Krugman and Obstfeld, 2006: 405, 406; Panagariya, 2004: 1150; Stiglitz and Charlton, 2007: 25, 26).

Advocates of free trade argue that agricultural trade liberalization would produce a knowledge spill-over effect through technological innovation that is embodied in imported machinery, leading to higher growth in Bangladesh's agriculture. This growth would enhance returns to the economy's relatively abundant factor of production – the unskilled labor – by raising real wages for them, thereby contributing to an improvement in income distribution (Ahmed and Sattar, 2004: 2; Gabre-Madhin *et al.*, 2002: 2; Islam and Habib, 2007: 4; Klytchnikova and Diop, 2006: 6; Lee and Vivarelli, 2006: 7).

On the contrary, the critics of trade liberalization argued that trade liberalization could reduce the wages of unskilled labor, thereby widening the income gap between the rich and the poor in the economy (Acharya, 2011: 60; Hoque and Yusop, 2010). Similarly, even if agricultural trade liberalization brings about higher economic growth through technological transformation, the income gap between the poor and the rich might be widened in the long run because the poor could not afford investments associated with the adoption of new technology to increase production (Acharya, 2011: 60; Banerjee and Newman, 2004: 2; Rakotoarisoa, 2011: 147). Moreover, as the economy is open to global competition, the domestic economic factors are more likely to be influenced by international price shocks and other global variables than by domestic factors (Montalbano, 2011: 8; Sugimoto and Nakagawa, 2011: 12). Thus, there is greater pressure on policy-makers to ensure macroeconomic stability for sustaining economic growth.

Agricultural trade liberalization may not produce similar welfare impact across all rural households. In practice, some households might have experienced benefit and others might have experienced loss from this liberalization resulting in diverse distributional consequences across rural households (Hossain and Verbeke, 2010: 77, 78; Isik-Dikmelik,

2006: 3; Klytchnikova and Diop, 2006: 4; World Bank, 2008: 29, 53). The reason for such possible diverse outcomes can be explained by the fact that agricultural trade liberalization affects the prices of goods and factors. Thus, the changes in prices of goods and factors may diversely affect the welfare of rural households due to their various degrees of involvement with goods and factors markets such as producers or consumers; farm or non-farm households; and net buyers or net sellers (Hossain and Verbeke, 2010: 77, 78; Isik-Dikmelik, 2006: 3; Klytchnikova and Diop, 2006: 4; World Bank, 2008: 29, 53).

In Bangladesh, amongst agricultural products, rice is dominant in terms of staple food, volume of production and cultivated areas. Therefore, farmers use the main proportion of agricultural inputs such as fertilizers, pesticides, irrigation and seeds for rice cultivation. From the theoretical point of view, agricultural trade liberalization may affect productivity of rice farmers through technological transformation. As a result, this may improve producers' welfare through the positive effect on their profits (Anderson, 2004: 1; Klytchnikova and Diop, 2006: 5; OECD, 2010: 11). However, productivity improvement may also translate into lower output prices, which in turn have a negative effect on producer welfare (Anderson, 2004: 1; Gabre-Madhin, *et al.*, 2002: 2; Klytchnikova and Diop, 2006: 5). Some studies such as Byerlee *et al.* (2005); Islam and Habib (2007); Mendola (2007); Alauddin and Quiggin (2008) argued that gains from new agricultural technology might influence the poor directly by raising incomes of farm households and indirectly by raising employment and wages of functionally landless laborers, and also by lowering the price of food staples.

The majority of farm households in Bangladesh are involved in small and subsistence farming. Thus, at different times of a year, most of the farm households belong to two groups simultaneously: producers and consumers. However, over the course of the year they can be defined as either net sellers or net buyers of rice (Deaton, 1989: 4; Isik-Dikmelik, 2006: 3; Karfakis *et al.*, 2011: 6, 25; Klytchnikova and Diop, 2006: 5; World Bank, 2008: 109). An increase in income of net sellers due to an improvement in productivity of rice depends on elasticity of output and elasticity of price. The income of net sellers will rise as long as elasticity of output is greater than elasticity of price with respect to technological change (Isik-Dikmelik, 2006: 3; Karfakis, *et al.*, 2011: 8; Klytchnikova and Diop, 2006: 5; Yu and Fan, 2011: 448). If output increases faster than the price falls in response to technological change,

net sellers will enjoy a higher income and welfare, even if some of the gains accrue to net buyers. Therefore, the net effect will depend on whether the household is ultimately a net buyer (subsistence farmer) or a net seller (market-integrated farmer) (Isik-Dikmelik, 2006: 3; Karfakis, *et al.*, 2011: 25; Klytchnikova and Diop, 2006: 5; Yu and Fan, 2011: 448).

Like many other developing countries in the world, the agricultural labor market in Bangladesh is imperfect in terms of competition and mostly seasonal in nature (Ahmed, 1978: 1281; Hossain and Verbeke, 2010: 77; Klytchnikova and Diop, 2006: 6; Stiglitz and Charlton, 2007: 89). Therefore, disguised unemployment and under-employment are the common features of this labor market (Ahmed, 1978: 1281; Briones, 2006: 79; Hossain and Verbeke, 2010: 77; Klytchnikova and Diop, 2006: 6). Similarly, an important characteristic of Bangladesh's agriculture is that households often work on their own farm in subsistence agriculture, rather than working for a wage in the farm or non-farm sectors. Therefore, changes in rice price and productivity induced by technological transformation can affect the implicit trade-off between family work and wage employment (Dorosh and Shahabuddin, 2002: 3; Hossain and Verbeke, 2010: 77; Isik-Dikmelik, 2006: 15; Karfakis, *et al.*, 2011: 3; Klytchnikova and Diop, 2006: 6). By stimulating rice production and the demand for agricultural labor, the lower rice price may benefit the rural poor through the induced wage response and increased real income (Hossain and Verbeke, 2010: 77; Isik-Dikmelik, 2006: 15; Karfakis, *et al.*, 2011: 3; Klytchnikova and Diop, 2006: 6; Ravallion, 1990: 474). From theoretical standpoints, technological improvement is likely to increase productivity of factors and volume of output. However, this increased output is often valued at a lower price, induced by productivity improvement (Gabre-Madhin, *et al.*, 2002: 3; Isik-Dikmelik, 2006: 16; Klytchnikova and Diop, 2006: 6; Stiglitz and Charlton, 2007: 26). Thus, if marginal productivity of factors increases faster than prices fall in response to technological transformation in agriculture, employment and wages will rise simultaneously, benefiting agricultural wage earners (Gabre-Madhin, *et al.*, 2002: 6; Hossain and Verbeke, 2010: 77; Isik-Dikmelik, 2006: 15; Klytchnikova and Diop, 2006: 6). Therefore, agricultural wage earners in Bangladesh might have benefited from technological innovation because of agricultural trade liberalization.

The impact of technological transformation on the rural livelihoods of Bangladesh's economy may come through an increase in real income resulting from productivity improvement and reduced rice prices (Karfakis, *et al.*, 2011: 4; Klytchnikova and Diop, 2006: 7; Rahman, 2000: 3, 4). With a given demand function of rice, an increase in the volume of rice production (supply) induced by productivity improvement may cause a decrease in the rice price, leading to an increase in real income. This argument is based on the fact that rice is basically a non-traded good in Bangladesh; the price of rice is thereby much more affected by domestic factors than by international price fluctuations (Hossain and Verbeke, 2010: 90; Karfakis, *et al.*, 2011: 23, 24; Klytchnikova and Diop, 2006: 7; Rahman, 2000: 3, 4). Therefore, an increase in the volume of rice production may induce a decline in the rice price, under a given domestic demand function, to attain a new equilibrium in the domestic rice market.

Agricultural trade liberalization may also affect non-agricultural markets and employment opportunities in rural areas through multiplier effects that are referred to as the consumption growth multipliers. Multiplier effects are agricultural backward and forward production linkages, i.e. increased demand for production inputs such as fertilizers, pesticides and irrigation (backward linkage) and higher demand for processing services such as rice mills and food production from rice (forward linkage) (Klytchnikova and Diop, 2006: 6; OECD, 2010: 5). This linkage-effect plays an important role in stimulating overall growth in the rural economy. Silva and Grossi (2001) found that in Brazil, the rise of rural non-farm enterprises was evident in regions that were mainly agricultural. They argued that the development of agriculture created demand for services to agriculture, leading to the growth of the non-farm sector. Hendriks and Lyne (2003) conducted a study on agricultural growth multipliers for two communal areas of KwaZulu-Natal in South Africa and found that agricultural growth significantly stimulated the development of the non-farm sector. They found that agricultural growth required the adoption of new technology and participation of new markets, leading to the growth of non-farm employment and income through multiplier effects that created both forward and backward linkages to agriculture. Similarly, Klytchnikova and Diop (2006) argued that India experienced a positive multiplier effect of the Green Revolution during the 1960s and 1970s. Similarly, other studies such as Byerlee *et al.* (2005); Valenzuela *et al*. (2005); and

World Bank (2008) found that agricultural trade liberalization had a significant impact on the development of the rural non-farm sector. Therefore, technological transformation in agriculture has the potential to stimulate overall growth of the economy through multiplier effects on rural non-farm employment and incomes as well as on consumers' demand for goods and services outside agriculture.

Agricultural Trade Liberalization in Bangladesh: Empirical Studies

Bangladesh has been pursuing the green revolution programme since its independence in 1971, with a view to increasing productivity in agriculture for attaining self-sufficiency in food production. Agricultural trade liberalization and technological transformation in the 1980s and the early 1990s generated further momentum in Bangladesh's agriculture, resulting in a significant increase in the volume of rice production which led to self-sufficiency in food-grains by the early 1990s (Ahmed and Sattar, 2004: 19; Islam and Habib, 2007: 4; Rahman, 2008: 16). Some major studies related to agricultural trade liberalization are discussed as follows.

Mujeri (2002) argued that while Bangladesh's greater integration into the world economy was generally "pro-poor", the gains were relatively small due to structural bottlenecks and other constraints. In another study, Mujeri and Khondker (2002) found that trade liberalization stimulated growth in the agricultural sector.

The World Bank (2002) showed that the benefits of economic growth during the 1990s had not been distributed evenly across the regions, suggesting an increase in inequality in the post-liberalization era. Dorosh and Shahabuddin (2002) found that agricultural trade liberalization and market deregulation contributed to rice price stabilization in the 1990s. They argued that price stabilization following major production shortfalls was largely due to private sector imports.

Hossain and Deb (2003) found that trade liberalization improved productivity in the agricultural sector, but Bangladesh did not have a comparative advantage on major agricultural products. Although it had a comparative advantage in the production of high yielding varieties (HYV) of rice, the unit cost of production was relatively high due to government policy. They argued that government should formulate policies to support farmers.

Hossain (2004) found that the long-term trend in agricultural production showed a cyclical pattern with a few years of rapid growth followed by a few years of stagnation. He argued that, since most of the land and other agricultural resources were tied up in rice production, agricultural diversification could not be achieved unless resources were released from rice cultivation.

The World Bank (2004) report showed that Bangladesh experienced a significant improvement of the rural non-farm sector in recent years. There might be a possible link between agricultural trade reforms and the development of non-farm sector through the multiplier effect of agricultural trade liberalization. The development of rural non-farm sector generated employment and income in the rural economy. In another report, the World Bank (2006) argued that trade liberalization made available cheap imports of agricultural inputs such as pesticides, irrigation equipment, fertilizers and seeds. The report claimed that the application of these inputs affected the environment adversely in the form of loss of soil fertility, loss of bio-diversity and water pollution.

Salim and Hossain (2006) found that there were wide variations in productive efficiency across farms as a result of agricultural reforms. Average efficiency increased modestly from pre-reform to the post-reform period. The efficiency differentials were largely explained by farm size, infrastructure, households' off-farm income and reduction of government anti-agricultural bias in relation to trade and domestic policies.

Klytchnikova and Diop (2006) found that reform in the agricultural sector contributed with a significant growth to the economy but, its impact on the reduction of rural poverty was considered very insignificant. They argued that agricultural trade liberalization improved the production of rice considerably, leading to a significant decrease in rice price. They found that net buyers gained and net sellers lost from this process. They argued that agricultural trade liberalization positively affected the welfare of the rural households in the form of changes in their income and livelihoods.

Rahman (2008) conducted a study on the impact of agricultural trade liberalization on sugarcane production in two villages of Veramara Upazila in the Kushtia District and on poultry farming in two villages of Savar Upazila in the Dhaka District. He found that trade liberalization adversely affected the production of sugarcane and increased dependence on sugar imports. Similarly, the previously protected

poultry sector became vulnerable because of an increase in input prices resulting from trade liberalization.

BBS (2009) found that during the last decade, significant changes took place in the agricultural sector. These changes included new production structures with a combination of irrigation, fertilizers, high yielding varieties of seeds and pesticides, mechanization in land preparation. All these changes contributed to an increase in production of food-grains in Bangladesh. This study provided basic statistical information on the number of agricultural holdings, their area and size; tenancy; irrigation status; land ownership; land use; agricultural labor force and other agricultural information such as poultry, livestock, fishery and forestry, in the post-liberalization era.

Nahar and Siriwardana (2009) conducted an ex-ante analysis using a computable general equilibrium (CGE) model and found that the complete removal of import tariffs could reduce absolute poverty for all groups, both in rural and urban areas. Hossain (2009) found that agricultural trade liberalization contributed to the development of minor irrigation dominated by shallow tube-wells leading to the expansion of Boro rice cultivation. Consequently, rice production increased significantly.

Hossain and Verbeke (2010) found that agricultural trade liberalization contributed to the integration of rice markets across the six regions (divisions) and therefore the long-run equilibrium was stable. Conversely, in the short run the market integration as measured by the magnitude of market interdependence and the speed of price transmission between the divisional markets was weak.

Alam, *et al.* (2011) attempted to analyze the welfare impact of policy interventions in food grain markets during 1980–2003. They argued that the loss in consumer surplus exceeded the gain in producer surplus from government control over food grain markets, resulting in a deadweight loss for the society. Conversely, they further argued that the gain in consumer surplus and government revenue from liberalization of food grain markets was greater than the loss in producer surplus, implying a net welfare gain to the society. Similarly, Karfakis *et al*. (2011) attempted to identify the impact of rice price changes on household welfare. They argued that rural households exhibited higher welfare losses than urban households from an increase in the rice price.

Conclusion

The above analyses suggest that the impacts of agricultural trade liberalization in all studies were mixed: some studies found positive impacts, but others found negative or insignificant impacts. Agricultural trade liberalization influenced technological transformation and productivity of agriculture. The impact of agricultural trade liberalization on poverty reduction was insignificant. Agricultural trade liberalization increased inequality and income gap between the rich and the poor, suggesting that the rich gained more than the poor from liberalization. This paper argues that mere 'price is right' or trade liberalization would not automatically promote welfare. Besides trade reform measures, there was the need for complementary policies to enhance productivity, as well as to reduce inequality between the poor and the rich. This paper argues that the effects of agricultural trade liberalization on the Bangladesh's economy were consistent with the debate regarding the effects of trade liberalization on economic development. The evidence remained mixed and loaded with criticisms on the grounds of choice of liberalization determinants, model specifications and methodology, as well as other measurement shortcomings. The review suggests that the literature is inconclusive and outcomes are largely case-specific.

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The Branding of Sugarcane Juice in India

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Abstract

Sugarcane juice is traditionally sold in India by roadside vendors, often in unhygienic conditions. That's why a few entrepreneurs have taken the initiative venturing into the marketing of branded sugarcane juice through a chain of franchised outlets. Initial indications are that this model is headed for success. Pune, Kolhapur, more known for its leather chappals, has also been blessed with an abundance of milk, water and sugar, which has made the region the nation's kitchen for many years. The Warana milk producers' cooperative located here has lived up to this reputation. It has been a contract manufacturer for products such as Cadbury's Bournvita, butter for Britannia Industries and Soya milk for Ruchi Soya. Now, the cooperative is preparing to assert its own identity through the launch of Warana Joy, its national brand. Among its new products is sugarcane juice in aseptic packs (Tetra Pak).

This article outlines the development of this business; the opportunities and threats faced and also offer suggestions for the growth in this market.

Keywords: sugarcane juice, sugarcane production, marketing strategies, sugarcane juice market, cane fresh companies, sugarcane farmers

Introduction

India is the world's second largest producer of sugar, while sugarcane is cultivated in more than 175 countries. In India, most of the sugarcane crop comes from three states: Maharashtra, Uttarpradesh and

Punjab. According to the ministry of agriculture, the country's sugarcane production in year 2012 was 300 million tones.

Sugarcane juice is a traditional and popular drink in India. It is predominantly sold on the streets by local vendors and is served with a few drops of lemon juice and salt for added taste. The sugarcane juice business is carried out by thousands of small vendors along the roadside in various cities and towns across India. This is a highly unorganized and fragmented industry.

However, in recent years, a few entrepreneurs have established branded sugarcane juice outlets in major city of south India, like Bangalore and Chennai. This has created a new unexplored market. Branding a commodity in a large country like India is a difficult exercise and no marketer can ignore this fact. Though several essential commodities including portable water, milk, vegetables, fruits, food grains, salt, edible oil and sugar, which have been branded by several companies, the unbranded equivalents continues to dominate the market in most of these product categories.

Pune, Kolhapur, more known for its leather chappals, has also been blessed with an abundance of milk, water and sugar, which has made the region the nation's kitchen for many years. The Warana milk producers' cooperative located here has lived up to this reputation. It has been a contract manufacturer for products such as Cadbury's Bournvita, butter for Britannia Industries and Soya milk for Ruchi Soya. Now, the cooperative is preparing to assert its own identity through the launch of Warana Joy, its national brand. Among its new products is sugarcane juice in aseptic packs (Tetra Pak).

"We are the first to bring sugarcane juice in this kind of packaging. The sugarcane juice will initially have a shelf life of six months, which we will later extend to nine months without using any preservatives," said Vinay Kore, chairman of Warana cooperative.

The cooperative is in the process of applying for a patent for this product, a product shifting from roadside crushing stalls to shelves, in malls.

Fig. no. 1. Cut sugarcane

The primary concern regarding sugarcane juice was health and hygiene. Sugarcane juice extracted in the open attracts flies and most of the traditional sugarcane juice vending outlets is unhygienic. Many potential consumers avoided to consume sugarcane juice because of the unhealthy conditions under which it was being traditionally sold.

The branded sugarcane juice vendors were able to provide a distinct alternative, which avoid this negative dimension [5], [6]. Branded sugarcane juice also provides an alternative to carbonated soft drinks, which is considered unhealthy by many consumers. The market for many other food products is cluttered with various national and international brands fighting for a market share. But as far as branded sugarcane juices are concerned, there are a few brands available presently, primarily in south India; at the same time, it is no competition for global brands [1], [2].

Objectives of the study

The present study focused on branding of sugarcane juice and current marketing practices of companies engaged in this venture. The main objectives of this study are:

- To identify strategic reasons for the entry of organized retailers into the branded sugarcane juice category.
- To analyze the marketing strategies of the branded sugarcane juice companies in Bangalore.
- To identify the new opportunities provided by branded sugarcane juice companies to farmers, customers and other major stake holders.

- To suggest new marketing strategies to branded sugarcane juice makers, for the purpose of increasing their market share.

Methodology

This is a descriptive research and a major part of the information is collected through the secondary sources of information, like news papers, published interviews and company websites. Unstructured interview was used to collect primary data for this study from the managers of three branded sugarcane juice outlets and thirteen unorganized or unbranded outlets which included street vendors. The information from both - primary and secondary sources - was gathered during the December 2011 to April 2012 period. Three leading brands in Bangalore have been covered in this study, i.e. Cane-O-La, Cane Fresh and Real Cane.

Limitations of the study

More than 90% of the sugarcane juice market continues to be in the unorganized sector and therefore, the information and feedback collected from this study do not represent the industry as a whole. Several respondents hesitated to share information, as they feared that it might be used by competitors. This study focused more on the Cane-O-La brand [3], [4].

Growth of branded sugarcane juice

Although there is a huge demand for fresh sugarcane juice, it is available predominantly in unhygienic conditions from pavement vendors and juice parlors. The gaps therefore are felt in terms of good ambience and reasonable price. The first branded sugarcane was launched by Enkey Texofoods in the year 1999 in the Mumbai and Pune markets, but this venture was not very successful. A few smart entrepreneurs saw an untapped opportunity and started marketing branded sugarcane juice in Karnataka, especially in various parts of Bangalore. The two major brands of sugarcane juice sold in Bangalore are Cane-O-La and Cane Fresh. There are also other less known brands such as Real Cane, Coolsip, Green Cane etc. An overview of Cane-O-La and Cane Fresh is given below.

Cane-O-La is the fresh sugarcane juice brand of Cane-O-La Foods Pvt.Ltd., Bangalore which was established in year 2006.

Fig. no. 2. Cane-O-La Foods Pvt.Ltd.

Cane-O-La claims to bring together the right mix of traditional drink and modern marketing. The sugarcane juice is offered in seven flavors: plain, Mint, Ginger, Lemonade and Pepper, sweet and salt. Though the price is with a couple of rupees higher than that charged by the roadside vendors, this is offset by the advantages of hygiene and value addition, even the ice is prepared from purified water through the reverse osmosis process. The managing director of the company states that Cane-O-La has managed to change the perception of customers towards sugarcane juice. The sugarcane is harvested, peeled and transported in refrigerated vans. Cane-O-La has entered into an arrangement with selected farmers recommended by the Coimbatore based sugarcane breeding institute, to grow the sugarcane required by the company.

The business operates on a franchise model. There are twenty outlets in Bangalore; each outlet provides employment to around 20 persons, including both, direct and indirect employment. The company receives revenue in the form of royalty from the franchisees. The main target market comprises of individuals and families-office goers, shoppers, travelers in bus stands and railway stations, etc. Some time ago, Cane-O-La launched its mobile outlet mounted on an electric golf cart at the Bangalore city railway station.

Cane-O-La is planning to expand its business across India through the franchise business model by appointing master franchisees at state level, who in turn would appoint local franchisees to operate individual outlets.

Cane Fresh was established in 2006 with the objective of offering hygienic sugarcane juice using advanced machines, to vend chilled juice without ice.

Fig. no. 3. Cane Fresh

It operates more than 25 outlets in three cities – Bangalore, Chennai and Mysore. Cane Fresh offers sugarcane juice in five flavors: Lemon, Ginger, Mint, Chat Masla and Pineapple. Cane Fresh also follows the franchise model and is looking to expand in Hyderabad, Pune, Mumbai, Delhi and other major cities in Andhra Pradesh, Karnataka and Kerala.

Companies such as Cane-O-La and Cane Fresh are adding a new dimension to the marketing of sugarcane juice, which falls broadly under the fresh juice category.

For every individual who wants a 100% natural product that offers rejuvenation and freshness, Cane-O-Cool is a packaged drink that provides energy and refreshment at affordable prices, best quality and value for the money spent by the consumers.

Prospect brand

Cool Cane is expected to introduce the consumer into a delicious drink of freshly squeezed sugar cane juice. Fresh sugar cane juice is one of the most popular drinks. Cool Cane describes its qualities as:

"Sugar cane is a tropical grass packed full of nutrients including antioxidants, Vitamins B2, B3, folate, potassium, carbohydrates and fiber. It contains complex natural sugars and has a low GI. Fresh sugar cane juice has an average of 11% to

13% total sugar and fewer calories than regular milk, orange juice and apple juice. Sugar cane juice is delicious and sweet while still providing beneficial nutrients."

"Once you taste fresh sugar cane juice you'll agree it's the most refreshing drink you have tasted. If you can't buy freshly squeezed Cool Cane juice at your local shopping centre then you are missing out."

Opportunities and threats of branding sugarcane juice

Branding of sugarcane juice provides plenty of opportunities to marketers and other stakeholders, but with a potential threat to the sugar industry. Some of the important opportunities and benefits are discussed below.

- Sugarcane farmers can hope to get more income from their produce as they would get higher prices from the marketers of sugarcane juice. The overall demand for sugarcane trends to increase.
- The farmers who grow sugarcane especially for the cane juice vendors receive support for increasing the quality and yield of their crops from the sugarcane juice companies.
- The growth of branded sugarcane juice industry provides new employment opportunities to people in both: urban and rural areas, as the manpower requirement for this business is high.
- More variety and flavors have been added to the fresh fruit juice category, with the introduction of branded sugarcane juice.
- The successful branding sugarcane juice can also encourage the branding of other commodity and food products.

However, the possible divergence of sugarcane towards the production of juice on large scale is perceived as a threat for the production of sugarcane. This could in turn lead to increase in sugar prices. But in the business model used by Cane-O-La, the company has opted for contract farming, supported by its own research and development.

Another threat is that if the branded sugarcane juice catches on in a big way, it could throw thousands of traditional sugarcane juice vendors out of their jobs and livelihood.

Though branded sugarcane juice offers a healthy and hygienic alternative to the sugarcane juice sold by traditional roadside vendors, few customers feel that these new marketers are overcharging the consumers.

The success of branded sugarcane juice business has also provided inspiration for many small juice shop owners in Bangalore, to sell juice fruits in hygienic conditions, by using their own trade names.

Suggested marketing strategies

Fresh sugarcane juice re-hydrates the body quickly, especially after exposure to prolonged heat and physical activity. This drink can be targeted at athletes, and its ideal for mass consumption. Sugarcane juice has no side effects except, if consumers are diabetic or otherwise allergic to it. According to experts, sugarcane juice represses and energies the human body instantly, as it is rich in carbohydrates and iron. It can therefore be marketed as a healthy alternative to artificial drinks and colas, with no side effects.

As per Ayurveda, sugarcane juice has various medicinal properties and major benefits: it can normalize vitiation of blood and bile and rejuvenate the liver; pure sugar cane juice devoid of microorganism is widely used in treating jaundice; acts as an aphrodisiac and increases libido, quality and quantity of semen; helps in the treatment of cough; acts as a diuretic and helps in detoxifying the body.

Nowadays, most customers treat sugarcane juice merely as a refreshing drink similar to any other fruit juice or soft drink. The marketers of branded sugarcane juice can target health conscious consumers by propagating its medicinal benefits. This can be done through advertisements and point of purchase display boards about the health benefits of sugarcane juice as advocated by Ayurveda. Marketers can also promote their brands of sugarcane juice through Ayurvedic institutes, yoga institutes, health clubs and beauty parlors. They can also tie up with hoteliers and owners of convention halls to enhance business opportunities.

Conclusion

Sugarcane juice is India’s traditional drink which has a great potential for instant rejuvenation and its inclusion among branded products has given a new business dimension to the fresh fruit juice category. The success of branding sugarcane juice has been a true eye-opener to many marketing strategists and brand managers. It has opened a potential market for many other juice variants such as lemon juice. As a result of branding, the positive perception towards this product has

increased, leading to higher level of acceptance and consumption. Can branded sugarcane juice overtake the unbranded or roadside vendors?

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