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THE JOURNAL OF CORPORATE GOVERNANCE, INSURANCE AND RISK MANAGEMENT

This Journal replaces the former European Journal of Economics and Management (EJEM) first launched in 2014. The Journal is an international open-access refereed indexed journal, published twice Annually.

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Strategic analysis of textile manufacturing industry – case of Croatia

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ABSTRACT

The textile manufacturing industry in Croatia has set its foundations during the existence of Yugoslavia, and was then one of the most successful industries in Croatia. Marked by a large number of employees, the majority of women with secondary school education, it was an industry in which has operated a small number of large companies with many employees. Croatian textile manufacturing industry still has the major role in Croatian economy. Despite many changes and difficulties caused by the reduction of the market, the industry has maintained a very important place in the Croatian economy. The position of the textile manufacturing industry is very complex, given the economic, but also the global situation. Thus, the main goal of this paper is to analyze the textile manufacturing industry on the sample of Croatian manufacturing firms. The aim was to define the importance of the textile industry in Croatia using Porter's model of five competitive forces, and also to determine the key segments needed for success and further development of the textile industry. Furthermore, the analysis will give us a clear insight into the economic aspects of the textile industry and all of the factors and forces that have the influence on the industry development and all the opportunities and threats that work in this industry. The result showed that the textile industry in Croatia is threatening further strengthening power of suppliers and buyers, unless there is a connection and association of enterprises. Great threat whose intensity enhances is the entry of new competitors, both domestic and large competitors from foreign markets.

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1. INTRODUCTION:

Looking at the global market, textile and clothing still constitutes one of the main shaft of capital accumulation, employment and economic growth in most economically developed countries (Buturac, 2007), but in Croatia the situation is different. Today, the textile industry is not nearly as productive as it used to, nor its profits, exports, and not by the number of employees. The loss of competitive advantage is the result of slow structural adjustment, and increasing liberalization of the domestic market and ineffective protection of domestic production (Buturac, 2007). Very bad and worrying situation of the textile and clothing industry in Croatia has shown that without the invention of a new model for saving the industry, the industry will have no perspective, no opportunities for further development. Although this industry in Croatia has traditionally been one of the most developed industries, today it lags behind the competition.

The basic characteristics of the textile industry in Croatia to be emphasized are a large dispersion factories, labor intensity, export orientation, production organized in small, medium and large enterprises, the readiness to quickly respond to fashion trends, readiness for cooperation, high level of quality, almost entirely privatized industries, significantly reduced primary production, structural problems, problems of human resources and a lack of resources and funding sources [I].

The main problem that occurs in the textile industry today is the poor structure of the companies, lack of manpower that matches the profiles required for this industry (most educated workers are older than 50 years), most of the employees are women (in 2014, 88% of employees are women [II]), the unpopularity of the industry, the lack of investment, and in the end the most important fact; expensive labor, considering the cost of labor and materials in Eastern Europe and the leading country of the textile China.

Previously conducted studies suggest that a solution to the crisis of Croatian textile and clothing industries is in producing value-added and own brand products, as well as the consolidation of textile and clothing companies, changes in human resources, innovation and market positioning to suit opportunities of industry (Zelenika and Grilec Kavurić, 2011). The textile industry, although currently in a difficult situation has a chance to recover. In order to re-develop their potential it is necessary to restructure the textile and clothing industry in a way that exceeds the mass production to produce fashion clothing of high technological level with modern style and to continue maintaining competitive advantages in a global textile industry.

The chance that the industry should take advantage of, is the Croatian accession to the European Union. Croatia is now facing the European market and has a big connection with it, and should take the opportunity to transfer the most of technology and knowledge from the European Union. Also Croatia should relocate the part of the production in countries with lower labor costs.

Table 1: Predictions for the textile industry unless there is structural change

Textile manufacturing industry	2005	2010	2015
GDP, mil. KN	2.004	1.634	1.332
The share in Croatian GDP (%)	1,1	0,7	0,5
Number of employees	38.000,00	28.900,00	22.400,00
Share in total employment (%)	2,8	1,9	1,3

Source: Anić et al (2007) Strategic guidelines for the development of textile and clothing industry in Croatia for the period from 2006 to 2015, Zagreb, Institute of Economics, p. 5.

If Croatian companies and overall industry fails to implement the changes that are necessary for recovery, it is evident that the number of employees as well as share in GDP will be reduced and so will continue in next few years (Anić et al., 2007). But if the structure changes and if the changes are implemented on time, in 2015 is expected to stabilize the situation and move towards a brighter future. As shown in Table 2, in 2015 GDP and the number of employees will slightly decline than they would without structural changes.

Table 2: Predictions for the textile industry if there is structural change

Textile manufacturing industry	2005	2010	2015
GDP, mil. KN	2.004	1.634	1.530
The share in Croatian GDP (%)	1,1	0,7	0,6
Number of employees	38.000,0	28.900,00	27.000,00
Share in total employment (%)	2,8	1,9	1,6

Source: Anić et al. (2007) Strategic guidelines for the development of textile and clothing industry in Croatia for the period from 2006 to 2015, Zagreb, Institute of Economics, p. 5.

Companies are facing large market opportunities and they need to recognize and seize it. The development of its own products and brands as well as a shift in production and sales towards higher level, enhancement of technology and knowledge transfer, stronger cooperation with scientific, research and educational institutions as well as experience in cooperation with EU partners, access to national and EU funds, co-branding and the normalization of political and economic relations and regional expansion in neighboring countries (Anić et al., 2007), are just some of the opportunities that can lead to increased export and the overall development of the industry in the future.

2. RESEARCH METHODOLOGY

For the purpose of this study, limits of textile manufacturing industry were defined as manufacture of wearing apparel, except fur apparel, which includes [III]: Manufacture of leather clothes, work clothes production, manufacture of other outerwear, machine manufacturing of other wearing apparel and clothing accessories (C. 14.1 - National Classification of Activities, 2007).

Table 3: The registered companies in the textile manufacturing industry in Croatia

	Joint stock company	Limited company	Total
Large	1	1	2
Medium	7	5	12
Small	427	12	439
Total	435	18	453

Source: author, according to the Register of business entities of the Croatian Chamber of commerce

For the purpose of strategic analysis of the textile manufacturing industry in Croatia, selected population was 14 companies including medium and large companies that are defined by the criteria of the Register of business entities of the Croatian chamber of commerce, which correspond to the criteria: active firms, regular submission of financial statements and operating in Croatia. Analysis of the textile manufacturing industry in Croatia was made with Porter's model of five competitive forces, and for the analysis all the data were collected using the structured questionnaire that was answered by 14 companies. Also the method of interview was used to collect all the data, which was conducted with top managers. Interviewing managers helped for gathering the data and creating a realistic picture of the situation in Croatian textile manufacturing industry. The goal was to find out how respondents perceive the companies and the environment, and what they expect from it in the future.

3. THE RESULTS OF INDUSTRY ANALYSIS

Industrial analysis as an important part of strategic analysis should help in understanding the strategic difference between industrial competitors (Tipurić, 1996). It must answer the question about the attractiveness of the industry for a variety of business ventures. Using the example of the textile manufacturing industry in Croatia and the companies in the sample, all five forces affecting the textile manufacturing industry within the defined limits will be analyzed. The analysis includes the existing competitors, new entrants, customers, suppliers and substitutes (Vaitkevičius, 2006).

3.1. The strength of industrial rivalry

Croatian market is very small and has the same properties that characterize the country. The market operates 460 companies with 13,018 employees [IV], and all of these companies make competition in the clothing production. To determine the competitive structure, one should determine the variables to which this analysis will be done (Butigan, 2008). These are the variables: the number of employees,

realized gains / losses and income from sales. The reason for using these variables is their availability, easy comparability and simple drawing conclusions.

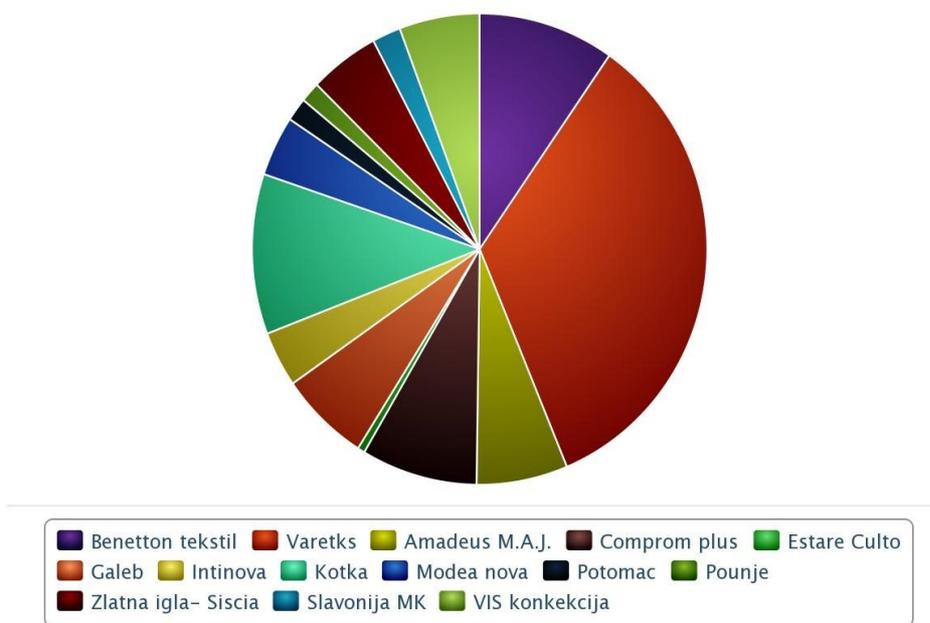


Figure 1: Competitive structure due to the number of employees in 2013

(Varteks - 39.23%, Kotka - 15.20%, Comprom plus - 8.97%, Benetton tekstil - 6.86%, VIS konfekcija - 6.60%, Galeb - 4.01%, Amadeus M.A.J. - 3.93%, Estore Culto - 3.31%, Zlatna igla-Siscia – 2.27%, Modea nova - 2.07%, Intinova – 2.05%, Potomac – 2.02%, Slavonija MK - 1.90%, Pounje - 1.58%)

The total number of employees in these 14 firms is 5,098. Of these, the largest company employs 2,000 people representing a 39.23% stake. Then it follows the company with 775 employees or 15.20% stake. At least the smallest firm in the sample has 81 employees, i.e., 1.58% stake.

By comparing the income and expenses from 2013, obtained from the analysis of the financial statements of 14 companies, enabled the comparison of the profit / loss of the companies. The most successful company in 2013 achieved the highest income of 960,724,927 Kuna, while the lowest income was 7,376,460 Kuna. On the expense side, the largest expense in 2013 was realized in the amount of 887,178,746 Kuna, while the lowest expense amounted to 13,638,422 Kuna.

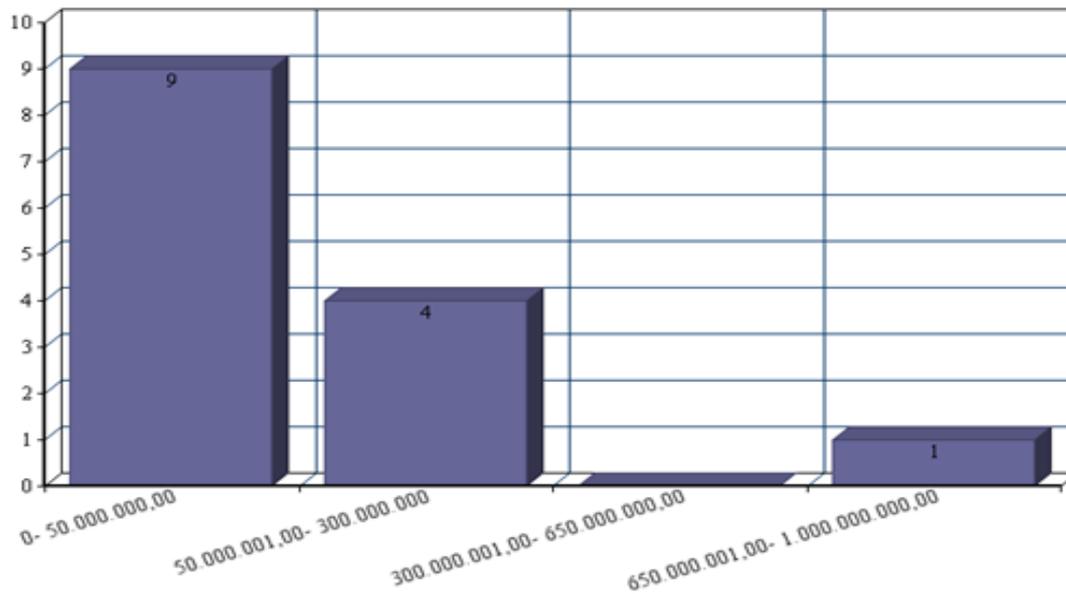


Figure 2: Number of companies by sales revenue in 2013 (KN)

By analyzing and comparing the proceeds from the sale in 2013 among 14 selected companies, one should point out, that only one company achieved sales revenue that is greater than 650,000,001.00 Kuna. Even 9 of 14 enterprises are located in the first grade, up to 50,000,000.00 Kuna of sales revenue, which indicates the similarity of companies.

After analyzing these three variables, we can conclude that among the existing competitors, the competition is dominated by two large companies, who in spite of the bad economic situation are in a good way to exit the crisis. It should be concluded that within the industry there is a large number of small businesses that are employing a small number of workers, engaged in the loan business, and generate slight revenues. Therefore those companies are not in the sample. Also the industry abounds with competitors from foreign countries, which are providing a very high quality, trendy and most importantly - cheap clothes. Although the Croatian textile manufacturing industry is tending toward traditional garment production, mostly for the older population, it is considered that competitors from foreign countries don't represent direct competition. Croatian fashion abounds with classic lines, somewhat outdated cuts, which are preferred by the older generation, while younger ones are more prone to foreign high street brands.

The main problem that occurs among textile firms in Croatia is the simplicity of products and services. Today, the majority of Croatian companies offer a similar range that rarely accompanies market trends and customers needs. It is important to emphasize that the range of products that Croatian firms are offering have an extremely high price for Croatian standards. Most companies within the textile manufacturing industry are manufacturing their products in their plants located on Croatian territory, on which companies do not achieve the savings in the production process. Those savings would be acquired if the firms would produce some of their products in countries that offer more favorable production. Most of our firms are importing materials only from countries with higher standards such as Austria, Germany, Poland, Romania, etc., Instead of importing their materials directly from China, Taiwan or Hong Kong without needing to use intermediaries.

The products that firms are offering represent the range for the same market niche. Most often it is a female confection with some men's collection, which abounds in classic models and simple materials. Services are also very similar and simple, because the services of cutting, sewing, application, pressing or conversions are offered by most of these companies. Companies rarely exploit market opportunities and their capacity to achieve differentiation, in cost, quality, fashion line, or winning new market niches. The big problem for the industry is the lack of investment in research and development, and even marketing. Croatian companies as if they do not know the importance and the power of marketing, which would make the rest of the population aware of their values. If each of these companies focused on one market niche (e.g. underwear, women's garments big sizes, men's garments for the younger ones, sportswear...) they could avoid competing with each other. Then companies might achieve great success in the domestic market and could compete to its competitors located outside the Croatian borders.

3.2. Bargaining power of suppliers

The companies that were studied do not produce very large quantities, in order not to create too expensive supplies. With that companies want their suppliers to be located in the same area, so that their orders can be received in small quantities, and a lot more often.

In this case, power of suppliers is very strong, because within Europe there is a small number of suppliers of raw materials, which will accept small quantity orders from Croatian companies .The problem that arises from this is that the situation in the Croatian textile industry is so bad that firms are importing 90% of raw materials (Zelenika and Grilec Kavurić, 2011). Industry of materials production as it once was, does not exist anymore, due to the expensive cost of labor, For Croatian companies is much more profitable to import materials and raw materials, machinery, etc. from Europe (Germany, Italy, Austria ...).

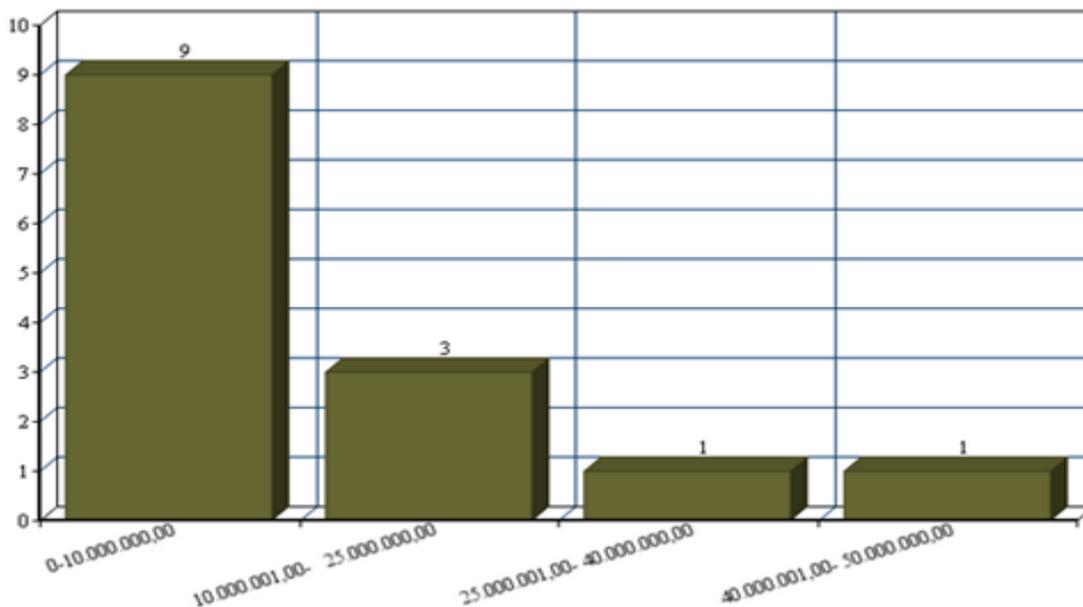


Figure 3: number of companies by raw material costs in 2013 (KN)

Most businesses in the sample are spending a similar amount on the cost on raw materials, which is understandable given that they generate similar results, and purchase materials from the same suppliers. By analyzing these results, it should be noted that some companies are spending money rationally and are trying to reduce the cost of raw materials by changing suppliers, while others spend a lot of money on raw materials, rather than making large gains due to the amount of money that is being invested. These companies need to take extremely careful look at the situation and rationalize their costs, some of them need to adapt their production, and within a period in its activities add a material production and switch to other activities to gain a competitive advantage.

The suggestion to reduce the cost of raw materials and the reduction of suppliers power is to integrate companies in the group. It is necessary to create associations that could jointly pursue orders from suppliers, which would increase the order quantity, reduced the price of orders, as well as transportation costs. If the companies (at least leading ones) formed in associations to jointly order raw materials from suppliers (these are the few European suppliers), they would achieve a higher degree of concentration in their industry, and overpowered a few large suppliers.

3.3. Bargaining power of buyers

The global recession that has lasted in Croatia, although it did made some harm to customers, it also went in favor in terms of strengthening their power as customers. Since the Croatian buyers greatly reduce the amount of their budgets lately, due to the economic crisis but also because of lifestyle

changing in the last few years, so their spending on textiles i.e. clothing is greatly reduced. Just by demand reduction for clothing and lack of money, companies must make an extra effort to attract customers. The problem that Croatian firms are facing is twice as heavy, because not only do they have to put in extra effort to attract customers to spend the money that they have on clothes, but also firms have to attract customers to buy clothes from Croatian producers. Also the buyer has much more information than before, about prices, quality, image and offer, and is not forced to choose between few offers. More informed and sensitive customers are affecting the strengthening power (Tipurić, 1996). If the buyer is not satisfied with the quality of clothing or the accompanying service, nothing will keep him not to immediately pass to the offer of the competition.

The market in personal consumption is heterogeneous, abounds with different demographic characteristics and customer buying motives (Anić et al., 2008).

Table 4: The main factors of buying Croatian products (in %)

Buying motive	Textile manufacturing industry
Price	0.0
Quality	85.7
Firm image	4.3
Brand image	5.7
Fashion trends	0.0
Others	4.3
Total	100.00

Source: Anić et al. (2008) Economic aspects of development of the textile and clothing industry in Croatia. Zagreb: Institute of Economics, p. 141.

It is evident that the 85.7% of buying motive refers to the quality of the product, on which the entire industry can be very proud of, and should make further efforts to take advantage of it as a competitive advantage in the global market. Quality is what customers want, and is perceived as the main factor in the purchase. Information that is alarming is that the price and fashion trends are not that important. It is easy to conclude that customers want one thing and Croatian textile manufacturing industry is extremely slow in responding to the wishes of customers. Customers expect a good price-quality ratio, but Croatian products provide quality but high price products.

Croatian companies are trying to supply a small number of loyal customers and fail to provide products and services to a broader market. Croatian brands are not sufficiently known in foreign markets, but also domestic customers are not perceiving them as a brand that they would like to own. It is just a result of poor promotion as well as the lack of financial resources. If the Croatian companies want to enfeeble the power of buyers, they have to work on the image, because image and quality are

one of the items on which enterprises can make profit. Croatian brand must represent as luxurious, prestigious and desirable to a certain part of customers. To achieve this goal the entire industry must be modernized. Companies could become more popular if they would rename the company to have a trendy and attractive name of their brands.

It can be concluded that customers in Croatia have a very high power by the perception of the management of companies in the sample, and therefore, these companies seek to weaken the power of consumers by improving the quality, price and differentiated products and make it difficult for customers to migrate to another competitor (Thompson et al., 2006).

3.4. Threat of new entrants

Since the Croatian textile manufacturing industry is currently in a very poor condition, and her daily customers are deprived by foreign competitors, it is not difficult to conclude that the threat of entry of new competitors is extremely strong (Porter, 2008). Croatian market operates a large number of brands, whose number increases day by day. Given that these are the brands for which the buyers were willing to go across the border to obtain them, their competitive attractiveness increases.

Whit Croatian accession to the European Union, borders have become opened for export of Croatian products, but also for exporting products from foreign countries to Croatia. With the borders opening, barriers to the entry of new competitors into the market have been reduced, especially if it is a brand that customers preferred. According to the management of companies in the sample, barriers to entry this industry are low, as the textile manufacturing industry is the industry with a very large number of competitors. Entering the industry does not require large financial capital (Porter, 2008). Also huge investments in human resources are not necessary, given that the textile manufacturing industry workforce is largely secondary school educated. Such labor is now easily available at a very low price. The average salary in the textile manufacturing industry in Croatia in 2013 was 2,902 Kuna, which is extremely low wage for that kind of working conditions. Also what makes the enter barrier low is that customers are not loyal to one brand and are ready to quickly change from one to another competitor if they are dissatisfied with the product or service (Porter, 2008). Also distribution channels are easily accessible, which also contributes to the low entry barriers (Buble, 2010).

For Croatian textile manufacturing industry to resist strengthening the threat of new competitors, the country has to take a major role (Porter, 2008). It is necessary to closely control the market and strongly encourage the domestic production of clothing (Bunić, 2004). As China achieved a leading position in the production of textile, today we are witnessing a large number of the Chinese clothing store, usually of poor quality and very cheap. Therefore government must use customs tariffs and trade restrictions (antidumping rules, quotas, etc.) To raise the barriers for entering foreign competitors and

protect domestic ones. For years, some of the goods from China had no duties control, or it were extremely low, which has greatly undermined the competitiveness and profitability of Croatian companies in the last 10 years. Today, after accessing the European Union when the government is obliged to apply the regulations of the European Union situation has changed dramatically. The market is guarded against the entry of new competitors that do not satisfy certain standards and market needs.

3.5. Threat of substitutes

Analyzing the production of apparel and clothing as a product, the world still did not recognize the concrete alternative or product that would satisfy the human need for their covering, warming and expression of their own personality and image. But inside the garment manufacturing process that eventually leads to customers, can be found a number of substitutes.

In the process of garment production one comes to a substitute for natural materials, which are more expensive and less available, given the natural limitations. People had to solve the problem of reduction in raw materials for the production of natural materials, so they have decided to create artificial materials. Companies prefer synthetic materials because they are durable, resistant and are offering a wider range of patterns and colors. Materials such as viscose or silk which are delicate and costly, may be replaced by polyester extremely well. Companies like to use synthetic materials in clothing production because they provide more possibilities and are reducing the cost of raw materials.

After selecting the material, one continues with the production. In the last 20 years there have been great changes and systematization. What were once operated by human hands are now working machines. The machines in Croatian companies are now largely robotic and have replaced manpower. Example for the garment manufacturing process substitutes is a machine called a plotter. Plotter is a substitute for a worker who have had molded all the models by hand that were produced after. Today the plotter is doing it himself, the human hand is only required to enter commands and certain specifications and pressed the start option. These substitutes have really helped the development of the textile manufacturing industry and reduce the efforts to which employees mostly woman have been exposed. But there is a downside, by substituting in this industry, there was a large number of layoffs since the workers were not needed as much.

Croatian companies that produce clothing usually sell them as well. Selling in traditional stores, has a very strong substitute - an online store. Globalization and market liberalization as well as borders opening, made online shopping very popular. One can purchase from their own home, at favorable prices and availability of brands that are not available on Croatian market yet. Customers have greeted

this substitute with joy, as well as manufacturers who knew to use online shopping in the right way, so that their clothes can be offered in others countries.

Most Croatian brands buyers are in the group of older population, and they do not use the Internet, though online store would be an ideal opportunity for Croatian producers to attract younger population. Great Croatian companies should take a look to examples of some Croatian independent designers whose collections are modern and attractive. They have been using active marketing and online stores so their products can be available to all. Also they have been using online shops for expanding to foreign markets. From selected enterprises in the sample, only two of them have their own online store which enable market expansion and attracting new customers.

Substitutes within this industry exist in various forms and aspects, but still there is not anything that could replace clothes, so companies should pay attention to it, and take advantage of the best substitutes to increase competitive advantage. Machines for cost reduction, plastic materials for new models or creations and online shop for greater accessibility to everyone. Croatian industry needs to push the envelope on which it is stuck for the last 20 years and accept new trends in the market and make the best of them.

4. CONCLUSION

Analysis and research of textile manufacturing industry in Croatia, have led to the present-day situation of the textile manufacturing industry, which is pretty bad, but the analysis of data in recent years are showing a positive development. Competitive structure is characterized by a large number of small businesses, with a small number of employees, who are receiving very low salary today. With that in mind, textile-manufacturing industry is perceived as unattractive to foreign and domestic investors, but also for potential future employees in this industry.

Firms are weakened, minced and there are not many resources for investment. The forces that surround the companies are in a dominant position. There are lot of competitors within the industry both domestic and foreign, also by opening the Croatian market, opportunities for entering new competitors are even greater. Suppliers in this industry have a strong power, precisely because Croatian companies do not want to create large and expensive raw materials, and they compel most materials procured from Europe, because of the speed of delivery. Given the number of customers but also a large number of competitors in the market, customers are better off today than ever. Exceptionally large amount of information, availability and variety of offers strengthens the power of customers daily.

Overall, the textile manufacturing industry as we know it, probably would never operate the same way in the same form. Over the years, will reduce the number of enterprises, and potentially reach a merger or consolidation of the industry. In the merger of the companies potentially lies the success of this industry, because it will increase the power of companies and will be able to reduce labor costs, improve its image and attract new customers. The textile manufacturing industry was once the pride of Croatian economy, and that just needs to be a guideline for improving the current situation.

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Developing Financial Distress Prediction Model For Companies Going Public: Accounting, Macroeconomic, Market, And Industry Approaches

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ABSTRACT

This research is to construct a model for an accurate prediction of financial distress by finding and including other variables outside the data/information derived the accounting reports. The population of this research is composed of all the non-financial companies listed on the Indonesia Stock Exchange. As for the samples, they are the companies experiencing financial distress which is indicated by their negative profits in two consecutive years; and the control group is composed of the companies in the same industry group with the total asset of almost the same as that of the companies experiencing financial distress; only that these companies do not experience financial distress. The model to construct the financial distress prediction is the Binary Logistic Regression. The results show that the variables of the group of financial ratios, namely liquidity, profitability, leverage, activity, and cash flow, can be used as the variables for the financial distress prediction. However, the variables of the group of market and macroeconomic ratios cannot be employed to predict. Meanwhile, the variable of the group of industry treated as a moderating dummy variable does not indicate to have any moderating influence on the variables of financial ratio that previously proved to have significant influence on the possibility of the financial distress of a company.

ARTICLE INFO

Keywords: Financial Distress, Financial Report, Market, Industry, *Binary Logistic Regression Model*

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1. INTRODUCTION

This is the continuation of the previous research (Nilmawati 2011, Satoto 2008) which has explored the use of financial ratios to predict the condition of a company, especially its financial performance. The results show that financial ratios can predict the financial distress condition. The prediction helps to indicate the possibility of financial distress as early as possible, so that an anticipation/preventive action can be taken to save the company from bankruptcy/insolvency. The external parties of the company will usually react to the signals of the distress, such as the delay of delivery, problem of product quality, loss of trust of its customers, bills from banks or creditors, and so on.

If such a condition is not immediately resolved, it will put a major impact on the company, that is, the loss of the trust from stakeholders, which will lead the company into a bigger problem, and eventually to bankruptcy. The identification of the condition of the financial distress is more important than the

issue of bankruptcy itself (Brahmana 2004). This is because basically there is no company intended to end in bankruptcy. It applies especially to a company that has gone public, in which its ownership is widely shared by the public. A big number of people will suffer a substantial loss if the company goes bankrupt. If the bankruptcy occurs in the banking industry, it will increase the burden of the government. The government must guarantee the return of the customers' money and it certainly places a burden on the state budget.

The prediction model for early detection of financial distress used in previous research involved the financial ratios of the companies, especially those from the Loss/Profit Report and the Balance Sheet Report (Accounting Report). This is also found in the research by Angelina (2004), Herliansyah (2002), Almilia and Kristijadi (2003), Almilia (2006), Widarjo and Setiawan (2009), and other research in Indonesia. However, the use of the data from an accounting report actually can make a company late to detect its financial distress. This is because the accounting data is often found out of date due to the submission of the report that has missed the deadline (Ohlson 1980, Lennox 1999).

Keasey and Watson (1991) also state that a model that is based on historical/past data (financial data) poses caution because it is possible that a fundamental change has occurred in the company, one that has not been reflected in the financial report. The possible conditions are things like the macroeconomic and monetary changes, reflected in the changes in interest rates, the changes in the CBI (the Certificate of the Bank of Indonesia), the changes in inflation, the changes in exchange rate, and the changes in other sectors.

Marketwise, the changes can be resulted from the changes of the price of the company's stock, the changes of the market composite index, the adjustment of the value of company's share to the market price, and others. In addition, Beaver, McNichols, and Rhie (2005) provide more findings that the use of a financial report can make the prediction of the bankruptcy less effective. This is because of the following issues as: (1) the standard of accounting used (2) the enhancement of discretionary reporting (3) the increase of the assets which are not recorded (e.g. intangible assets) and the obligations which are not recorded (e.g. funding of derivatives). According to Ohlson (1980), the accuracy of the prediction of any models will be dependent on the time when the information is available and, in addition, to make the accuracy of the prediction, more variables need to be factored in.

Thus, it can be concluded that the model of accurate prediction for the financial distress can use financial data (as supported by some research reports), and current conditions that would probably affect the company's performance. This is because many changes might have occurred, those that have not been "recorded" in its financial report.

This research also incorporates the influence of industry/business category on the model of prediction to be created as that conducted by Chava and Jarrow (2004). An indication of the need for the other

variables has been reflected in the research by Qurriyani (2012), Christidis and Gregory (2010), Campbell, Hilscher, and Szilagyi (2008), Chava and Jarrow (2004), and Agarwal and Taffler (2008). Research in Indonesia has not yet included the variables; those which are going to be identified and utilized in this research. This is because most research so far only utilizes financial reports.

1. REVIEW OF LITERATURE

2.1. Financial Distress

Some indications of financial distress can be found in a variety of research results, as it is stated by Chen, Weston, and Altman (1995). They said that distress is the state when the liquidity of the assets of a company is less than the total value of the company assets claimed by the creditors. Pranowo, Achsani, Manurung and Nuryartono (2010) reveal that a company is classified to experience financial distress when its cash flow is very minimal, and it is quite possible that the company may fail to pay and to meet its financial obligation. These researchers used the *Debt Service Coverage* (DSC) of 1.2 or less as the proxy of the financial distress in their research.

Platt, and Platt (2002) reveal that a company is said to experience financial distress if it undergoes one of these things: its net operating profit is negative for a few years; dividend payment is suspended; it undergoes financial restructuring; or it conducts mass lay-offs. According to Whitaker (1999), a company experiences financial distress if its cash flow is smaller than its long-term debt. Elloumi and Gueyie (2001) state that the financial distress of a company can be indicated by its negative *Earning Per Share (EPS)*. Brahmana (2004) indicates that financial distress is indicated by the delisting of its share from the Indonesia Stock Exchange.

Basically, the financial distress, with its various definitions, occurs before a company goes bankrupt. This will provide the company with early warning to help it avoid a worsening condition and bankruptcy.

2.2. Financial Report

A financial report gives an illustration of the operation of a company and the position of its funding. This report reveals what actually happens to the assets, earnings, and dividend (Brigham, Gapenski and Daves 1999). Through this financial report, other parties concerned can carry out a fundamental analysis to evaluate the condition of the company by utilizing the financial ratios that can be constructed from the financial reports of the company. This financial report is primarily composed of the Profit/Loss Report, the Balance Sheet Report, and the Cash Flow Report.

To predict the financial distress of a company, a financial report becomes the major source for the identification, analysis, and evaluation. The ratios generally used for the process of analysis can be divided into several main categories.

2.3. The Main Categories of Financial Ratios

2.3.1. Liquidity Ratios

The liquidity ratio illustrates the ability of a company to meet its short-term obligations. This ratio involves short-term assets that include: cash, securities, accounts receivable and the inventory of the company with its short-term debts which include: trade debt, salary debt, tax debt and so on. The low level of liquidity will drive the company to a crisis. The ratios which are commonly used as a measure of liquidity are *the current ratio* and *acid test ratio*. (Brigham, Gapenski, and Daves 2011). The higher the degree of the liquidity of the company is, the more capable the company will be to meet its obligations, and thus the probability of financial distress will be lessened. The research conducted by Mahdi and Bizhan (2009) shows that the liquidity ratio affects the probability of the financial distress.

2.3.2. Profitability Ratios

The profitability ratio demonstrates the ability of accompany to generate profits. This ratio also illustrates the effectiveness of the operation of the company, which combines the effect of the liquidity, the management of the assets and the management of the debts. The ratios which are often used are: the Profit Margin on Sales, the Basic Earning Power, the Return on Assets, the Return on Equity, and so on (Brigham, Gapenski, and Daves 2011). In research about financial distress, generally the profitability ratio becomes the measure of the performance of the company (Joseph and Lipka 2006). The high profitability reduces the possibility of the occurrence of financial distress. This is supported by the research conducted by Routledge and Gadenne (2000).

2.3.3. Activity Ratios

The activity ratio illustrates how effectively a company manages its assets. This ratio is designed to answer the question: Is the sum of each asset that is reported in the balance sheet report reasonable, too much, or too low to cover the level of the current and future sales? The ratios which are included in this category are: the Inventory Turnover, the Day Sales Outstanding, the Fixed Asset Turnover, the Total Asset Turnover, and so on (Brigham, Gapenski, and Daves 2011). The results of the research conducted by Jiming and Du (2011) show that the activity ratio affects the possibility of financial distress, and so do the results of the research conducted by Ardiyanto and Prasentiono (2011).

2.3.4. Leverage Ratios

The leverage ratio is related to the use of loan in a company. According to Christidis and Gregory (2010), the main issue arising from the use of the loans is whether the company has sufficient profit to pay the interest and repay the loans. If the company relies heavily on the loan, its profit will be high when the profitability is growing, but in a poor condition, the profit will be low or even negative. Therefore, the

leverage ratio indicates the financial risk of the company. Thus, the higher the level of the leverage of the company is, the more likely the company is to experience financial distress condition. The results of the research that link the leverage with financial distress indicate that the leverage affects the financial distress. (Hodgin and Roberto 2011, Marchesini, Perdue, and Bryan 2004, Chava and Roberts 2008).

2.3.5. Cash Flow Ratios

The cash flow ratio provides more information about the capabilities of a company to pay its obligations. This ratio shows how much cash is generated when compared to the short-term liabilities. This ratio can be measured by: *the Operating Cash Flow (OCF)*, *the Funds Flow Coverage (FFC)*, *the Cash Interest Coverage*, *the Cash Current Debt Coverage* and so on. The higher this ratio is, the less likely the company is to experience the financial distress condition. The results of the research conducted by Qurriyani (2012) support this.

2.4. Influence of Market

The market ratio is related to the stock market price on the profit and the value of each share of the company. This ratio gives the management an indication of what the investors think about the performance of the company in the past and in the future (Brigham, Gapenski, and Daves 2011). The market price variables provide information that is more "timely"; and they also provide a direct measurement of volatility (Christidis and Gregory 2010). The following ratios are included in this category: Price Earning Ratio, Market/Book Ratio, and so on. The high market value shows a high perception of the market/investors upon the company, which results in a low probability of the occurrence of the financial distress. This is supported by Chava and Jarrow (2004), Beaver, McNichol, and Rhie (2005), and Christidis and Gregory (2010).

2.5. Influence of Macroeconomics

Ogden, Frank, and O'Conner (2003) mention that the macroeconomic variables are the external factors that can affect the financial distress. These variables include: inflation, interest rates, business cycle, economic recession, and so on. The research conducted by Subagyo (2007) shows that the macroeconomic variables can affect the financial distress condition of a company (Christidis and Gregory 2010).

2.6. Influence of Industry

Chava and Jarrow (2004) reveal that the influence of industry is an important component in the prediction of bankruptcy due to: 1) different industries will face different level of competition and, therefore, the cause of the bankruptcy will be different for different industries. 2) different industries

can have different accounting reporting system, and thus the causes/variables of the causes of the bankruptcy will also be different. The results of their findings show that the industry groups affect the magnitude of the slope and coefficient of the prediction model created. Similarly, the findings by Subagyo (2007), Christidis and Gregory (2010) support the conclusion.

3. ABSTRACT, KEYWORDS AND CORRESPONDING AUTHOR DETAILS

3.1. Population and Samples

The population in this research was all the non-financial companies going public listed in the Indonesia Stock Exchange (ISE) observed from 2009 to 2012. Meanwhile, the research samples were companies experiencing the financial distress. The companies placed under the criteria of those with financial distress were those that suffer losses for two consecutive years. The control group was composed of those running the industry group whose total assets were the same as those of the companies experiencing financial distress, only that these companies did not experience financial distress (the industry groups refer to the groups specified by the Indonesia Stock Exchange).

3.2. Research Variables

The variables used in this research were:

The dependent variables, in this case, are category /dummy variables, in which the companies that experience financial distress are given the score of 1 and the companies who do not experience any financial distress are given the score of 0.

The independent variable, in this research, uses the information derived from the Financial Reports of the Companies, the Market Condition, the Macroeconomic Condition, and the Industry Groups.

From the Financial Reports which include the Profit/Loss Report, the Balance Sheet Report, and the Cash Flow Report, the following data was obtained: Liquidity Ratios, Profitability Ratios, Leverage Ratios, Activity Ratios, Cash Flow Ratios

From the market condition, such data as the ratio of the change of the stock price of the company, the ratio of the change of the composite index, the ratio of the change of the value of the assets of the company that goes along with the market price, etc. was obtained.

From the Macroeconomic Condition, it was obtained such data as the data that covers the changes in economic condition such as the inflation, the changes in investment interest rate, the changes in the loan interest rate, etc.

Regarding the industry groups, the data was from category of business that would then serve as dummy variables.

3.3. Method of Analysis

The stages of research and the analytical tools used in this research are as follows:

Identifying the required variables from the Financial Report of the Company, the Market Condition, the Macroeconomic Condition, and the Industry Groups. The process of identification was through the studies of relevant literature and the results of the research related to the problem of the financial distress prediction as well as the results of the questionnaires distributed to the companies listed on the Indonesia Stock Exchange.

After the variables of prediction are clearly identified, then the binary logistic regression test is done by gradually inserting the variables that exist in the group of the Financial Report of the Companies, the Market Condition, and the Macroeconomic Condition. The regression model used is as follows:

$$P_i Y = 1/[1 - \exp(\beta_0 \beta_{11} X_{11} \beta_{12} X_{12} \dots \beta_{1k} X_{1k})]$$

Description:

$P_i Y$ = probability of the companies to experience financial distress,

β = intercept

$\beta_0 \dots \beta_{1k}$ = coefficient of the regression

$X_{11} \dots X_{1k}$ = variable in each group of ratio

After the complete model was met including all the data, then the variable of the industry groups treated as the moderating (dummy) variables was inserted the intercept and the coefficient slope of the dummy variables in any industry group.

4. RESULTS AND DISCUSSION

Theoretically, the following variables which can empirically affect the financial condition/performance of a company, particularly the financial distress, are then derived:

Liquidity Ratios, Current Ratio: Current Asset/Current Debt, Quick Ratio: (Current Asset-Inventory)/Current Debt, Cash Ratio: (Cash& Securities)/ Current Debt.

Profitability Ratios, Gross Profit Margin: (Sales-Cost of Sales/Sales, Net Profit Margin: Net Profit After Tax/Sales, Economic Rentability/Basic Earning Power: Net Profit Before Tax/Total Assets, Return on Investment: Net Profit After Tax/Total Assets, Return on Equity: Net Profit After Tax/Equity.

Leverage Ratios, Debt Ratio: Total Debt/Total Assets, Debt to Equity Ratio: Total Debt/Total Equity, Ratio of Ability to Pay Interest (Times-Interest Earned Ratio): EBIT/Interest Expense, Total Debt to Total Capital Assets: (Current Assets + Long Term Debt)/Total Assets, Long Term Debt to Equity Ratio: Long-term Debt/Equity, Tangible Assets Debt Coverage: (Total Assets +Tangible + Current Debt) Long-term Debt.

Activity Ratios, Total Assets Turn Over: Sales/Total Assets, Working Capital Turn Over: Sales/(Current Assets-Current Debt), Ratio of Fixed Assets Turnover: Sales/Fixed Assets, Ratio of Inventory Turnover: Sales/ Inventory, Age of Accounts Receivable: Accounts Receivable/ Credit Sales, Accounts Receivable Turnover: Credit Sales/Average Accounts Receivable.

Cash Flow Ratios, Operating Cash Flow (OCF): $\text{EBIT (Earnings before Interest and Taxes) + Depreciation} - \text{Taxes}$, Funds Flow Coverage (FFC)/Cash Flow Coverage: $\text{EBITDA}/(\text{Interest} + \text{Liabilities After Tax} + \text{Dividends of Preference Stock After Tax})$, Cash Current Debt Coverage/Current Cash Debt Coverage: $(\text{Cash}/\text{Assets})/\text{Current Liabilities}$.

Market Ratios, Earning Per Share: $\text{Net income for common stockholders}/\text{Number of outstanding shares}$, Price to Book Value Ratio: $\text{Market price per share}/\text{Book value per share}$, Dividend Yield Ratio: $\text{Dividend per share}/\text{Price per share}$, Dividend Payout Ratio (DPR): $\text{Dividend per share}/\text{Earnings per share}$.

Macroeconomic Condition: Inflation, Interest Rate Announcement, Changes in Exchange Rates, Change in JSPI(Joint Stock Price Index), Gross Domestic Product

4.1 Testing Variables Determining Financial Distress Condition of Companies

After the variables which serve as the indicators to determine a financial condition of a company are retrieved, then statistical testing is conducted to see which variable is estimated to be the most influential or at least which can predict the possibility of a financial distress. For this purpose, the binary logistic regression test is conducted, and its recapitulation is presented in Table 1.

Equation 1 with the variables of the group of liquidity ratios as indicated in Table 1 shows that the cash ratio variables produce the value of regression coefficient of -0.416. It indicates that the variable carries a significant negative influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 8.01868 with the level of significance of 0.4316 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.034 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 3.4%. Since the prediction power of the model is found at the level of 57.317, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Equation 2 with the variables of the group of liquidity ratios and the variables of profitability shows that the GPM and ROI produce the value of regression coefficient of -2.699 and -4.745. It indicates that the variable carries a significant negative influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 6.754 with the level of significance of 0.563 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Concerning the value of Nagelkerke R Square Test, the test gives the value of 0.156 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 15.6%. Since the prediction power of the model is found at the level of 60.976, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Equation 3 with the variables of the group of liquidity ratios added by profitability variables and leverage variables shows that the GPM and ROI produce the value of regression coefficient of -3.156 and -5.528. It indicates that the variable carries a significant negative influence on the possibility of financial distress. The TIE variables produce the value of regression coefficient of 0.0329. It indicates that the variable carries a significant positive influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 3.637 with the level of significance of 0.888 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.178 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 17.8%. Since the prediction power of the model is found at the level of 60.736, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Equation 4 with the variables of the group of liquidity ratios added by profitability variables, leverage variables, and activity variables shows that the GPM produce the value of regression coefficient of -4.514 which indicates that the variable carries a significant negative influence on the possibility of financial distress. The ROE produce the value of regression coefficient of 0.508 which indicates that the variable carries a significant positive influence on the possibility of financial distress. In addition, the TIE variables produce the value of regression coefficient of 0.043 which indicates that the variable carries a significant positive influence on the possibility of financial distress, and the WCTO variables produce the value of regression coefficient of -0.035 which indicates that the variable carries a significant positive influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 9.657 with the level of significance of 0.289 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.271 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 27.1%. Since the prediction power of the model is found at the level of 67.484, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Table 1. Results of Binary Logistic Regression

Group	Variables	Coefficient b for equation:						
		1	2	3	4	5	6	7
Accounting Variables	Liquidity							
	CR	0.106	0.154	0.203	0.224	0.216	0.232	0.235
	QR	-0.006	-0.015	0.004	-0.013	-0.010	-0.012	-0.013
	Cash	-0.416 *	-0.168	-0.147	-0.266	26.912	26.159	24.807
	Profitability							
	GPM		-2.699 **	-3.156 **	-4.514 ***	-4.462 ***	-4.179 ***	-4.173 ***
	NPM		0.176	0.252	0.141	0.131	0.166	0.159
	RE		-2.435	-2.327	-1.351	-2.092	-2.096	-2.063
	ROI		-4.745 *	-5.528 **	-4.585	-5.257 *	-4.259	-4.228
	ROE		0.172	0.231	0.508 *	0.471	0.4867	0.481
	Leverage							
	DR			0.461	0.052	-0.131	-0.0398	-0.058
	DER			-0.041	-0.016	-0.035	-0.046	-0.0472
	TIE			0.0329 *	0.043 **	0.037 *	0.0368	0.0368
	TDCA			-0.889	-0.150	-0.046	-0.060	-0.051
	LTDA			0.122	0.157	0.192	0.207	0.215
	TADC			5.930	0.001	0.002	0.002	0.002
	Activity							
	TATO				-0.486	-0.426	-0.418	-0.419
	WCTO				-0.033 *	-0.035 **	-0.035 *	-0.036 *
	FATO				-0.018	-0.015	-0.016	-0.016
	ITO				0.009	0.009	0.009	0.009
	RAA				2.069	2.076	2.199	2.178
	RTO				-0.001	-0.001	-9.644	-0.001
	Cash Flow							
	OCF					0.096	0.0969	0.099
	FFC					1.065	0.866	0.890
CCDC					-27.217	-26.502	-25.161	
Market Variables	Market							
	EPS					-0.003	-0.003	
	PBV					0.0243	0.019	
	DY					0.243	0.244	
	DPR					-0.066	-0.067	
Macro Variables	Macro							
	Inflation							
	Interest						68.948	
	Kurs							
	IHSG							
Nagelkerke R Square		0.034	0.156	0.178	0.271	0.283	0.3	0.301
Hosmer and Lemeshow Test		8.019	6.7543	3.6376	9.6572	12.962	11.8	6.789
Sig		0.432	0.5634	0.8882	0.2899	0.1132	0.16	0.559
Overall Percentage Classification		57.32	60.98	60.74	67.48	66.87	68.71	69.94

Note: *** sig. 1%, 5%, dan 10%

** sig. 5%, dan 10%

* sig. 10%

Source: Processed Secondary Data

Equation 5 with the variables of the group of liquidity ratios added by profitability variables, leverage variables, activity variables and cash flow variables shows that the GPM and ROI produce the value of regression coefficient of -4.462 and -5.257 respectively. It indicates that the variable carries a significant negative influence on the possibility of financial distress. The TIE variables produce the value of regression coefficient of 0.037 which indicates that the variable carries a significant positive influence on the possibility of financial distress, whereas the WCTO variables produce the value of regression coefficient of -0.035 which indicates that the variable carries a significant negative influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 12.962 with the

level of significance of 0.113 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.283 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 28.3%. Since the prediction power of the model is found at the level of 66.871, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Equation 6 with the variables of the group of liquidity ratios added by profitability variables, leverage variables, activity variables, cash flow variables and market variables shows that the GPM produce the value of regression coefficient of -4.179. It indicates that the variable carries a significant negative influence on the possibility of financial distress. The WCTO variables produce the value of regression coefficient of -0.035 which indicates that the variable carries a significant negative influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 11.8 with the level of significance of 0.16 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.3 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 30%. Since the prediction power of the model is found at the level of 68.711, it indicates that it can be used to correctly predict to which group of companies a company should belong.

Equation 7 with the variables of the group of liquidity ratios added by profitability variables, leverage variables, activity variables, cash flow variables and macroeconomic variables shows that the GPM produce the value of regression coefficient of -4.173. It indicates that the variable carries a significant negative influence on the possibility of financial distress. The WCTO variables produce the value of regression coefficient of -0.036 which indicates that the variable carries a significant negative influence on the possibility of financial distress. As for the value of Hosmer and Lemeshow Test, it is at 6.788 with the level of significance of 0.550 (bigger than 0.05). This value indicates that the model is indeed able to predict its observation data or that it is acceptable since it conforms to the observation data. Regarding the value of Nagelkerke R Square Test, the test gives the value of 0.301 which indicates that the variability of the dependent variables can be explained using the variability of the independent variables at the rate of 30.01%. Since the prediction power of the model is found at the level of 69.938, it indicates that it can be used to correctly predict to which group of companies a company should belong.

4.2 Discussion

The binary logistic regression test indicates that when variables belonging to the group of liquidity ratios are included in the equation, the cash ratio variable has a significant negative influence on the possibility of financial distress of the companies in the future. It shows that the liquid asset contributes to the

detection of the possibility of the financial distress in the future. The illiquid asset is then the asset that will serve as a guarantee of the ability of the company to meet its short-term obligations. The lower the ratio is, the more likely the company is to experience financial distress. According to Zavgren (1985), a company with insufficient liquidity will easily experience a crisis. The results of this research support the research done by Platt and Platt (2002), Almilia and Kristijadi (2003), Mahdi and Bizhan (2009).

When the variables of the group of profitability ratios are included in the regression equation, it is found that the GPM and ROI variables show a significant negative influence on the possibility of distress of a company in the future. This means that the profit generated by the company from its operation is able to predict the possibility of financial distress. The lower the ratio of the profit is, the more possibly the company is to experience financial distress in the future and, conversely, the high profitability results in a low probability for the occurrence of financial distress. The results of this research confirm the research by Routledge and Gadenne (2000).

When the variables of the group of leverage ratio is then included to the regression equation, the same results are obtained that ROI and GPM variables show a significant negative influence on the possibility of financial distress of a company in the future. In addition, it is found that TIE variable is one of measurements of the leverage ratios that have a significant positive influence on the possibility of financial distress experienced by the company. This means that the bigger the TIE is, the more likely the company is to experience financial distress in the future. Theoretically, TIE shows the availability of the business profit to be used to pay interest as a result of using debt. This might cause the creditors to have confidence in the company that has high TIE. Baral (2004) mentions that the higher the ability of a company to pay the interest of the loan, then the higher the capacity of its debt. In the research, the results show that the companies with high TIE are more likely to experience financial distress, possibly it is because the companies that become the samples of the companies experiencing financial distress have the average TIE that is much smaller compared to the average TIE of the sample companies which do not experience financial distress, i.e. $6.97 < 42.54$. It is demonstrated in this research that even though the companies have operation profit to pay interest, if the profit is not big enough there is still a possibility of financial distress.

Next, when the group of activity ratios is included in the equation, the results obtained are the same, that is, GPM variable has a significant negative influence on the possibility of financial distress, and TIE has a significant positive influence. It is also found that ROE has significant positive influence on the possibility of financial distress to be experienced by the companies in the future. Meanwhile, WCTO variable as one of the measurements of the activity ratios has a significant negative influence. It shows that the smaller this ratio is, the less effectively a company is in managing its asset and thus the possibility of experiencing financial distress is bigger. The results of this research support the research by Jiming and Du (2011), Ardiyanto and Prasetionoto (2011).

When the variables of the market ratios are included to the regression equation, it is found that the GPM and WCTO variables have a significant negative influence on the possibility of financial distress of a

company. Likewise, when the variables belonging to the microeconomics are included in the equation, only the two ratios have an influence on the possibility of financial distress, in which both have a significant negative influence.

Overall, the results show that the variables included in the group of financial ratios, namely the group of liquidity ratio (cash ratio), profitability ratio (GPM, ROI and ROE), leverage ratio (TIE), and activity ratio (WCTO) can predict the probability of financial distress in the future. Meanwhile, the variable that is most consistently influential in the equation is GPM variable, followed by WCTO variable. For the variables belonging to the group of market and macroeconomics ratios, no variables are found capable of statistically predicting the financial distress in the future.

Because the GPM and WCTO variables were considered to be consistent in predicting the possibility of financial distress, the two variables were then used in the equation. They would include the industries as the moderating dummy variables. The test was conducted to find out whether the influence of the GPM and WCTO variables in predicting the financial distress will vary for different lines of industry. In this research, the non-financial companies in the Indonesia Stock Exchange were classified into 9 (nine) groups of industry namely: 1) Agriculture, Animal Feed, 2) Mining, 3) Construction, 4) Manufacture, 5) Transportation & Communication, 6) Wholesale and Retail, 7) Real Estate & Property, 8) Investment, 9) Others. The result indicates that there is no significant moderating coefficient between the industry groups and the WCTO and GPM variables. It shows that the variation/type of the industry group in the Indonesia Stock Exchange does not affect the slope/change of influence of the GPM and WCTO variables in predicting the possibility of financial distress. These results, in fact, do not support the findings by Chava and Jarrow (2004) who state that an industry group has an influence on their prediction model even though not all industry variables are significant. The results of this research neither support the research conducted by Christidis and Gregory (2010), who offer different results within the lines of industry for the variables that have an influence in the prediction model of financial distress.

5. CONCLUSION

The results of this research indicate that, overall, the financial ratios which consist of Liquidity ratios, Profitability ratios, Leverage ratios, Activity ratios, and Cash Flow ratios can be used to predict the possibility of financial distress in the future. The predictors can be represented by Cash Ratio, Gross Profit Margin, Return on Investment, Return on Equity, Times Interest Earning, and Working Capital Turn Over. These results are in line with the findings of the previous researchers such as those of Qurriyani's (2012), Almilia's (2006), Almilia and Kristijadi's (2003), Subagyo's (2007).

However, overall, the variables of the Gross Profit Margin and the Working Capital Turn Over are the variables that are consistently present in every prediction model tested in this research. It turns out that

the ratios of the Market and Macro conditions cannot be used as predictors for the possibility of financial distress, due to the absence of significant ratios in both groups.

As for the variable of industry used as moderating dummy variables, the significant moderating influence is not at all found among the industry groups with the significant variables of WCTO and GPM. Thus, these results do not support the findings by Chava and Jarrow (2004) who state that the lines of industry have an influence on their prediction model even though not all the industry variables are significant. These results neither support the research by Christidis and Gregory (2010), who find different results in the industry group for the variables which have an influence on the prediction model of financial distress.

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CONFLICT RESOLUTION ANALYSIS USING GRAPH MODEL FOR CONFLICT RESOLUTION (GMCR) APPROACH (A CASE STUDY IN CONFLICT AND COOPERATION AGREEMENT BETWEEN IDT AND IDMT)

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ABSTRACT

This study uses the Graph Model for Conflict Resolution (GMCR) as an approach to describe the optimal solution for resolving the conflict which happened between IDT and its subsidiary IDMT. This conflict arose when IDMT used IDT's 2.1 frequency band.

The main players in the conflict is IDT with its subsidiaries namely IDMT. The other parties involved in the conflict were KTI NGO, Central Jakarta District Court, Attorney General's Office and Policy Institute (MCIT and Administrative Court). The method used in this research is qualitative research that uses literature review as a tool for data collection

Based on the stability analysis, The equilibrium scenario for all the parties in frame I and frame II was the first scenario. The first scenario happened when, KTI NGO reported that there was an alleged misuse of mobile cellular network in the frequency of 2.1 GHz / 3G conducted by IDT and IDMT. IDT and IDMT sent out a counter report stating that they had been extorted by KTI NGO. The Central Jakarta District Court then concluded that KTI NGO had been guilty of extorting IDT and IDMT. However the Attorney General's Office continued their investigation on IDT and IDMT because of their suspected misuse of mobile cellular network and on the Policy Institute who defended IDT and IDMT. Based on the outcome of the conflict as reported on online news portals, it can be concluded there is correlation between the outcome of the conflict and the stable solution (equilibrium) generated through the GCMR approach. The implications of this study can be used as a reference for the Indonesian government and stakeholders in the telecommunications industry to resolve similar conflict in the telecommunications cooperation agreement.

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1. INTRODUCTION

Based on the survey conducted by the Association of Indonesian Internet Service Provider (APJII) together with the Central Statistics Bureau (BPS) in early 2014 revealed that the number of Internet users in Indonesia has reached 71.19 million people by the end of 2013. That number grew 13 percent compared to the record in late 2012 which is 63 million people. With this amount compared with the total population of the population of Indonesia, the Internet penetration percentage in Indonesia is about 28 percent. APJII judging by these results Indonesian intention to adjust to the demands of the Millennium Development Growth (MDGs) which also agreed with International Telecom Union (ITU),

that in 2015 the population of the earth is to be internet savvy 50 percent has not yet achieved. Then there are two more years to catch up to achieve these targets. (<http://www.apjii.or.id> accessed on October 3, 2014).

Based on that, there are some stakeholder who can play an active role to make it happen such as the players in Telecom Industry as a network and service provider and also supported by the Government and people of Indonesia itself. In accordance with Article 33 paragraph (2) of the Telecommunications Act number 36 of 1999 which explains that the Internet Service Provider (ISP) can use a network provider's network (both wired network and mobile network) (<http://apjii.or.id> accessed at dated October 3, 2014). These are reasons for supports and cooperation between providers of telecommunications networks and telecommunications service providers to be able to create an internet savvy society.

One of the form of cooperation agreements that support the provision of internet for internet literacy will be done by IDT as a provider of telecommunications networks and IDMT as telecommunications service providers. Indar Atmanto as the Director of IDMT on 24 November 2006 signed the cooperation agreement between IDT and IDMT on internet access through 3G networks. However, the cooperation agreement turn into a conflict when the KTI NGO led by Denny AK on October 6, 2011 reported allegations of corruption made by IDT and IDMT on the misuse of mobile cellular network 3G radio frequency band to the West Java High Court (<http://news.detik.com> accessed on October 3, 2014).

Conflict occurs when there is a disagreement between an individual or group that has a different perception of things. In this case, law enforcement agencies in Indonesia, the Attorney General's Office stated that the cooperation agreement made by IDT and IDMT is not valid in the eyes of the law that set 5 suspects, former Director of IDMT (Indar Atmanto), former Director of IDT (Jhonny Swandi Sjam and Hari Sasongko), and two corporations IDT and IDMT (<http://news.liputan6.com> accessed on October 3, 2014). It is inversely proportional to the statements and information given by the telecom regulator, namely the Ministry of Communications and Information Technology (Communications) whose are not considered by law enforcement agencies during the judicial process takes place which states that IDT and IDMT cooperation agreement is in accordance with the Telecommunications Act, and there is no obligation to pay IDMT frequency rights fee due to the obligation is IDT's and it has been paid. This is confirmed by the issuance of a letter 65 / M.KOMINFO / 02/2012 by the Communications and Information Technology as telecommunications regulator stating that there is no violation of law, crimes committed, and losses that result from an agreement between IDT and the IDMT. Furthermore, the Minister of Communications and Information Technology (MCIT) also sent a letter to Attorney General's Office directly stating that both IDT and IDMT does not violate any rules and cooperation between IDT and IDMT is legal under the rules and regulations in force, and is a

common practice in the telecommunications industry. (Annual Report 2013 PT.IDT Tbk accessed on October 3, 2014).

The stipulation has become a major step back for Indonesian intention to adjust to the demands of the Millennium Development Growth (MDGs) which also agreed by International Telecom Union (ITU), that in 2015 the population of the earth is to be 50% internet savvy and has not yet achieved. On the other hand conflict arises when Telecommunications Industry itself still lacks clarity related to their rules. Even in the near future, the Internet in Indonesia is threatened to stop completely. Because the whole internet service provider or ISP in this country do not want to suffer the same fate as Indar Atmanto. They think that what Indar has done is in compliance with the rules and has been deemed lawfully correct by the telecommunications regulator. But in fact, Indar is imprisoned on an agreement which was ruled not appropriate by law enforcement agencies in Indonesia. Conflicts occurred with an alleged illegal use over an IDT's 2.1 frequency band by IDMT based on a cooperation agreement between the IDMT represented by Indar Atmanto as the former Director of IDMT with IDT that has go on since 2011, so it can be created a model of resolution to this conflict that can serve as a lesson and won't harm any parties.

There are many ways that can be used in an effort to generate a resolution model of a conflict; one of them is using game theory approach (Game Theory). In line with the development of science, Fang, Hipel and Kilgour (1993) used game theory to model conflict resolution with the known Graph Model for Conflict Resolution (GMCR) which is a new breakthrough to the approach to game theory. GMCR is a methodology for framing an interactive decision or conflict situations, in which the stability analysis can be generated as well as an assessment tool of the best strategies for conflict resolution. In Indonesia, GMCR has been used in a variety of case studies Handayati et al (2011), Alamanda et al (2010,2011,2012,2014), Ariyanto (2013), Husnayain and Alamanda (2014).

In this study, GMCR is used to describe the optimal solution obtained in a conflict that has happened in the agreement between IDT and IDMT seen from the preferences of each party involved in the conflict. The combination of the preferences of each party will result in scenarios which are shadows on the steps taken by each party in a state of conflict. As known by the previous explanation that the conflict of this agreement has resulted in the enactment of five suspects, former Director of IDMT (Indar Atmanto), former Director of IDT (Jhonny Swandi Sjam and Hari Sasongko), and two corporations IDT and IDMT. After going through the process GMCR approach, the correspondence between the steps that should be taken based on the GMCR approach and steps that occur in the real world are taken by each player on this conflict. Therefore, the final results are to know how the process of cooperation agreement IDT and IDMT conflict that can be used as lessons to learn by the other network providers and services in the Indonesian Telecommunications Industry.

2. LITERATURE REVIEW

Every decision is a matter of a strategic nature. Schwenk in Nooraie (2012: 406) mentions that strategic decision is a structured problem, not routine and important for the company, where top management usually plays a central role (Hofer & Schendel, 1978).

Vahabi (2009: 5) states that from methodology point of view, "strategic conflict" is based on the assumption of rationality and maximizing behavior of players in the conflict. This is about the definition of "strategy". It is assumed that the maximum "rational" value in the mode of behavior, and focuses on the fact that the selection of the "best" in every action depends on what he expects of others are doing, and that "strategic behavior" with regards to influencing the choices of others about how the behavior of other people associated with his behavior (Schelling, 1963: 15). Strategic conflict is trying to catch a "threat" or "potential" of the actual damage in the limited (but not the whole) case. This is the same with saying that the main subject of this theory is "prevention". In addition, the "prevention" is considered as if it composed of rational bargaining while In fact, in this approach the conflict side by side with the interdependency between opponents and partners.

Kilgour, Hipel, Peng, and Fang in Obeidi et al (2002: 147) defines strategic conflict as "..., decision situation involving two or more decision makers (DMS), which make an individual choice which both determine the state, and which have individual preferences over the possible states (as a conflict resolution)."

Xu (2009: 1) states that in order to analyze the strategic conflict means to investigate the interaction of two or more decision makers (DMS) either opposed or partners to identify possible outcomes. There are many models available for strategic conflict, and many ways to analyze the model, including the strategy of the games in game theory, the form of the option, and the form which is closely linked to the table. Madani et al (2008) states that the complexity of the conflict can be simplified and analyzed using game theory to explore a range of potential outcomes resulting from the various strategies used by the players game. In line with the development of science, Fang, Hipel and Kilgour (1993) used game theory to model conflict resolution with the known Graph Model for Conflict Resolution (GMCR) which is a new breakthrough to the approach to game theory. GMCR is based on a mathematical framework that utilizes the concept of graph theory, set theory, and logical reasoning (Fang et al., 1993). The initial idea of GMCR was introduced by Kilgour, Hipel and Fang in 1987, and then it was presented in full for the first time by Fang, Hipel and Kilgour in 1993. GMCR has been applied to various fields of applications, from environmental management for workforce management, from military activities and peacekeeping to economic issues, from local to international level (Ke, 2007: 1).

GMCR is a methodology for framing an interactive decision or conflict situations, in which the stability analysis can be generated. GMCR, as a tool in the assessment of the best strategies of conflict resolution, also serves as a means of stimulation for the interaction and behaviour of decision makers and can be used in the preparation of mediation and negotiation. GMCR facilitates interested parties to put complex strategic decision problems into a better perspective and understanding of the current situation and imagine the potential resolution (Fang et al, 1993).

3. METHODOLOGY

Ke (2007: 7) states that the GMCR method as a graph model for conflict resolution methodology consists of two stages: modelling and analysis.

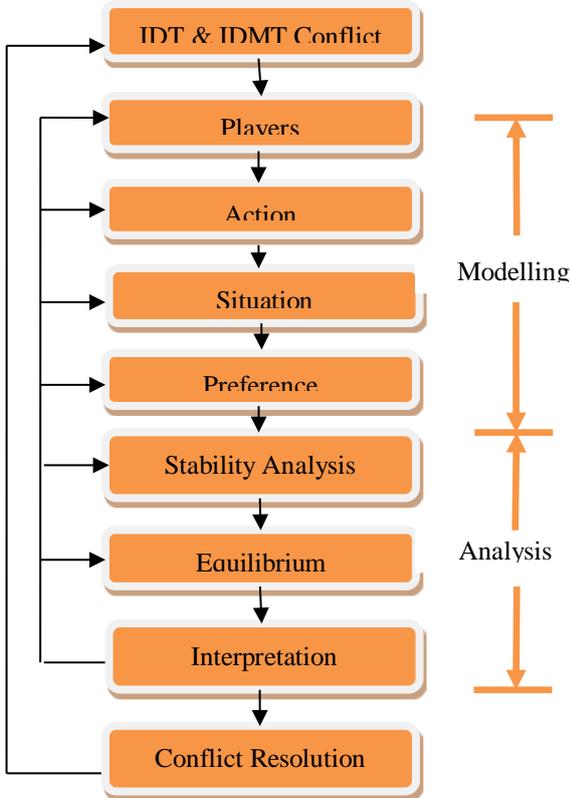


Figure 1: The procedure of GMCR

In modeling stage, issues that become conflicts are generated to be modeled with their basic elements which are decision maker, available option or states-defined option, and preference of decision maker. A decision maker is an individual, group, or organization that is able to make a decision affecting other decision makers in a conflict. Condition outlook is obtained from an option given in accordance with action taken based on available condition called option. The decision maker then chooses feasible state based on the collected options. Feasible state is a chosen scenario among a number of scenarios that may happen. The number of scenarios obtained is defined as 2^n , where 2 is the probability of “Yes” (Y) and “No” (N) and n is filled by a number of available options. However, not all of states may be

appropriate. Therefore, modeling stage is important to eliminate states that are not appropriate. Those options are then ranked based on the likeable things preferred by the decision maker, which is called preference of decision maker. The information will be used in the next stage, which is analysis stage (Ke: 2007)

In analysis stage, the stability of each condition is calculated based on each decision maker' view. Afterwards, the whole stability of stable conditions can be obtained. The preference is important information required as input for the stability analysis using a variety of solution concepts. The concepts of the solution used are indicated using the letters (r) for Nash stable scenario and (s) for stable sequential scenario and (u) for unstable scenarios. Next step is to see any scenario that is eventually equilibrium for all those indicated by the letter (E).

After the stability being analyzed, the next stage will be sensitivity analysis. Sensitivity analysis is an analysis for finding out what will happen to the decision makers if they move from one state (usually from state status quo) to another. In several application somebody may use sensitivity to decide how the preference of decision maker must change to deliver the more wanted equilibria for other decision makers. The result can be said as equilibria if it is a stable condition for all parties. With interpretation and sensitivity analysis, decision makers or other interested parties can understand the meaning of the resolution of conflicts in the real world. To be noticed is that the presence of feedback is allowed on GMCR procedure. Feedback means any stage, either at the modeling stage or analysis stage, can go back to the previous point, if found new information. These characteristics make GMCR more flexible and practical (Ke: 2007).

4. DISCUSSION & RESULT

Based on secondary data sources adapted to the purpose of this study which is to determine how the process of conflict and cooperation agreement between IDT and IDMT that can be used as a lessons learn for the network providers and services in the Indonesian telecommunications industry, the last status (status quo) on conflict of cooperation agreement between IDT and IDMT is presented in Table 1 below:

Table 1. Status Quo

<i>Frame</i>	<i>Players</i>	<i>Oprtion</i>	
I	KTI NGO	Reporting suspected abuse of mobile cellular network frequency of 2.1 GHz / 3G conducted by IDT and IDMT	Y
	IDT and IDMT	Reporting Extortion by KTI NGO	Y
II	Central Jakarta District Court	Establishing KTI NGO as guilty	Y

	Attorney General's Office	Establishing IDT and IDMT as a suspect	Y
	Policy Institute	Protecting IDT and IDMT	Y

After determining the players, options and categorized them based on the situation of conflict (frame), the researchers can determine a feasible framework states that may occur. Based on the previously mentioned and assessed scenarios on secondary data sources from multiple online news portal, there are only 3 scenarios in the frame I and 5 scenarios on the frame II considered feasible by the researcher. Here are the scenarios and options of each player which are considered:

Table 2. Feasible State Frame I

No	Option	Scenario		
		1	2	3
	KTI NGO			
1.	Reporting suspected abuse of mobile cellular network frequency of 2.1 GHz / 3G conducted by IDT and IDMT	Y	N	Y
	IDT and IDMT			
2.	Reporting Extortion by KTI NGO	Y	N	N

Table 3. Feasible State Frame II

No	Option	Scenario				
		1	2	3	4	5
	Central Jakarta District Court					
1.	Establishing KTI NGO as guilty	Y	Y	N	N	N
	Attorney General's Office					
2.	Establishing IDT and IDMT as a suspect	Y	N	N	Y	N
	Policy Institute					
3.	Protecting IDT and IDMT	Y	Y	N	Y	Y

The next step of the modeling process of GMCR is sorting scenario which reflects preference of each player / decision maker. Preferences are the tendency of players. In writing, the more to the left, the higher the preference is for the player. Such scenarios are sorted by rank of the most desirable scenario on the left to the least preferred scenarios on the right. This preference is important information that is required as input for the stability analysis using a variety of solution concepts.

Furthermore, it is checked which scenarios are the equilibrium or stable and acceptable to all parties that can be used as a conflict resolution of cooperation agreement conflict between IDT and IDMT and is

marked with the letter E. A state is considered stable for decision makers if and only if (IFF) decision makers are not tempted to move away from their unilaterally. A state is said equilibrium, or resolution may be a solution of choice concept, if all the decision makers find stability under the concept of solution. The concept of stability analysis used in this study is only nash stable (r), sequential stable (s) and unstable (u) because only those three conditions occur during the stability analysis. Nash stable occurs when a player does not change position due to other positions are not higher than its payoff in the current position. Sequential stable occurs when a player does not change position due to considering the steps of the opponent, and the opponent is not much better than its payoff in the current position. The unstable occurs when players switch positions to better position that has a higher payoff than its current position.

Here are the results of stability analysis on conflict and cooperation agreement between IDT and IDMT presented in Table 4:

Tabel 4. Results of Stability Analysis

FRAME I				FRAME II					
KTI NGO				Central Jakarta District Court					
			E		E				
<i>Stability</i>	r	u	r	<i>Stability</i>	r	r	u	u	r
<i>State Ranking</i>	3	2	1	<i>State Ranking</i>	1	2	4	5	3
<i>Uis</i>		3		<i>Uis</i>			1	2	
IDT and IDMT				Attorney General's Office					
			E		E				
<i>Stability</i>	r	r	u	<i>Stability</i>	r	r	u	u	r
<i>State Ranking</i>	2	1	3	<i>State Ranking</i>	1	4	2	5	3
<i>Uis</i>			1	<i>Uis</i>			1	4	
				Policy Institute					
								E	
				<i>Stability</i>	r	r	s	r	r
				<i>State Ranking</i>	2	5	3	1	4
				<i>Uis</i>			5		

In Table 4 it can be seen that the equilibrium scenario for all parties in the frame I is the scenario 1 when KTI NGO reports alleged misuse of mobile cellular network frequency of 2.1 GHz / 3G conducted by IDT and IDMT followed by IDT and IDMT that also report extortion by KTI NGO. While in the frame II, the equilibrium scenario for all parties is the scenario 1 when the Central Jakarta District Court sets KTI NGO guilty, Attorney General’s Office sets IDT and IDMT as suspect and Policy Institute that defends IDT IDMT.

The next step is sensitivity analysis used to answer the question "what if?" In some applications, one may use sensitivity analysis to determine how the preferences of decision makers should be changed in order to produce a more desirable equilibria for other decision makers. These results can be said as equilibria if it is a stable situation for all parties. Or in other words, a sensitivity analysis is conducted when there are two or more equilibrium scenarios to find which one is the best scenario for all parties. And in this study, as it has been obtained previously in the analysis of the stability that equilibrium or stable scenarios on the basis of nash for all parties in the frame I and the frame II is scenario 1 so it can be concluded that it is not necessary to have a sensitivity analysis because there is only one equilibrium scenario.

5. CONCLUSION

Based on the results of the analysis it is indicated that the stability of the equilibrium scenario for all parties in the frame I is the scenario I when KTI NGO report alleged misuse of mobile cellular network frequency of 2.1 GHz / 3G conducted by IDT and IDMT and followed by IDT and IDMT reporting extortion conducted by NGO KTI. While in the frame II, the equilibrium scenario for all parties is the scenario 1 when Central Jakarta District Court sets KTI NGO guilty, Attorney General's Office sets IDT and IDMT as suspect and also Policy Institute that defend IDT and IDMT.

In this research, GMCR is used to describe the optimal solution obtained in a conflict that has happened in the agreement between IDT and IDMT viewed from the options and preferences of each party involved in this conflict. Therefore, after going through the process of GMCR approach, it will be seen the correspondence between the steps that should be taken based on the results of the approach of GMCR method and steps occur in the real world taken by the respective players based on the outcome of the conflict as reported on online news portals. The implications of this study can be used as a reference for the Indonesian government and stakeholders in the telecommunications industry to resolve similar conflict in the telecommunications cooperation agreement.

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Online Purchase Intention of Tablets (PC): Role of Social Media and Learning Style

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ABSTRACT

The present study attempts to investigate the relations between the communications on the social network platforms and its effect on the purchase intentions of the consumers and more specifically the young adolescents. Further, this study also attempts to investigate how these relationships vary across young people possessing different learning styles. This study analysed the data in three part. The initial was an exploratory study which consisted of maintaining and excluding those items which enabled the analysis of other dimensions or factors with a suitable degree of reliability or uni-dimensionality. The second part was an exploratory and confirmatory factor analysis and the third being the structural equation modelling, which discarded those items which did not enable suitable dimensionality for the entire construct in the model. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) was used to test the present model using AMOS 21 software and basic calculations in statistics such as mean, standard deviation, factor analysis, correlation will be performed using SPSS 21. The study shows that the social media communication influence brand attitude and image leading to purchase intention.

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1. INTRODUCTION

Since the internet and other media have been adopted and integrated into the daily lives of an increasing number of young adolescents in most of the countries, scholars and commentators are debating the impact of these new media on the activities, social relationships, and worldviews of the younger generations. Controversies about whether technology shapes values, attitudes, and patterns of social behaviour are not new. In the recent past, the rapid expansion of television stimulated similar discussions of its cultural and social effects.

The websites of Social media provide an opportunity for companies to engage, actively involve and interact, network with the potential and current consumers, to encourage an increased sense of confidence of the customer relationship, and build all important meaningful relationships

with consumers by winning their trust (Mersey, et al 2010) especially in today's business situation when consumer loyalty can be wiped out at the smallest mistake, which can additionally have online negative broadcast of their unfortunate experience with a particular product, service, brand or company.

The emergence of online social networks influences people in various ways and moreover, the effect is predicted to be high on the young adolescents wherein it is found that target group who is more exposed themselves to the online social media. It is believed that the social networks influence the purchase intentions and therefore it is important to study the potential impact online social networks may have in this field. The present study attempts to investigate the relations between the communications on the social network platforms and its effect on the purchase intentions of the consumers and more specifically the young adolescents. Further, this study also attempts to investigate how these relationships vary across young people possessing different learning styles.

2. Literature Review

2.1 Firm generated social media communication

In compare to traditional sources of firm-created communication, social media communications have been acknowledged as bulk phenomena with widespread demographic demand (Kaplan and Heinlein 2010). This acceptance of the implementation of social media communication among companies can be explained by the viral broadcasting of information via the Internet on social media websites (Li and Bernoff 2011) and the larger capacity to reach to the local public when matched with the traditional media (Keller 2009).

Brand always aim at presenting their company in a positive direction, communication through traditional media and firm-created social media communication – both fully organised by the marketer – will always lead to positive brand-based communication content and positive review. Thus, it is anticipated that a positive assessment of the traditional tools of marketing communications and firm-created communication will positively influence brand consciousness, awareness, functional, and to brand image.

2.2 User Generated Social Media Communication

User-generated content abbreviated as (ugc) is a speedily growing factor for brand conversations and consumer perceptions (Christodoulides et al, 2012). From the study conducted by the Anindya et

al, (2012) the concept of User-generated content on social media platforms and product search engines is fluctuating the way customers buy for products online.

2.3 Brand Equity

The concept of brand equity is a strategic marketing strength (Styles and Ambler 1995) that can build a relationship that discriminates the links between a company and its customer and that encourages long-term purchasing behaviour (Keller 2013). The study the understanding of brand equity and its development increases competitive obstacles and pushes brand prosperity (Yoo, Donthu, and Lee 2000). Although research and studies has been carried out extensively in the field of brand equity, the literature review on this topic is disjointed and inadequate (George Christodoulides and De Chernatony 2010).

The measurement of brand equity has been come up from two major viewpoints in the literature. Some studies has focused on the financial aspects of brand equity (Simon and Sullivan 1993), whereas other studies have highlighted the customer-based aspects (Aaker 1991; Keller 1993; Yoo and Donthu 2001). Thus, the main stream of study has been grounded in reasoning psychology, concentrating on memory arrangement (Aaker 1991; Keller 1993).

2.4 Brand attitude

Olson and Mitchell (1981) defines brand attitude is identified as a “purchaser’s overall assessment of a brand”. Brand attitude is normally conceptualized as a world-wide evaluation that is based on positive or negative reactions to brand-related motivations or philosophies (Murphy and Zajonc 1993) research work contribute to the fact that the central factor to be considered in consumer-based brand equity and interpersonal exchanges (Lane and Jacobson 1995; Morgan and Hunt 1994).

Brand attitude is included in the proposed conceptual framework in this study which aims to enhance the understanding of the effects of social media communication on consumer perceptions of brands.

2.5 Learning Style

Kolb (1984) developed the experiential learning model abbreviated as (ELM) is connected with the different learning style which takes the information processing method to learning. Fundamentally, the

ELM is a four phase’s cyclical process, where students who learn meritoriously will experience all four phases at different times in the learning procedure and can interchange backward and forward through the phases, depending on what is being taught and the technique used. However, the learner will generally have a predilection for one particular style and, as their learning progresses, which changes the preference of the learner to adopt different style (McCarthy2010).

It is proposed in the model below that User Generated and Firm Generated Communication will influence the Brand attitude and Brand equity. Further, brand equity and brand attitude affects the purchase decision of the consumer. The integrated model also suggests that the learning styles acts as the moderating variable.

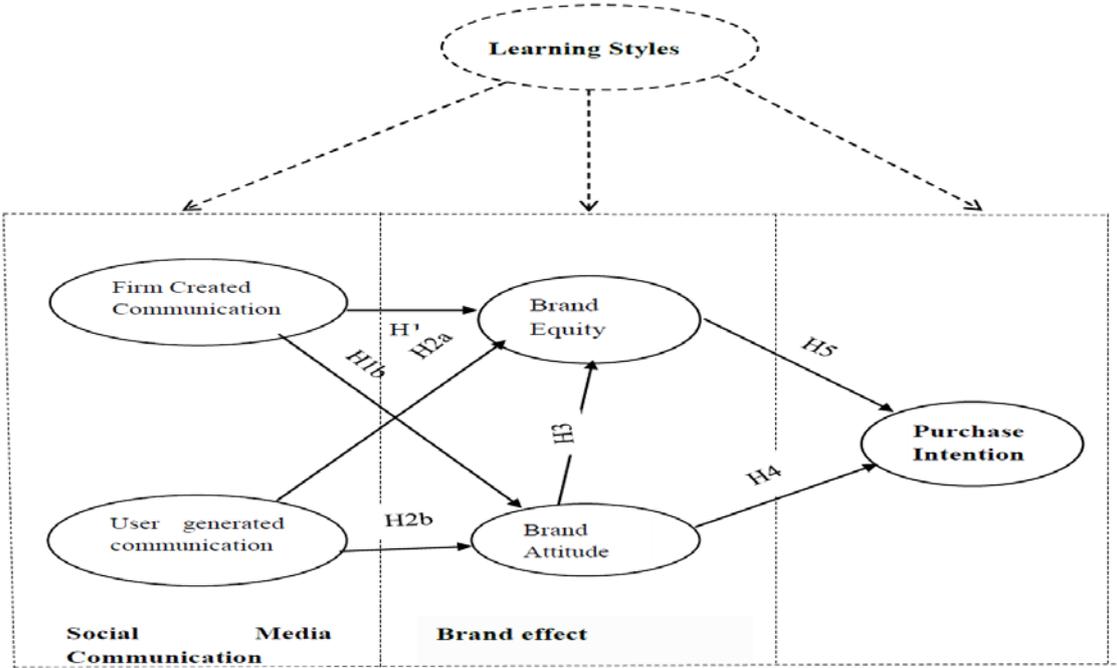


Fig 1 : SMBM Model

3. Development of Research Hypothesis

3.1 Social network Effects on brand equity

From the literature review supports the concept that branding communication influences brand equity by increasing the likelihood that a brand will be combined into a consumer’s consideration set, thus assisting in the process of brand decision making and in the process of the choice becoming a habit (Yoo, Donthu, and Lee 2000). Nielsen (2009) study states that 70% of internet users believe the evaluations of consumers in the form of review on social media platforms.

In this study it was assumed that a positive evaluation of firm-created social media brand communication will positively influence brand equity. Thus, the following hypothesis formulated which states:

H1a. Firm-created social media communication positively influences brand equity.

From the effect of user-generated social media communication on brand equity, it must be standardised that UGC is not normally guided by marketing involvement or company control over the market (George Christodoulides and Jevons 2011). If the consumers review is positive content carry information about a product/brand or company that can be mostly useful for consumers in relations to consumer-based brand equity. Additionally, the effects of UGC on social media can lead to growth about the brand consciousness and brand associations, hence influencing the overall assessment of a brand. Consequently, leads to hypothesize as follows:

H2a. User-generated social media communication positively influences brand equity.

As per the effect of user-generated communication on serviceable and hedonic profits can be both positive and negative. In the situation of functional advantage, the impact of user-generated communication relates to content handling and mainly with the quality characteristics of the brand that can be arbitrated in both forms positively or negatively by consumers, thus prompting functional brand image either satisfactorily or disapprovingly. The same rational applies to the influence on a brand's hedonic advantage.

Nevertheless, brand attitude may also comprise of the affect that is not apprehended in measurable characteristics, even when a large set of features is involved. Researchers conducting study on Brand building multi-attribute models of customer inclination have incorporated a general constituent of brand attitude that is not clarified by the brand attribute standards (Srinivasan 1979). Supposing that positive brand assessments of consumers can reproduce perceptions of exclusiveness, which add to brand equity, leads to following stated hypothesis;

H3. Brand attitude positively influences brand equity.

3.2 Social Network Effects on brand attitude

It's expected that firm-created and user-generated social media communication to positively affect brand attitude. Because firm-created social media communication is proposed to be positive and to intensify brand awareness (Li and Bernoff 2011) and because positive user-generated social media communication, thus also intensify brand consciousness and brand associations (Burmann and Arnhold 2008), the following hypotheses is presented:

H1b. Firm-created social media communication positively influences the brand attitudes of consumers.

H2b. User-generated social media communication positively influences the brand attitudes of consumers.

3.3 Brand Attitude and Equity Effects on purchase intention

The study conducted by Farquhar (1989) opinions that there are three elements that are important in structuring a strong brand with the user: positive brand assessment, positive brand attitude, and a reliable brand image. From the research of De Chernatony et al. (2005, 2006) found that organizational culture and workers' values are likely to impact the group of values user perceive as constituting a service brand.

This indicates that positive attitudes are likely to endorse brand purchase, which is an outcome of brand equity. Faithful users tend to purchase more than moderately faithful or newly joined costumers (Yoo, Donthu, and Lee 2000). A positive attitude toward a brand impact a customer's decision making and purchase intention (Keller and Lehmann 2003). This also includes more positive costumer perceptions of the superiority of a brand are related with stronger purchase intentions and decision making (Aaker 1991). Thus, the following hypothesis:

H4. Brand attitude positively influences purchase intention.

H5. Brand equity positively influences purchase intention.

3.4 Learning Styles as the Moderating Variable Affecting the Social Media and Brand Communication Relationships

To purchase online is the decisions which are usually made by the user based on the information and display provided by electronic catalogues available for choice online or the communications that takes place on the social network platform through chats and reviews. There are few studies carried out which emphasis on the impact of brand communication role in consumer learning on online shopping, the presentation, display of the products, designs and formats of these communications play an important role in preventing or enabling the decision –making to buy online (Li et al. 2003).

Social networks and websites can provide a high degree of interactivity, to satisfy consumers learning needs, and influence their purchasing decisions to buy product online. It is thus hypothesised that the learning styles influences the above listed hypothesis numbered H1 to H5.

4. RESEARCH METHODOLOGY

The instrument development involved structured interviews followed by a pilot study. Different statistical techniques were used to assess and validate the constructs selected for the study. Subjective content validity (based on structured interviews), Reliability tests (using Cronbach α) and confirmatory factor analysis (CFA) for evaluating the factor structure and initial validity were used for the investigation.

A two phased research methodology was adopted for this study. In the first phase, the definitions of the constructs as well as the measurement items for each construct were established. This phase provided tentative indications of reliability and validity.

The second part was an exploratory and confirmatory factor analysis and the third being the structural equation modelling, which discarded those items which did not enable suitable dimensionality for the entire construct in the model.

Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) was used to test the present model using AMOS 21 software and basic calculations in statistics such as mean, standard deviation, factor analysis, correlation will be performed using SPSS 21.

The questionnaire items were based on the studies conducted earlier by Hong (2012), Schivinski and Dąbrowski (2013), Rehmani and Khan (2011), Kolb (1985) and modified based on the experts commands. The questionnaire had three parts, Part A, B and C. Part A captured the basic descriptive details from the respondents on the personal information, their social media preferences, usage and perceptions on the purchase made using the social media information.

Part B captured the information on the five main constructs for apparels used in the study model viz., company generated social media communication, user generated social media communication, brand attitude, brand equity and brand purchase intention. The last part, PART C was aimed to collect the information pertaining to the learning styles of the respondents. It was based on the methodology proposed by Kolb (1985).

The sample size selected for the study was 301 students presently pursuing their business education from Mumbai and Bangalore. For each category, the respondent will be required to indicate a brand that he or she has “Liked” on social media from the selected three product categories. It was assumed that consumers have been exposed to social media communication from both companies and users from brands that they have “Liked” on any social media platform. The product categories and

wide array of brands also reflect an extensive set of consumer products and should provide research generalizability.

As a requisite for the study, the respondents were required to receive news feeds both from the company and from other users with respect to the brand that they had previously “Liked” on the social network site and have developed a purchase intention. Each respondent was required to complete one version of the questionnaire evaluating only one brand. He had to fill different questionnaire for different brands.

As sample size depends on statistical tool as structural equation modelling (SEM) is used in this study. Sample size is decided based on two conditions: ($N > p$), where N is number of sample and p is observed variables (Schermelleh-Engel, and Moosbrugger, 2003); and with three more indicator per factor sample of 301 is sufficient for convergence and proper solution (Lacobucci, 2010). Hence total sample size of 301 respondents are considered, as number of observed variable for product category is 18 and makes a total of 54 variables for model testing.

The selected respondents represented 65% Male students and the other 35% female students. 21.5% percent of the respondents belonged to the commerce stream, 15.2% from Science, 27.9 % from Management and 24% from Engineering background. In terms of the present interaction with reference to the time spent on the social networking sites. Care was taken to have a representative distribution of the sample respondents. No respondent was selected for the study who doesn't spend any time on these networks. Almost 65% of the selected respondents spent more than 7 hours per week on the social media sites.

5. Research finding

5.1 Model Validation for the Tablet PC's

The model with five critical variables Firm Created Communication (TPC_FCC), User Generated Social Media Communication (TPC_UGSMC), Overall Brand Equity (TPC_OBE), Brand Attitude (TPC_BA) and Brand Purchase Intention (TPC_BPI) identified from the literature had content validity because an extensive review of the literature was conducted in selecting the items.

The respondents were asked to give their responses keeping in mind a representative brand for the tablet PC so that the model validations can be carried out. The breakup of brands selected under the tablet PC product category is shown in figure below.

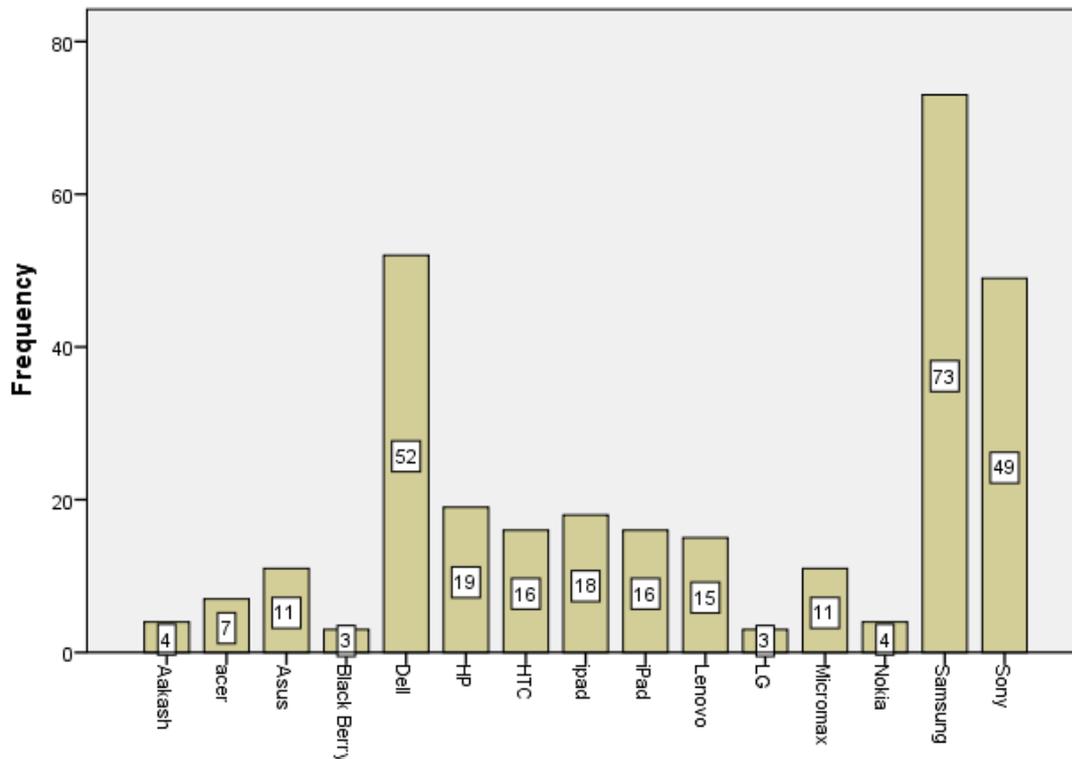


Figure 2 : Brand Details for the Tablet PC Product Category

5.2 Reliability Measures for Tablet PC

The reliability values for all constructs are all greater than .80, it was found that brand purchase intention got highest value of 0.895 which are considered acceptable (Nunnally, 1978). Table presents the statistical descriptive measures like mean, standard deviation and range of item correlations for the constructs selected in the study. From the ranges of item to item correlation (R^2) it was interpreted that the items show high positive correlation with the each other. From the Table the ranges of item to item correlation (R^2) it was interpreted that the items show high positive correlation with the each other, with a significant level of 0.05. The factors which have scored high value of correlation have shown considerable positive range of correlation amongst themselves. The percentage of variance is a popular and intuitive index of goodness of fit in multivariate data analysis the higher the percentage of variance a proposed model manages to explain, the more valid the model seems to be from the above table all the constructs are showing higher percentage of variance ranging between 72 to 82%.

Table 1 : Descriptive Statistics and Reliability Analysis for Tablet PC

Constructs (For Tablet PC)	Initial Items	Item Droppe	Mean Value (N=301)	S.D.	Range of Item to Item Correlation	Cronbac h's	% of Variance

		d based on Experts Opinion				Alpha (α) Score	
Firm Created Communication (TPC_FCC)	4	-	3.4203	1.08389	.507** - .714**	0.879	73.777
User Generated Social Media Communication (TPC_UGSMC)	4	-	3.4726	1.02305	.582** - .697**	0.874	72.759
Overall Brand Equity(TPC_OB E)	4	-	3.5889	1.13659	.554** - .753**	0.885	74.689
Brand Attitude(TPC_B A)	3	-	3.6213	1.16823	.612** - .781**	0.860	78.245
Brand Purchase Intention (TPC_BPI)	3	-	3.5072	1.28593	.720** - .772**	0.895	82.622
Total items	18	0					
**Correlation is significant at 0.01 level (2-tailed). *Correlation is significant at 0.05 level (2-tailed).							

5.3 SMBM Model for Tablet PC Brands

Structural Equation Modelling (SEM) was used to test the relationship between the five constructs at $\alpha = 0.05$, Firm Created Communication (TPC_FCC), User Generated Social Media Communication (TPC_UGSMC), Overall Brand Equity (TPC_OBE), Brand Attitude (TPC_BA) and Brand Purchase Intention (TPC_BPI)

Table below presents the regression weights for the various relationships. The relationships were found to be highly significant across all the selected constructs. It is found that the model fit is satisfactory. The model is accepted as good model with CFI = 0.802, GFI = 0.862, NFI = 0.881, RMR = 0.028, Cmin/Df = 5.141.

These relationships are depicted in graphical form as given by the AMOS output in the following figure.

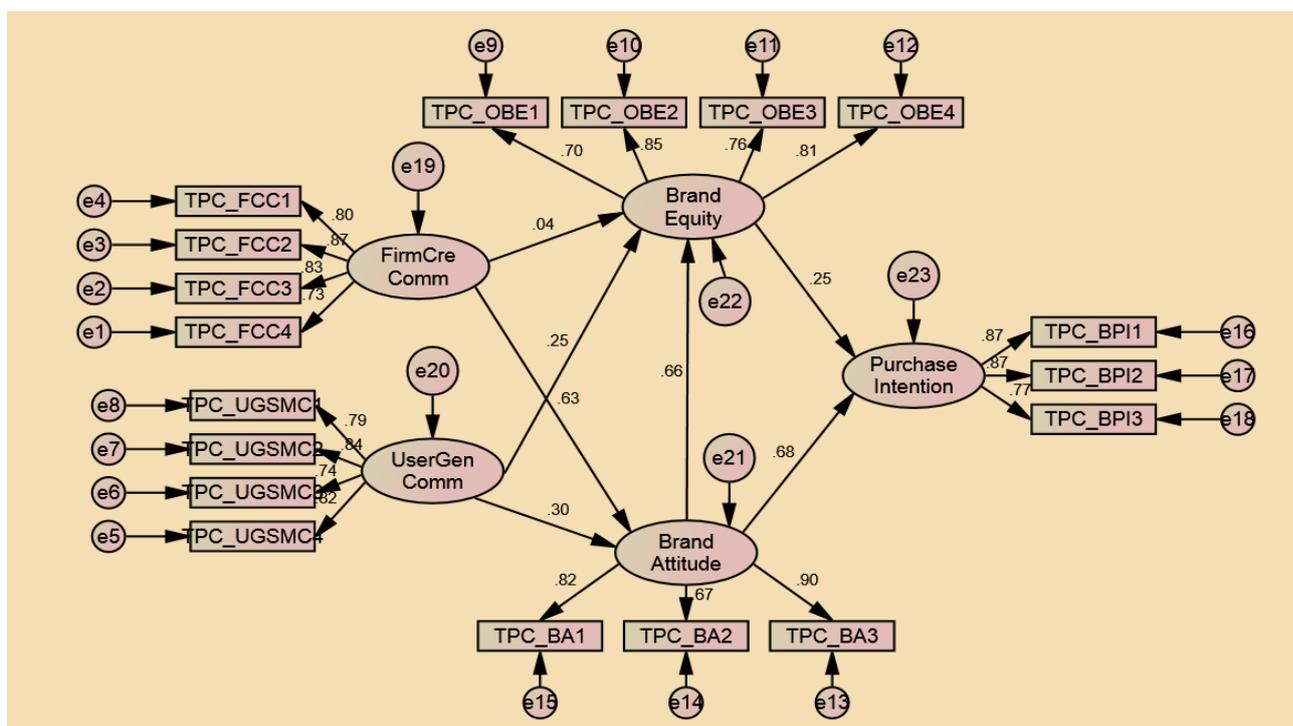


Fig 3: AMOS Output , Regression weight of various variables.

It is found that the model fit is satisfactory though the cut off values are relatively low based on meeting the above standards used by the researchers for SEM, still the model is accepted as good model with CFI = 0.802, GFI = 0.862, NFI = 0.881, RMR = 0.028, Cmin/Df = 5.141. The significant relationships between the various constructs and the items used for defining the constructs can be found from the table given below.

Table 2: Performance fit Indices for Tablet PC Brands

CMIN/ DF	5.141
RMR	0.028
CFI	0.802
NFI	0.881
GFI	0.862
Acronyms:	
CMIN/ DF: Relative chi-square. RMR: Root Mean Square Residual. GFI: Goodness of Fit Index CFI: Comparative Fit Index	
NFI: Normed Fit Index. James Mulaik & Brett (1982) parsimony adjustment to NFI.	

5.4 Learning Styles as the moderating variable on the Relationship between the social media communication, brand effects and purchase intentions

The findings of the first phase revealed that majority of the respondents (almost 50% of them) followed the concrete learning style followed by reflective learning style and active learning styles. Surprisingly none of the student were identified to fall in the category of Abstract learning styles. This shows that the MBA students, when interacting on the social networking are highly action oriented and believe in either experiencing, reflecting or doing, then thinking.

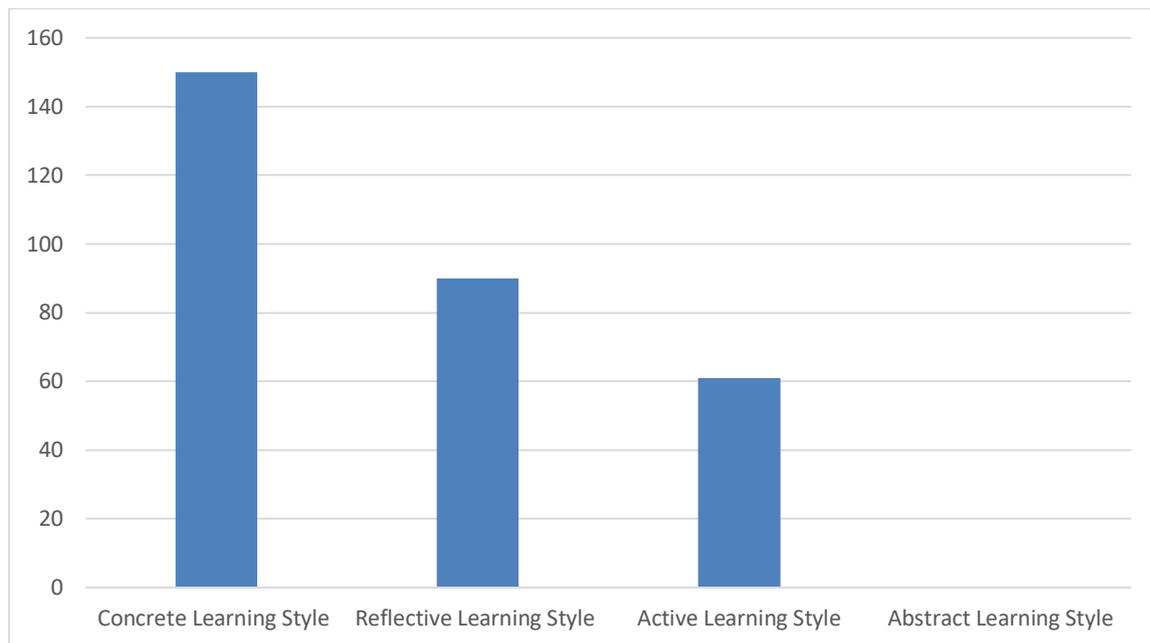


Figure 4: Profile of Learning Styles Identified in the Study

5.5. Learning style as the moderating variable on the SMBM Model-Tablet Pc brands

Structural Equation Modeling was used to test the effect of learning styles on the SMBM model. The model was run for the three groups identified in our study namely. Concrete Learning Style, Reflective Learning Styles and Active Learning Style. The regression weights estimated for the three groups are shown in Table a, b and c. the significant tested model with modifications are presented in figure a, b and c.

Table 3: Regression Weights Concrete Learning Style- Tablet PC Brands

Constructs	Estimate	S.E.	C.R.	P
------------	----------	------	------	---

Brand_Attitude	<---	FirmCre_Comm	.794	.110	7.186	***
Brand_Attitude	<---	UserGen_Comm	.333	.086	3.893	***
Brand_Equity	<---	FirmCre_Comm	.335	.082	4.085	***
Brand_Equity	<---	UserGen_Comm	.220	.062	3.547	***
Brand_Equity	<---	Brand_Attitude	.447	.083	5.413	***
Purchase_Intention	<---	Brand_Equity	.561	.161	3.484	0.05
Purchase_Intention	<---	Brand_Attitude	.739	.114	6.500	***
TPC_FCC4	<---	FirmCre_Comm	1.000			
TPC_FCC3	<---	FirmCre_Comm	1.117	.115	9.695	***
TPC_FCC2	<---	FirmCre_Comm	1.103	.109	10.092	***
TPC_FCC1	<---	FirmCre_Comm	1.150	.123	9.325	***
TPC_UGSMC4	<---	UserGen_Comm	1.000			
TPC_UGSMC3	<---	UserGen_Comm	.898	.095	9.469	***
TPC_UGSMC2	<---	UserGen_Comm	1.039	.090	11.479	***
TPC_UGSMC1	<---	UserGen_Comm	.853	.081	10.484	***
TPC_OBE2	<---	Brand_Equity	1.318	.145	9.082	***
TPC_OBE3	<---	Brand_Equity	1.203	.145	8.317	***
TPC_BA3	<---	Brand_Attitude	1.000			
TPC_BA2	<---	Brand_Attitude	.753	.078	9.633	***
TPC_BA1	<---	Brand_Attitude	.879	.069	12.795	***
TPC_BPI1	<---	Purchase_Intention	1.000			
TPC_BPI2	<---	Purchase_Intention	.991	.074	13.357	***
TPC_BPI3	<---	Purchase_Intention	.873	.080	10.848	***
TPC_OBE1	<---	Brand_Equity	1.000			
TPC_OBE4	<---	Brand_Equity	1.406	.161	8.760	***

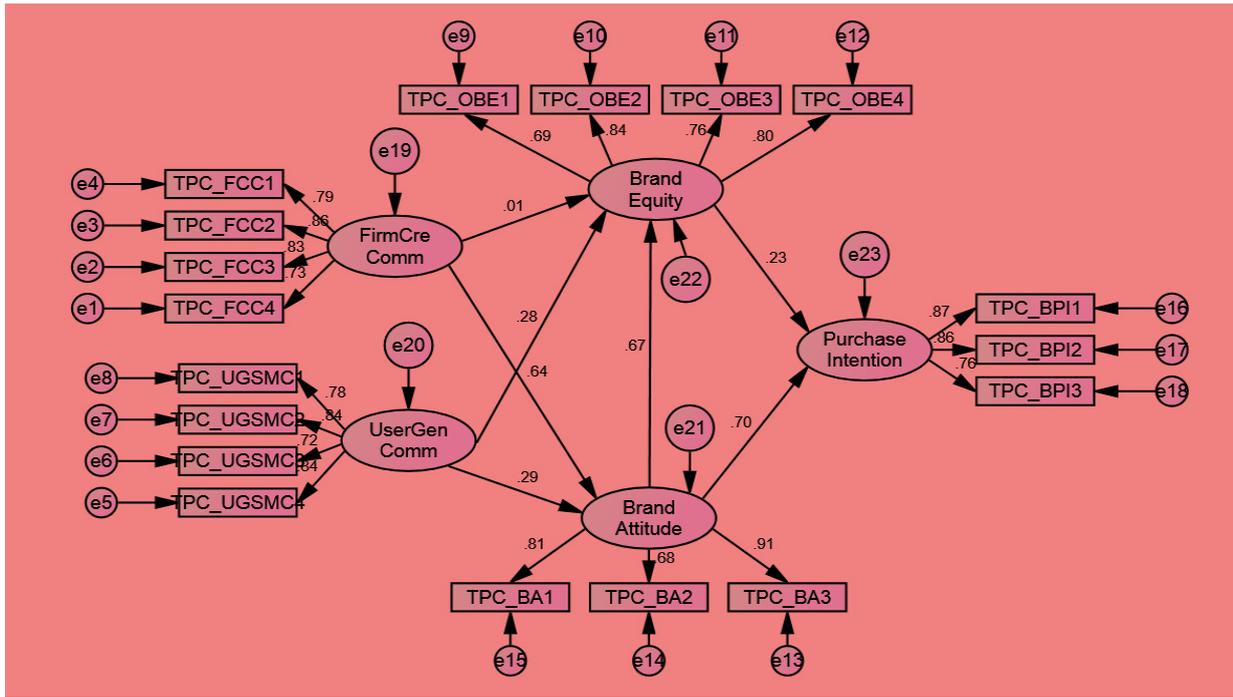


Figure 5: Structural Equation Model (Concrete Learning Style) for Tablet PC Brands

Table 4: Performance fit Indices (Concrete Learning Style) for Tablet PC Brands

CMIN/ DF	4.209
RMR	0.028
CFI	0.814
NFI	0.772
GFI	0.758
Acronyms:	
CMIN/ DF: Relative chi-square. RMR: Root Mean Square Residual. GFI: Goodness of Fit Index CFI: Comparative Fit Index	
NFI: Normed Fit Index. James Mulaik & Brett (1982) parsimony adjustment to NFI.	

Table 5: Regression Weights (Reflective Learning Style) for Tablet PC Brands

Constructs			Estimate	S.E.	C.R.	P
Brand_Attitude	<---	FirmCre_Comm	.805	.144	5.579	***
Brand_Attitude	<---	UserGen_Comm	.333	.109	3.054	.002
Brand_Equity	<---	FirmCre_Comm	.452	.119	3.798	***
Brand_Equity	<---	UserGen_Comm	.418	.085	4.917	***
Brand_Equity	<---	Brand_Attitude	.425	.116	3.682	***

Purchase_Intention	<---	Brand_Equity	.385	.108	3.564	***
Purchase_Intention	<---	Brand_Attitude	.718	.154	4.677	***
TPC_FCC4	<---	FirmCre_Comm	1.000			
TPC_FCC3	<---	FirmCre_Comm	1.108	.150	7.375	***
TPC_FCC2	<---	FirmCre_Comm	1.088	.140	7.746	***
TPC_FCC1	<---	FirmCre_Comm	1.159	.161	7.190	***
TPC_UGSMC4	<---	UserGen_Comm	1.000			
TPC_UGSMC3	<---	UserGen_Comm	.868	.124	6.983	***
TPC_UGSMC2	<---	UserGen_Comm	1.033	.124	8.356	***
TPC_UGSMC1	<---	UserGen_Comm	.873	.111	7.869	***
TPC_OBE2	<---	Brand_Equity	1.320	.181	7.300	***
TPC_OBE3	<---	Brand_Equity	1.194	.179	6.657	***
TPC_BA3	<---	Brand_Attitude	1.000			
TPC_BA2	<---	Brand_Attitude	.764	.109	7.001	***
TPC_BA1	<---	Brand_Attitude	.913	.097	9.454	***
TPC_BPI1	<---	Purchase_Intention	1.000			
TPC_BPI2	<---	Purchase_Intention	.985	.098	10.057	***
TPC_BPI3	<---	Purchase_Intention	.903	.103	8.775	***
TPC_OBE1	<---	Brand_Equity	1.000			
TPC_OBE4	<---	Brand_Equity	1.326	.194	6.840	***

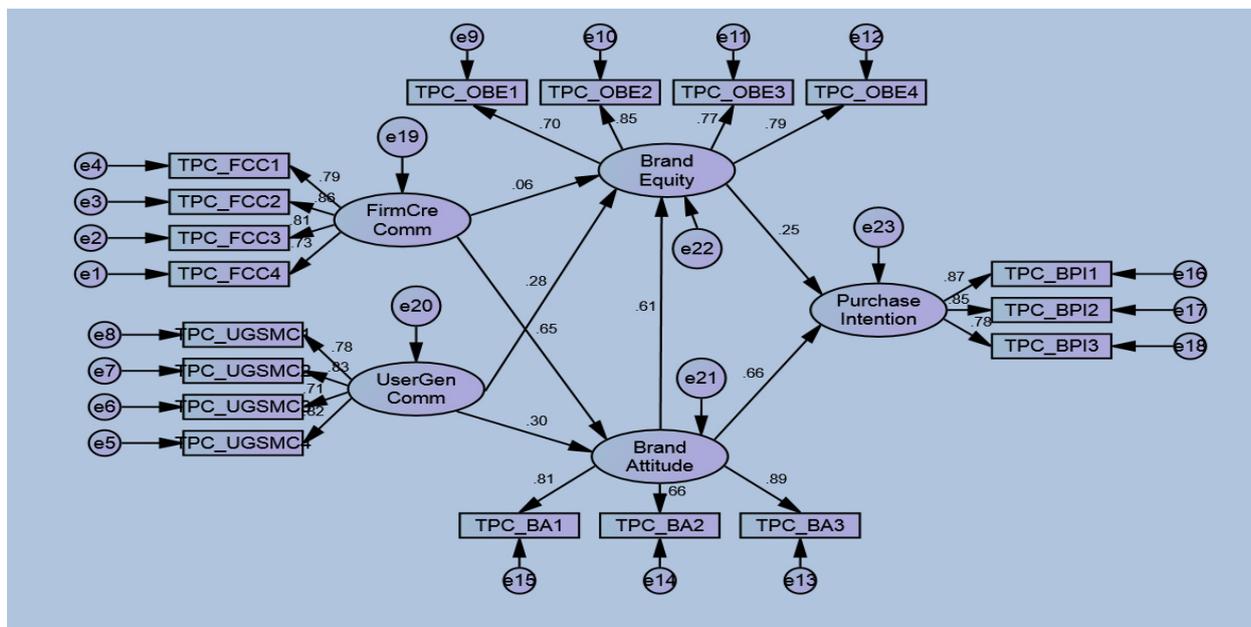


Figure 0: Structural Equation Model (Reflective Learning Style) for Tablet PC Brands

Table 0: Model Summary (Reflective Learning Style) for Tablet PC Brands

CMIN/ DF	2.576
RMR	0.026
CFI	0.837
NFI	0.763
GFI	0.748
Acronyms: CMIN/ DF: Relative chi-square. RMR: Root Mean Square Residual. GFI: Goodness of Fit Index CFI: Comparative Fit Index NFI: Normed Fit Index. James Mulaik & Brett (1982) parsimony adjustment to NFI.	

Table 7: Regression Weights (Active Learning Style) for Tablet PC Brands

Constructs			Estimate	S.E.	C.R.	P
Brand_Attitude	<---	FirmCre_Comm	.716	.183	3.920	***
Brand_Attitude	<---	UserGen_Comm	.471	.163	2.888	.004
Brand_Equity	<---	FirmCre_Comm	.590	.126	4.682	***
Brand_Equity	<---	UserGen_Comm	.432	.114	3.789	***
Brand_Equity	<---	Brand_Attitude	.513	.123	4.170	***
Purchase_Intention	<---	Brand_Equity	.555	.120	4.625	***
Purchase_Intention	<---	Brand_Attitude	.710	.173	4.098	***
TPC_FCC4	<---	FirmCre_Comm	1.000			
TPC_FCC3	<---	FirmCre_Comm	1.250	.199	6.297	***
TPC_FCC2	<---	FirmCre_Comm	1.199	.182	6.578	***
TPC_FCC1	<---	FirmCre_Comm	1.259	.209	6.033	***
TPC_UGSMC4	<---	UserGen_Comm	1.000			
TPC_UGSMC3	<---	UserGen_Comm	1.179	.171	6.888	***
TPC_UGSMC2	<---	UserGen_Comm	1.104	.150	7.350	***
TPC_UGSMC1	<---	UserGen_Comm	1.042	.150	6.941	***
TPC_OBE2	<---	Brand_Equity	1.176	.178	6.601	***
TPC_OBE3	<---	Brand_Equity	1.045	.176	5.925	***
TPC_BA3	<---	Brand_Attitude	1.000			
TPC_BA2	<---	Brand_Attitude	.670	.114	5.903	***
TPC_BA1	<---	Brand_Attitude	.852	.094	9.025	***
TPC_BPI1	<---	Purchase_Intention	1.000			
TPC_BPI2	<---	Purchase_Intention	.981	.109	9.019	***
TPC_BPI3	<---	Purchase_Intention	.886	.119	7.447	***
TPC_OBE1	<---	Brand_Equity	1.000			
TPC_OBE4	<---	Brand_Equity	1.341	.199	6.728	***

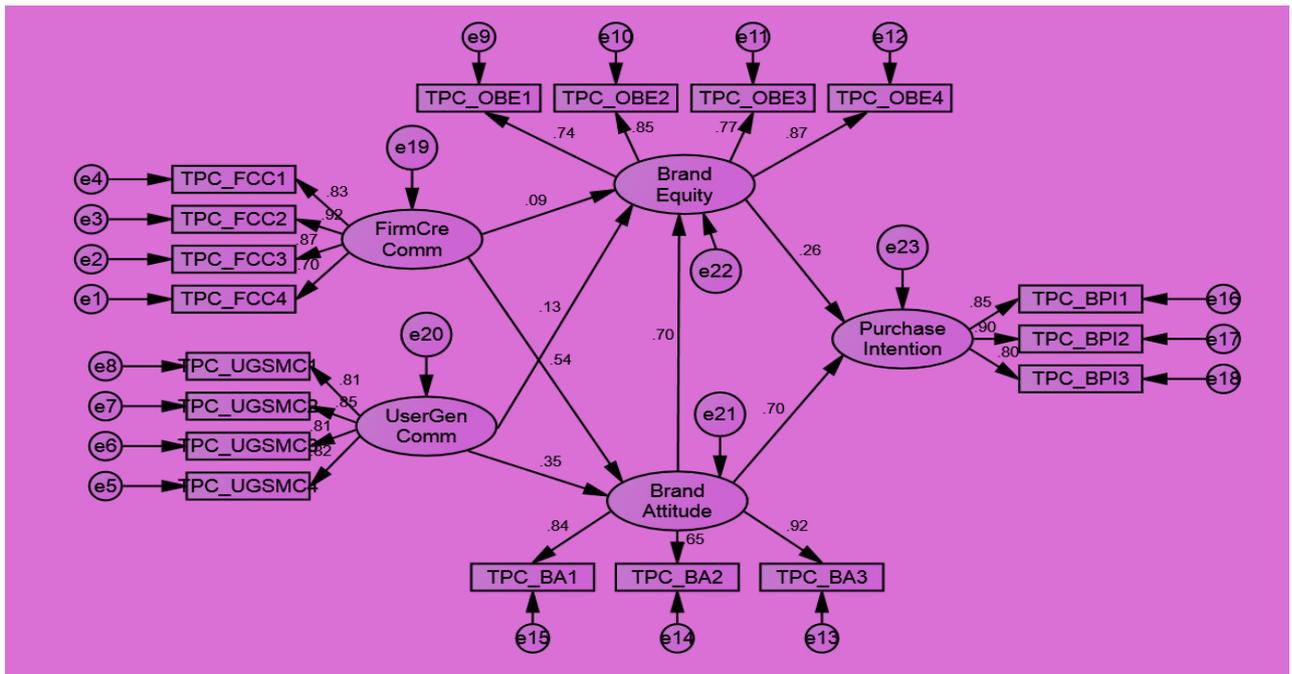


Figure 7: Structural Equation Model (Active Learning Style) for Tablet PC Brands Table 8 :Model Summary (Reflective Learning Style) for Tablet PC Brands

CMIN/ DF	2.081
RMR	0.031
CFI	0.854
NFI	0.757
GFI	0.718

Acronyms:

CMIN/ DF: Relative chi-square. RMR: Root Mean Square Residual. GFI: Goodness of Fit Index CFI: Comparative Fit Index
 NFI: Normed Fit Index. James Mulaik & Brett (1982) parsimony adjustment to NFI.

6. Major Findings for Tablet PC Brands

The following observations are made from the findings presented in the above tables:

- Concrete Learning Style

All the relationships were found to be statistically significant with the Firm Generated Communication having the maximum effect (0.794) on the brand attitude compared to the effect of the User generated Communication on the brand image.

- Reflective Learning Style

Surprisingly in this case also it was found that the All the relationships were found to be statistically significant with the Firm Generated Communication having the maximum effect (0.805) on the brand attitude compared to the effect of the User generated Communication on the brand image.

- Active Learning Style

In this group also the Firm generated communication helped to have a very strong influence (0.716) on the brand attitude as compared to the influence of the User Generated communication directly on the brand equity.

Overall we can say that the Firm generated information plays a very important role in developing a brand attitude leading to brand equity and purchase intentions irrespective of the learning styles adopted by the person.

7. Discussion & Managerial Implications

The result reported in this paper contribute to the literature on the influence of firm created social media communication & user generated social media communication on brand attitude which in turn influence brand equity and subsequently purchase intention by making explicit the mediating/moderating role of learning style on the antecedents of brand attitude. Thus the following suggestions can be extracted for the practitioners.

Companies should engage with multiple blogs, forums and wikis covering issues relating to their product or brand. There has to be frequent comment and should try to create a dialogue with the social media users. This will help to form a chain reaction on the internet and may lead viewers of other blog back to your blog or the media company is using. It is required that the marketers should have the detailed twitter profile included on the company URL. Company should strive to tweet minimum twice a day and aim to increase the follow up with the online viewers. It is also recommended to have a YouTube channel which points to the blog and twitter and should sponsor or develop webcasts to help the college students with any areas they are struggling with related to the product or brand. Videos should be uploaded regularly.

Companies don't necessarily need to engage with the people who have the largest number of apparent connections. These people might not necessarily have the greatest number of strong relationship

amongst their connections. Monitoring their blogs, status updates and forum entries will give a good idea of how they interact within their social circle.

Company also needs to consider their people inside the organization. They need to identify evangelists, enthusiasts, pragmatists and any detractors inside the organization. These are the people who might have already be speaking publically about the brand. Make sure that they are prepared to communicate externally with an effective, practical and workable social media policy.

8. CONCLUSION , LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The rapid rise of social media may be the most important evolution to impact marketing in decades. It has changed almost everything. It enables businesses to influence new buyers (rather than sell to them), interact and engage with customers (instead of having a one-way dialogue), and it puts the consumer in control of shaping and influencing a brand (not marketers).

Around the world. Social networks, blogs, media aggregators, and dozens of different types of digital media provide channels for consumers to have their voices heard. This has changed the entire landscape of marketing, and the bottom line is that power has shifted to consumers who now have the ability to interact and influence brands. Consumers can influence how fast a new product is adopted and liked, and they can bring a company to its knees when they set out to damage a brand. When videos like the “Comcast sleeping technician” are posted and shared, it’s easy to see how the power of one consumer-generated video can affect a brand.

Consumer-generated media is everywhere. YouTube gives users power and control to upload, download, post, and share videos to inform, persuade, educate, and entertain others. Media sites like Digg and Stumblupon give consumers the power to review and vote on content they believe is the most important or interesting. On sites like Wikipedia, content is completely created by a community of users. What drives the popularity of consumer-generated media? At the most basic level is the emotional need to be heard. People that feel “wronged” want to be heard as much as they want to evangelize what they love. The Internet and social media is so accessible and easy to use, it provides a platform for those that want to connect, communicate, and drive change.

- Because of time limitation and to keep the model at a manageable size, this research did not consider the factors inhibiting the use of social media on the teens and youngsters like age restrictions, restrictions by the parents to use social media etc. future studies may address these issues.

- Future study may develop additional measurement constructs in the model such as demographic profiles of the users or the effect of technology adoption like perceived usefulness or ease of use components of the social media. Even it would be interesting to evaluate the effect of peer pressure in using the social media and its effect on the purchase decisions.
- It would also be interesting to carry out the research both in developing countries and developed countries and study the implications for social media on the brand managers in these economies, specific to the product categories selected in this study.
- The social media landscape and practices are changing with the competitive environment as discussed in the previous section and hence with changing times it is required to get the selected practices and the measures validated from the practitioners.

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Green lean six sigma, managerial innovation and financial performance in automotive industry

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ABSTRACT

Competition in the automotive industry has become increasingly in challenging tandem with time and advances in technology. Based on this situation, it is important for Malaysia to be at the top of the advanced automotive manufacturers, especially among ASEAN members. Therefore, this study aimed to prove not only product innovation as a contributor to the success of the automotive industry, but also has its own role management. By using Green Lean Six Sigma practices (GLSS) as the independent variable, it can help bring about a transformation of management which can improve financial performance. The Structural Equation Modelling (SEM) has been proposed as conceptual model in this study. Based on proposed research model and literature review, a research hypothesis is being developed.

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Keywords:

Green lean six sigma; managerial innovation; financial performance; structural equation modelling; automotive industry

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1. INTRODUCTION

According to the ASEAN Automotive Federation (AAF), there are seven countries listed as members of the National Industrial Association. Those countries are Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. While five of the country except for Brunei and Singapore implement vehicles production activities. Competition among those countries can be measure in term of development and profitability through financial performance other than looking at the marketing strategy and product development (Lansiluoto et al., 2004). Thus, according to sales volume for the year 2012, Malaysia was ranked on the third place after Thailand and Indonesia with total 627,753 units against 1,436,335 units and 1,116,212 units respectively. Similarly, the state of total output, producing 569,620 units only Malaysia lags behind Thailand's comfort at the first place with a difference of 23%.

There is an administrative principles listed in the New Public Management (NPM) named private sector management practices in which they implement managerial innovation. NPM extend the government's policy aims to renew the system in the public sector. This concept leads to several advantages of cost efficiency for the government and would not pose adverse effects on planning and objectives (Hood, 1991). To achieve satisfactory efficiency and effectiveness parallel with the level of a good economy, most organizations have done restructuring and renewal procedures (Arnaboldi et al., 2010).

To ensure that managerial innovation can be implemented well in automotive industry, organization need a concept or practice that is appropriate so that they can have a significant impact on the amount of profit to attract more customers from local and abroad. This is very important for automotive industry to remain competitive to be the best automotive manufacturers and sellers, particularly in the ASEAN region. Green Lean Six Sigma (GLSS) is the practice that is applicable in the field of management. The effects would make operating activities to be smooth, fast, reduced the number of defects, shorten the process variations and at the same time improve the quality of products and services. Moreover, integration of green with the lean six sigma practice can make the process more economical operating activities and friendly (Habidin et al., 2012).

Many studies on the GLSS practice have done previously. However, the impact of these practices on the financial performance in the automotive industry through the managerial innovation is very slightly. Therefore, this study aimed to determine the effectiveness of this GLSS practice of financial performance using managerial innovation as a mediating.

2. LITERATURE REVIEW

2.1 Green lean six sigma (GLSS)

Automotive industry is seen as an industry with the potential to evolve along with the change of time, economic fluctuations, development of technology and environmental friendly. In essence, the automotive industry in Malaysia must compete in a global context due to the higher ability than its competitors in many aspects. However, competition is not a form of other features aimed at highest eternal local market, needs to have factor of competitive advantage to penetrate markets outside.

According to Saha and Darnton (2005), companies that adopt green concepts need to obtain the commitment of all parties to get results commensurate with the effort undertaken mainly in terms of financial, social and environmental. Commitment given will assist organization to increase the quality of either culture or final goods production process, avoiding dangerous human influence and raw materials or natural resources. Therefore, it can be said that companies that adopt green concepts will be in harmony in terms of goals, process management, and material. In addition, employees are also responsible to ensure successful green practices adhere to ethical guidelines or set and system of

effective communication and relations exist not only among themselves but also with other stakeholders (Biloslavo and Trnavcevic, 2009).

Green practices may provide benefits to not only the organization, but also to the community, environmental and finance. Many global consumers will be more attracted to a product or service from conscious organizations with a concept of environmentally or green concepts. In addition, there is motivation in employees where nearly 80% of them feel more comfortable working with environmentally ethical organization (Tandberg, 2007). Therefore, this green practices can provide opportunities for practitioners to enhance its competitive advantage. Efficient management and employees are motivated to make the production process to be speed, less defects, eliminate waste and high quality.

For organizations which adopt lean practice, usually in the early stages they too focused on eliminating waste and meet the needs of existing customers in the market. This process is success in the early stages of product introduction. Over time, the trend of transformation in order to reform organization in other aspect has been changed. Among them are in the field of management. Changes in these lean practices may assist organizations be more widely explore on customers' needs, strengthen relationships with suppliers, controlling the pressure of the competition, along with advances in technology and operating or managing the challenge of facing the shareholders (Posteuca, 2011). Therefore, it is indicate that lean not only assist the organization at a satisfactory level in the early stages of production, but also to maintain the performance of the organization from different views and at each stage of the product or service life cycle.

Looking at the advantages possessed by practicing six sigma, the implementation of this practice in an organization can provides lots of positive changes and benefits in launching the process of creation and production of quality products and services. Andersson et al. (2006) states that six sigma can assist practitioners in becoming more focused in addressing the improvement process in the long term. This activity makes the organization to be getting better and quality in order to increase user satisfaction.

Furthermore, six sigma functions are not only to detecting defects in the process, but it assists to find the cause or to identify defects that prevent the opportunity of the organization to produce quality products (Antony, 2006). In other words, six sigma assist organizations find things or factor that can influence the defect in production activities. To remove defects, it must start from the root.

Thus, it was indicated that six sigma and lean are the two interdependent practices. When the organization is applying six sigma, they have neglected the change in operational processes to eliminate waste or defects and maximize product quality. But if the organization is implementing lean practices, production processes become increasingly fast and productive but at the same time it was not concerned with quality control (Arnheiter and Maleyeff, 2005).

In order to ensure GLSS practices successfully implemented in their organizations effectively, it must be supported by a number of elements. Such elements are leadership focus, training and education,

structured improvement procedure and focus in metrics. The function of those elements has been attached in the Table 1.

Table 1: Function of elements in Green Lean Six Sigma

Elements	Function of elements
Leadership Focus (LF)	In implementing process improvement, leadership is an element that could be the key to successful organizations achieve their goals (Kuei and Madu 2003). This leadership role should be focused on the creation or development of products and ensure that they continue. As a result of this leadership, it can make quality work, increased employee motivation, the objectives set in the period of time can be achieved, evaluate the results of the project as well as a culture of continuous improvement in operational and management activities (Habidin and Yusof, 2013).
Training and Education (TE)	Education is a step for practitioners to improve their skills. Skills cannot be evaluated in theory; it should be explored as to what factors influence a technique. Therefore, the practitioner will gain more experience in developing knowledge of skills. However, in terms of training, the skills exist should be trained so that the practitioner or employee can dominate the concept or practice to be implemented. When employees are fully trained, quality of work will also be in better quality (Hashim et al., 2012).
Structured Improvement Procedure (SIP)	Process improvements are needed to achieve the objectives of the organization to be better quality (Snee 2010). Therefore, the structured improvement procedure is an element that can support process improvement, resolution of issues in management, productivity improvement and dissemination of knowledge. This element is needed in the planning process design or management restructuring in accordance with the procedure (Zu et al., 2008).
Focus in Metric (FM)	The function of metric is to provide an understanding of the process operation, assist organization make decisions in the selection of practices as well as an incentive to employees to improve the quality of work (Arnheiter and Maleyeff 2005). When employees have understood the concept of operations and skills, focus in metric will guide employees towards the goals set by organization to improve the quality of management (Linderman et al., 2003; Habidin and Yusof, 2013).

2.2 Managerial innovation

In order to make organizations achieve their objective to finding competitive advantage, innovation is a strategic decision to be implemented. This encompasses innovation in process development, manufacturing technology, employee performance development and product innovation. Progress in these processes can distinguish this from other organizations (Prajogo and Sohal, 2003). Moreover, as

the impact of the learning process and the development of knowledge, innovation can provide a significant advantage where it can improve management efficiency.

Innovation is not only limited to be applied to the product, but it also requires combination of various factors. The process of innovation can give a positive impact on individual motivation, customer response, and planning of management goal and interactive in development stage (Biemans, 1990). According to Quinn (1985), managerial innovation can control the chaos as the occurrence of an uncontrollable situation or surprise. It can be said that, managerial innovation also can be implemented in a desperate situation and take a short period of time.

Considering automotive industry is not only limited domestically but imported from outside activities also make competition in the automotive industry to be more extensive. This has influenced the product life cycle to become shorter. Apart from intense competition, with the advent of technological advances that facilitate the production method also make life become increasingly short. As such, the market will be different and niche according to the increasingly complicated because they demand the product to be more specific characteristics (Birchall et al., 2001; Becker, 2006; Chanaron and Rennard, 2007). This condition forces the organization to be more careful in dealing with the challenges and problems that arise. For this reason, innovations must be implemented not only in technology, but it needs to be balanced with the efficient and effective management.

According to Drejer (2002), innovation is the result of implementation of the changes activities, while managerial innovation is for management activities to control processes to ensure successful innovation. It can be said that managerial innovation implementation starts from the first stage of idea generation to build the product or process until the implementation of market development.

Traditionally, organizations typically plan the production process or the creation of a product at a very early stage. For the impact, no transformation or innovation has been made by the organization to improve product quality. This adversely affects the market opportunity for the customers' needs are constantly changing (Holtzman, 2007). Therefore, the organization needs to perform process of managerial innovation from time to time so that they remain in line with the circulation of technology and customer requirements.

Managerial innovation will become more efficient and implementation is more thoroughly when it is supported by a number of factors. Among these factors is the knowledge management, creativity skills and customer perspective. Description of these factors is state in Table 2.

Table 2: The factor that influence implementation of managerial innovation

Factor of Managerial Innovation	Elaboration of factor
Knowledge Management (KM)	The main purpose of KM is assist organization to implement the process of innovation in order to facilitate the generation of new ideas and diffusion in each level of the organization (Levett and Guenov, 2000). Knowledge management will serve as gathering information to help accelerate product development, shortening the time for the

Factor of Managerial Innovation	Elaboration of factor
	product to penetrate new markets and product life cycle cost (Stalk and Hout, 1990).
Creativity Skills (CS)	Creativity can be defined as a technique that involves the creation or generation of ideas in creation of new products or procedures that would benefit the individual or a group that works together (Shalley, 1995). There are parties opposed thought creativity skills guarantee successes in innovation (Munoz-Doyage and Nieto, 2011). In the successful implementation of the innovation and quality are individually responsible for contributing the idea that innovation can be implemented in a planned (Rothwell, 1994).
Customer Perspective (CP)	CP is a method that requires an organization to take care of customer needs, identify their dissatisfaction and be able to predict the needs of customers in the changing conditions. Therefore, CP can be implemented with the creation of customer relationship management, customer satisfaction analysis, efficiency in solving problems and ensuring that all employees are committed to their customers (Habidin and Yusof, 2013). As a result, organizational performance could be improved (Zakuan, 2009).

2.3 Financial performance

Competitive advantage does not necessarily force the organization to produce a unique product or have a range of features required. With fast production process but has good quality and the low cost involved is also key that enables organizations to attract customers in improving sales volume. According to the perspective of innovation, low cost does not necessarily involve the price of one unit of product or service; it can also be calculated by reducing the cost per unit of performance such as time, generating energy or raw materials (Holtzman, 2007).

Furthermore, organizations that undertake production activities easier to increase profits if they perform innovation compared to organizations that do not transform their process or product management to be more innovate (Tidd et al., 1997). Profits and changes in the organization said to be related because of the current economic situation fluctuate is not possible to make the financial performance of the organization are always flexible or stable. Organizations must find a way to ensure that the products or services they can provide benefits to the organization. According to this condition, the transformation should be carried out using appropriate practices.

When organizations have the initiative to innovate the management or production of products and operations, the most important thing to evaluate is the financial performance. Because it is an important pillar for the movement activities of the organization's current or future. Thus, there are several methods or to evaluate the effectiveness and suitability of the implementation of new practices that may affect

innovation. Financial performance evaluation is divided into three stages: pre-production, production process and evaluation after sales.

2.4 Pre-production strategy

At the first stage, the most important thing to be evaluated is the capital. Capital that should be used wisely. The main problem in reducing the amount of profit and output is that when capital flows are not used properly (Sarwar et al., 2012).

In a study on the use of capital, they have suggested that creating an area that could evaluate the productivity, planning and implementation. It aims to assess the efficiency and effectiveness of the input source. Results from this division, the organization will be smarter in arranging and generating profit for its financial performance.

2.5 Production process

When the implementation of GLSS practice becomes essence to managerial innovation, it will directly shift the product life cycle and parallel with the fluctuation of customer requirements in the automotive industry. Controlling cost and planning purchases affected the returns from the integration of the practice after the organization had achieved the objective of improving the quality of products and services in which they can expand profits and market (Wei and Chen, 2008).

If the organization are aim to implement the integration of practice, the recommended practice to be applied in an organization should be tied to organizational goals, especially in financial performance (Vitale and Mavrincac, 1995). This is because; all the effort and planning new strategies will be wasted if it does not achieve the desired objectives. Therefore, the organization should set and understand their objective, plan a suitable practice and measure whether it will achieve the goal.

2.6 Evaluation after sales

Assessment of financial support not only needs to be taken into account during the planning period to the sales revenue (Levitt, 1983). Financial arrangements remain all the time as long as the organization is still operating. This is because, even after sale, the organization should consider what steps should be taken to ensure their profits multiply.

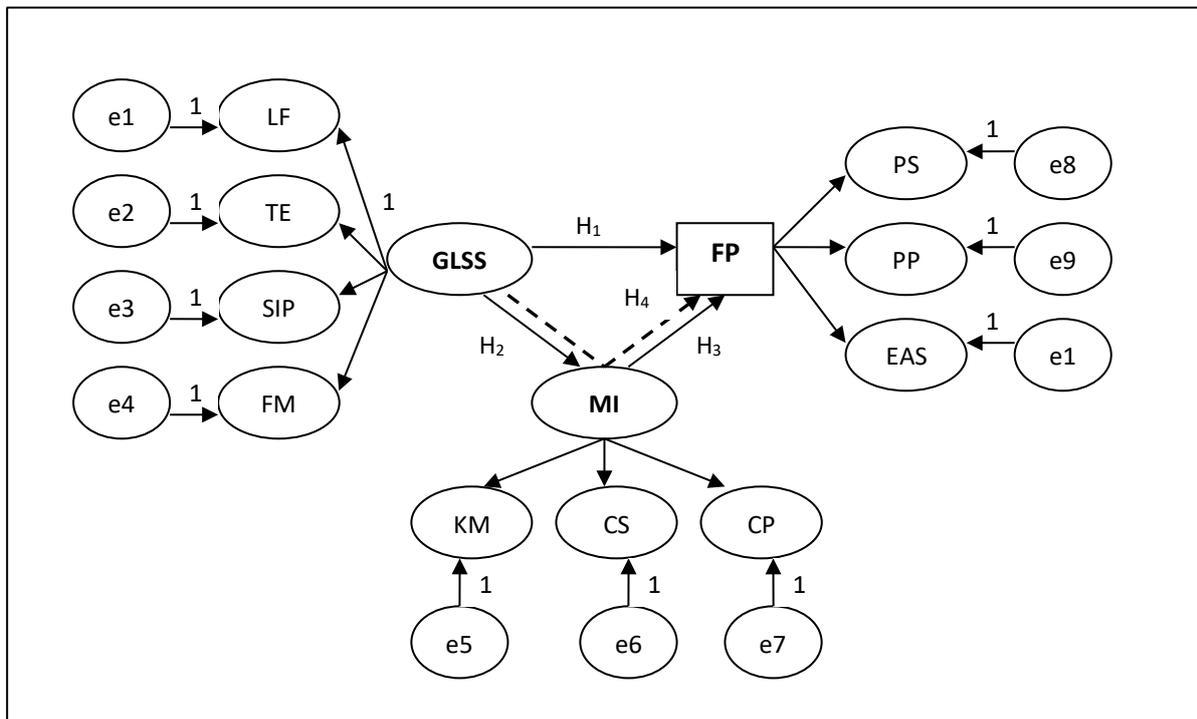
In the study by Saccani et al. (2005), they investigate about the after sales performance. Operating profit, return on assets and return on inventories measuring instruments to indicate financial performance (revenue and efficiency of resource use) can be influenced by the market as market penetration or market share. Furthermore, an assessment of the progress and innovation can give directions to the organization in financial planning in the future in creating competitive advantage (Gaiardelli et al., 2005).

3. RESEARCH METHODOLOGY

Objective of this study is to investigate the practices of Green Lean Six Sigma (GLSS) and Financial Performance (FP). For the next step, the study will make the Managerial Innovation (MI) as a mediating variable in which it works to assist conceptualize and explain the influence of GLSS and FP. Besides, as a mediating variable, MI will assist GLSS work in any situation.

The study is going to use a quantitative survey which is the data generally gathered through structured question. It is implemented in automotive industry. Automotive industry was chosen because this industry is a massive, large scale manufacturer, competitive and global industry (Bradley et al., 2005; Kuik, 2006; Conding et al., 2013). In addition, this industry uses the quality performance measurement in which very important (Zakuan, 2009) to determine the impact to the financial performance. In order to achieve the objective of this study related to the automotive industry, PROTON Vendor Association (PVA) and Kelab Vendor PERODUA (KVP) were selected as the population. To gain the validity of comment and feedback, a set of questionnaire are design carefully to ensure the issues arising are related with GLSS, MI and FP. The statistical Package for the Social Sciences (SPSS) version 17 was used to analyse the preliminary data and provide descriptive analyses about thesis sample such as means, standard deviations, and frequencies.

Structural Equation Modelling (SEM) technique was adopted to determine the relationship between variables in the research constructed model. Exploratory factor analysis, reliability analysis and confirmatory factor analysis to test for construct validity, reliability, and measurements loading were performed. Having analysed the measurement model, the structural model was then tested and confirmed.



Notes: GLSS=Green Lean Six Sigma, LF=Leadership Focus, TE=Training and Education, SIP=Structured Improvement Procedure, FM=Focus in Metric, MI=Managerial Innovation, KM=Knowledge Management, CS=Creativity Skills, CP=Customer Perspective, FP=Financial Performance, PS=Pre-Production Strategy, PP=Production Process, EAS=Evaluation after Sales

Figure 1: A proposed conceptual model of GLSS, MI and FP in automotive industry

3.1 Research hypotheses

Stakeholders are satisfied with the financial performance of the organization which can improve workers, consumers and resources. This satisfaction can be achieved through advances in technology and services that are environmentally friendly or management of the profit can be increased through the creation of new business opportunities (Esty and Winston, 2006).

Whereas based on six sigma reviewed, it is believed to give a positive relationship with profit organizations (Freiesleben, 2006). Among the advantages is to minimize defects in the process, maintenance inspection period is short, the increase in the cycle, bringing the inventories in large quantities, saving capital expenditure, lower operating costs, increased productivity, the number of customers unhappy decreasing and increasing the amount of profit (Antony et al., 2005; Kwak and Anbari, 2006).

Principles of lean and six sigma is a process improvement that can be implemented where it has a positive impact on financial performance and launch service provision in terms of cost and manufacturing quality (Johnstone et al., 2011). Therefore, from the previous research, it was indicated that the integrated of green lean six sigma (GLSS) practice are able to make organization improve their

financial performance. It was clearly assist this study to construct hypotheses as stated in numbering system from H1.

H₁: There is a positive and direct significant relationship between green lean six sigma (GLSS) practices with financial performances in automotive industry.

Lean functions as a tool to speed up the production process. In addition, lean very useful to assist organizations seek the customer satisfaction by producing quality products (Li et al., 2005). This occurs because, lean practices can help eliminate waste and ensure its implementation process is carried out continuously. Therefore, many studies have shown that lean is a practice that can give an advantage to the organization through the implementation objectives. Among the objectives of lean is to ensure smooth production process but at the same time still maintaining product quality. In addition, lean to save costs by reducing the amount of labour usage, shorter delivery times and reduced production costs after the process improvements made from time to time. As a positive effect, organizations benefit from the implementation when it is able to achieve the specified performance (Womack et al., 1990; Imai, 1997; Doman, 2007; Forrester et al., 2010; Habidin and Yusof, 2013).

Six sigma practices have its benefit. It works to reduce or eliminate the number of defects in which the results can improve customer satisfaction through quality products and increase the profit of the organization (Habidin and Yusof, 2013).

For the impact, the integration of two practices can help organizations focus on the development of the operations in order to improve customer satisfaction, cost savings and competitive advantage. With a combination of green into lean six sigma, it can make management more productive because of the elimination of waste and defects in the product can be maintained while the implementation and enhance the image of the automotive industry (Kumar et al., 2006). Therefore, this discussion leads to the following hypothesis:

H₂: There is a positive and direct significant relationship between green lean six sigma (GLSS) practices with managerial innovation in automotive industry.

Efficiency can be assessed by financial performance when the organization was able to keep up with the time-based global economy (Nanni et al., 1990). Therefore, the customer perspective and internal business perspective is said factors that could affect the performance of the strategy and long-term goals (Kaplan and Norton, 1992; Vitale and Mavrinac, 1995).

However, there is issue regarding how far the financial performance will give advantage to the organization if it is set as target performance. Golhar and Deshpande (1998) suggest that attention should be given to customer satisfaction and business process or management as specific. This is due; in full concentration on the financial performance may not be enough to help organizations compete globally.

The factors that influence the development of the organization should be considered, with the productivity of the financial performance will also be able to move with balanced. It means that financial performance movement are strongly depending on how the organization arranges their internal structure or management.

H₃: There is a positive and direct significant relationship between managerial innovation practices with financial performances in automotive industry.

In some previous studies have shown that the GLSS has been used as a practice to be applied in the management and production (Arnheiter and Maleyeff, 2005; Peattie and Crane, 2005; Rao and Holt, 2005; Simpson and Power, 2005; Wadhwa et al., 2006; Taylor and Taylor, 2008; Habidin and Yusof, 2013). Each of these practices (GLSS) has given the advantage to the organization through their respective functions. This practice also helps organizations in doing innovation or change in management or operational activities. However, there still has not been many studies done to evaluate the effects of managerial innovation practices GLSS and financial performance. To fill this gap, hypothesis H₄ was built to see its effectiveness to achieve the goal of the study.

H₄: There is a positive and direct significant relationship between GLSS, managerial innovation and financial performances in automotive industry.

4. CONCLUSION

This study aims to review the relationship between Green Lean Six Sigma (GLSS) and Financial Performance (FP) with the use of managerial innovation (MI) as a mediating. In addition, this study was intent to determine whether it is suitable to be applying in the automotive industry. In related to that, the proposed model and hypothesis is developed based on literature review to indicate that GLSS are become most important practice to increase the financial performance of an organisation. The quality of management may produce a better product and make employees of an organisation more motivated. As such, it is expected to give a positive effect for manufacturers or practitioners in automotive industry.

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Analysis of Performance of State Owned Enterprises – Compression analysis of the Republic of Slovenia and Bosnia and Herzegovina

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ABSTRACT

One of the biggest questions battling governments around the world is performance of State Owned Enterprises (SOEs), as they are one of the biggest companies in every country and have a large share in economics growth and prosperity. Power, water and other types of independence of each country are mainly based on resources controlled by State Owned Enterprises. This issue became more important in last few decades due to globalization and market liberalization. Paper analyses performance of SOEs from the Republic of Slovenia and Bosnia and Herzegovina. To understand differences and similarities between SOEs from Bosnia and Herzegovina and Slovenia we have conducted a comparison analysis. Measuring the success of these SOEs is based on the analysis of financial statements for period from 2008 to 2012, using indicators of profitability and market indicators. The results reveal that SOEs from Bosnia and Herzegovina have poor governance and much lower performance than SOEs from Slovenia. The broad conclusion that emerges from the results is that government of Bosnia and Herzegovina has to conduct extensive reforms and reorganization of its S SOEs in order to survive and grow.

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1.1. INTRODUCTION

There are numerous reasons for establishing or retaining public enterprises, especially if we consider resources that are very important for country, society and from which most of the government budget is financed. Jones and Mason (1982) categorized as follows: ideological predilection, acquisition or consolidation of political or economic power, historical heritage and inertia, and pragmatic response to economic problems. Friedmann and Garner (1970) also used four categories: promotion and acceleration of economic development, defensive reasons, controlling monopoly industries, and political ideology. Peterson (1985) argued that State Owned Enterprises (SOEs) are established to pursue national goals, economic efficiency, weakness of the POEs, and political ideology.

SOEs have been driving force for development and growth of many countries. However, in the realm of public policy, one of the most unprecedented global features in the last quarter of the twentieth century has been privatization. During the period, governments all over the world introduced various forms of privatization irrespective of their economic context, political orientation and ideological position (Haque, 2000). There are different views of privatization and its effects on performance of companies

as well as on benefits of privatization for country and its economic growth. One group of authors support privatization and argue that it has positive impacts on company performance and country's economics development (Magginson and Netter, 2001; Vickers and Yarrow, 1995; Dewenter and Malatesta, 2001; D'Souza and Megginson, 1999 and others). On the other hand, other group of authors does not support privatization of strategically important enterprises and argue that privatization has negative impacts country's economics development and growth (Campbell-White and Bhatia, 1998; Bayliss, 2002 and others).

While Bozec, R., Breton, G. and Côté, L. (2002) in its research of state-owned enterprises and private firms for the period 1976–1996 argue that SOEs “when their main goal is to maximize profit, perform as well as the privately owned enterprises. Therefore, the alleged underperformance of the SOEs may only be the result of pursuing other goals.”

Despite all these arguments most of the countries around the world have kept its main resources under the government ownership in full or partial control. Reason for this is that these enterprises are of great importance for economic prosperity of every country and they are often one of the biggest resources that each country has. Therefore, performance and competitiveness of SOEs is very important especially in period of globalization and liberalization of markets in these two companies.

From the state's perspective, maximizing SOEs performance is a goal of overriding importance. One of the most important factors driving SOEs performance is the quality of their governance. Studies on SOEs performance shows that good governance translates into better results, while weak governance is often at the root of many of the performance problems typically associated with state ownership. Good governance is thus a key to the solution.

2. RESEARCH METHODOLOGY

With increased market liberalization and entrance of new competition to Slovenian and Bosnian markets it is even more important to analyze performance, competitiveness and governance of SOEs as they no longer have monopoly position in markets and have to compete for market share.

Paper analyses performance of SOEs from the Republic of Slovenia and Bosnia and Herzegovina. To understand differences and similarities between performance of SOEs from Bosnia and Herzegovina and Slovenia we have conducted a comparison analysis. Measuring the performance of these SOEs is based on the analysis of financial statements for period of 5 years from 2008 to 2012, using indicators

of profitability and market indicators. In order to measure performance of these companies we have defined Key Performance Indices (KPIs).

Key Performance Indices are as following:

1. Return on Equity (ROE)
2. Return on Assets (ROE)
3. Operating Margin
4. Net profit Margin
5. Equity Ratio
6. Sales/Total Asset Ratio (S/T)
7. Net income per employee

Based on KPI's we test performance of SOEs in these two countries in order to determine how good are these enterprises governed and how well they provide value and return on investment of its shareholders. Analysis will assess the way governments of these two countries exercise ownership of its enterprises, which contribute a significant share to economy growth.

To calculate Key Performance Indices and conduct analysis of SOEs data was collected for sample of 60 SOEs, 30 SOEs from Bosnia and Herzegovina and 30 SOEs from Slovenia. The research data was collected from companies' annual reports, the database of the Banja Luka Stock Exchange and the Sarajevo Stock Exchange, the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES) and companies' web pages. Therefore, research was based on 300 observations for each of 7 Key Performance Indices.

3. RESEARCH RESULTS AND DISCUSSION

Performance analysis was done according to Key Performance Indices based on research data acquired for 30 Bosnian and 30 Slovenian SOEs. Table 1. presents descriptive statistics of Key Performance Indices for Bosnian and Slovenian SOEs in cumulative amount for 5 years.

	Country	N	Mean	Std. Deviation
ROE	SLO	150	3,1688	4,7746
	BIH	150	-0,3224	1,1605
ROA	SLO	150	0,6990	1,5984
	BIH	150	0,1406	0,5651
Operating Margin	SLO	150	6,6057	2,6765
	BIH	150	-3,8195	7,1367
Net Profit Margin	SLO	150	1,3156	3,9520
	BIH	150	-5,5834	5,5888
Equaty Ratio	SLO	150	46,0728	1,5717
	BIH	150	78,3924	0,9788
Net income per employee	SLO	150	769069,9729	118452,3707
	BIH	150	51757,9818	1707,5048
S/T	SLO	150	62,8312	6,1632
	BIH	150	32,6978	1,0649

Table 1: Descriptive statistics of KPIs for Bosnian and SOEs

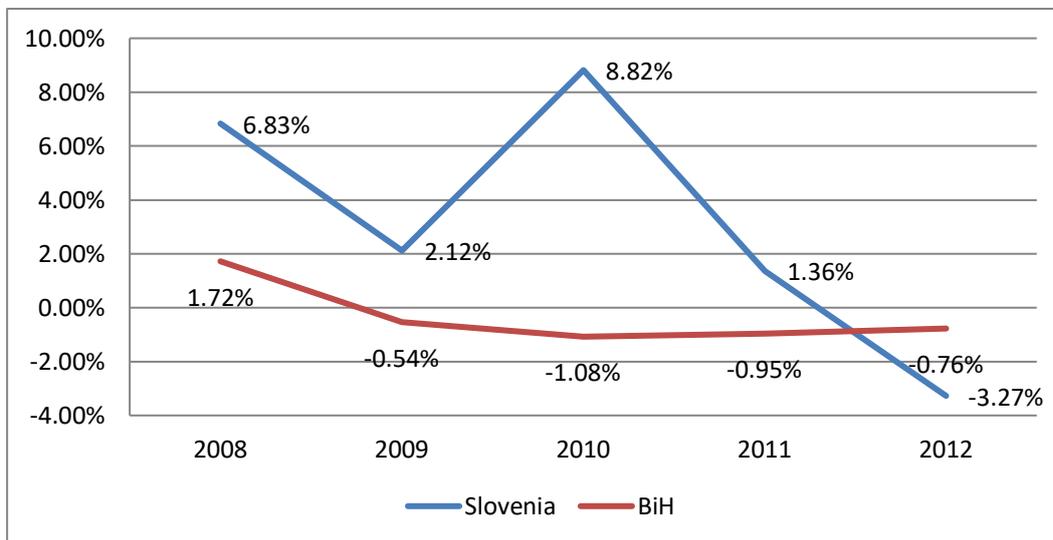


Figure 1: Return on Equity (ROE) for Bosnian and Slovenian SOEs

As shown in Figure 1. SOEs from Bosnia and Herzegovina have much lower Return on Equity than SOEs from Slovenia. Moreover, SOEs from Bosnia and Herzegovina have negative trend in ROE in analyzed period. This shows that companies from Bosnia and Herzegovina are less efficient in using

shareholders capital in generating profits. However, there is also a big decline in ROE for SOEs from Slovenia after 2010 due to higher losses in financial and air sector, which were hit by crises in that period.

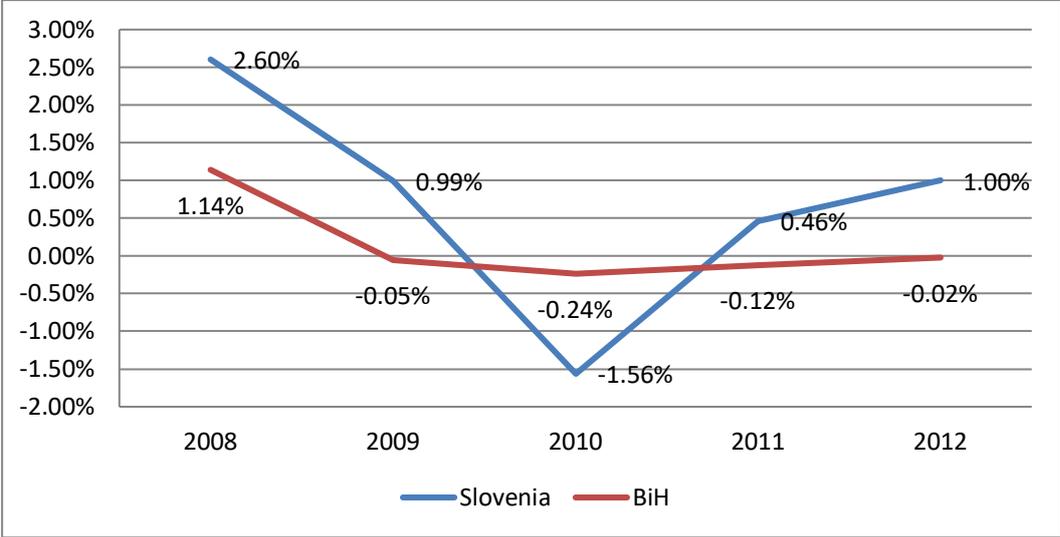


Figure 2: Return on Asset (ROA) for Bosnian and Slovenian SOEs

Results presented in Figure 2. show that SOEs from Bosnia and Herzegovina have significantly lower Return on Asset than SOEs from Slovenia and negative trend in ROA in analyzed period. This shows that companies from Bosnia and Herzegovina are less efficient in utilization of its assets, which is one of the most important factors in SOEs. Furthermore, results indicate large decrease in ROA in Slovenian SOEs in 2009 and 2010 mainly due to crises in financial, but also in several other sectors. However, in 2011 and 2012 we see increase in ROA and positive returns which indicates that companies have managed to cope with problems. Whereas SOEs from Bosnia and Herzegovina have not been effective with dealing with problems they face and not managed to have positive ROA.

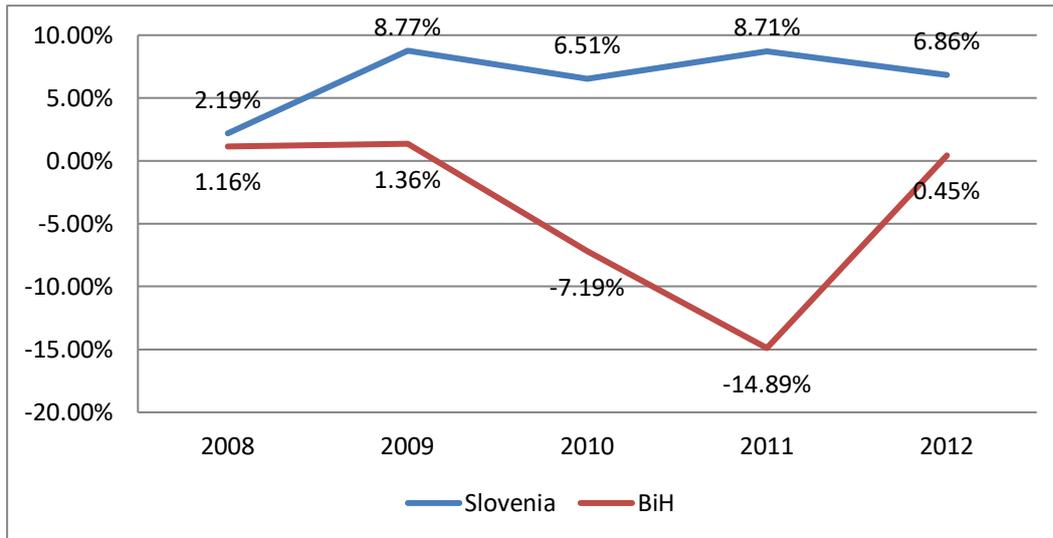


Figure 3: Operating Margin for Bosnian and Slovenian SOEs

Data from Figure 3. and **Table 1.** shows that in analyzed period SOEs from Bosnia and Herzegovina on average have negative Operating Margin of -3.82% while SOEs from Slovenia have Operating Margin of 6.61%. These results show that Bosnian companies have significantly lower Operating Margin in analyzed period, indicating that they are less profitable and facing problems of managing its costs and debt due to low efficiency. On the other hand, Slovenian SOEs have been more efficient in managing its cost.

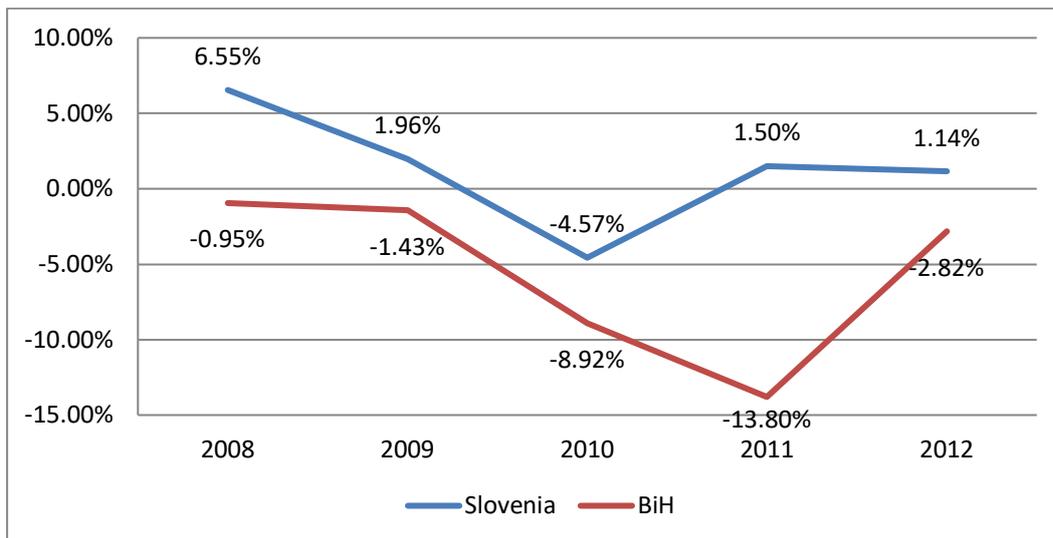


Figure 4: Net Profit Margin for Bosnian and Slovenian SOEs

Similar situation is with Net Profit Margin of analyzed SOEs. Data from Figure 4. and Table 1. shows that in analyzed period SOEs from Bosnia and Herzegovina have negative Net Profit Margin, while SOEs from Slovenia have positive Net Profit Margin in analyzed period, except in 2010. Lower Net

Profit Margin of Bosnian SOEs indicates that they are less profitable and less efficient in converting revenue into actual profit. Furthermore, these results show that they have poorer control over its costs compared to Slovenian SOEs, which is indicator of poor governance Enterprises.

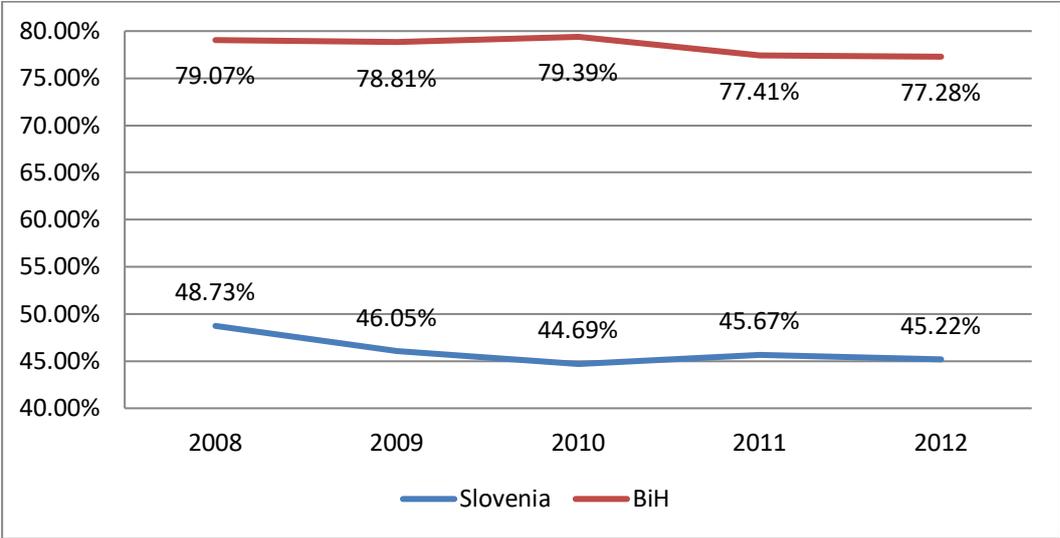


Figure 5: Equity Ratio for Bosnian and Slovenian SOEs

Figure 5. shows larger percentage of assets of SOEs from Bosnia and Herzegovina are financed/owned by shareholders, which is not the case in SOEs from Slovenia where almost half of assets are financed by debt. Bosnian SOEs have not had large investments in asset and therefore did not require large financing. This high Equity Ratio shows that Bosnian SOEs have been largely financing its assets by its equity and it means that they will be able to processed with future investment projects and they do not have large obligations to its creditors. On the other hand Slovenian SOEs had largely invested in its operations and modernization and therefore larger percent of assets is financed from creditors.

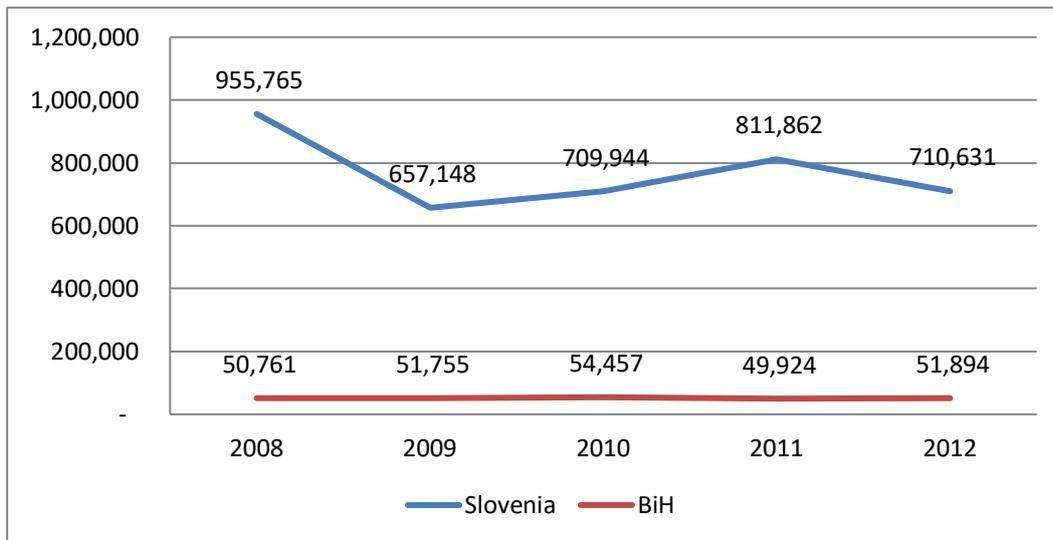


Figure 6: Net Income per employee for Bosnian and Slovenian SOEs

Analysis of indicate that in analyzed period SOEs from Bosnia and Herzegovina have significantly lower Net Income per employee than SOEs from Slovenia. Moreover, Bosnian SOEs have negative trend and constant decrease of Net Income per employee in analyzed period. This shows that managers of Bosnian SOEs do not have ability to use their human resources efficiently to create profits for company. Furthermore, this indicates overemployment in Bosnian SOEs. SOEs from Slovenia also had problem with overemployment in SOEs but they have managed to use their human resources 15 times efficient than SOEs from Bosnia and Herzegovina.

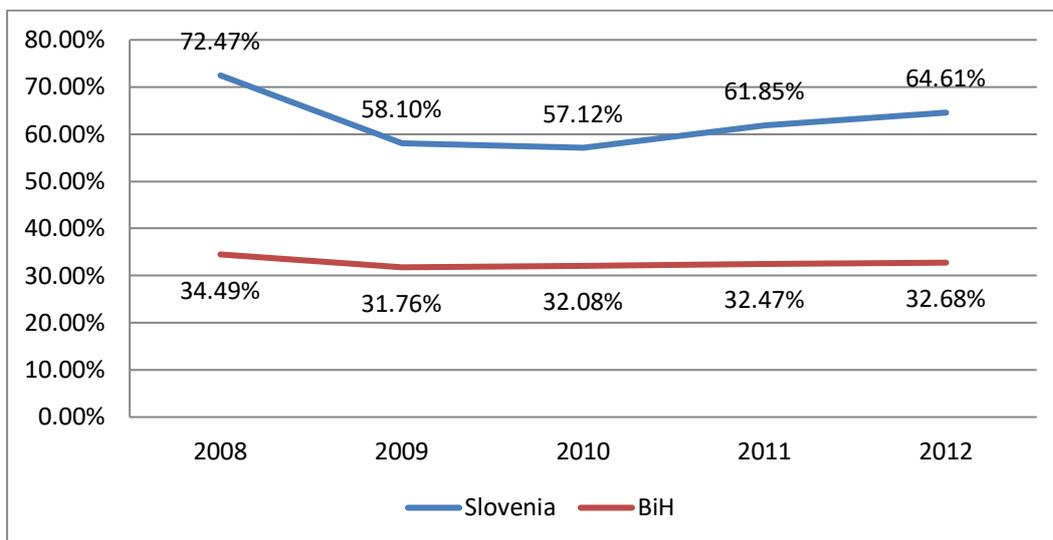


Figure 7: S/T Ratio for Bosnian and Slovenian SOEs

Data from Figure 7. shows that in analyzed period SOEs from Bosnia and Herzegovina considerably lower S/T ratio than SOEs from Slovenia. These results indicate negative trend in S/T ratio for Bosnian companies and positive trend for Slovenian companies. Therefore, Bosnian SOEs are not efficient in

managing assets at its disposal to generate sales revenue. Almost twice higher S/T ratio of Slovenian SOEs suggests that they require much smaller investment to generate sales revenue and, therefore, have higher profitability.

4. CONCLUSION

SOEs are fundamentally important to the Slovenian and Bosnian economy as SOEs in these countries provide important services to industry and the public. On one hand, when SOEs perform well they can provide a boost economic and social development, contribute significantly to state budgets, and are an important tool to achieve government policies. On other hand, when SOEs perform poor they can become financial and political burden.

In 2009 government of the Republic of Slovenia has adopted Policy on Corporate Governance of SOEs in order to tackle the problem of governance and performance of SOEs. Despite crisis, adoption of this policy has shown some improvements in governance and performance of Slovenian SOE'. However, the government of Bosnia and Herzegovina still has not adopted any Policy on Corporate Governance of SOEs. Therefore, SOEs continue to constrain economy of Bosnia and Herzegovina through their absorption of large amounts of scarce capital, low productivity, and relatively limited service coverage.

Thought analysis of sample companies it can be concluded that Bosnian SOEs are not well governed and that government is not doing much to change situation in these companies. Moreover, big problem presents overemployment, which is also result of poor governance of these companies and not including experts in boards and top management positions in companies.

On the other hand, results indicate that Slovenian SOEs are better governed and performance much better than Bosnian SOEs. Slovenian government has adopted policy on Corporate Governance of SOEs, which shows that government has realized the important of SOEs for economic and social development and is trying to tackle the problem of governance and performance of SOEs.

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Internet banking adoption and usage in Zimbabwean commercial banks: An analytical approach.

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ABSTRACT

Technology is revolutionizing the way business is conducted in every industry and commercial world. This study aimed at analysing the adoption and usage of Internet banking in Zimbabwe. It covered issues such as various banking services available through internet banking in Zimbabwe, factors influencing internet banking adoption in Zimbabwe, factors impacting negatively on customers' utilization of internet banking and banks' perceptions of internet banking. Questionnaires were administered to selected banking customers and staff of commercial banks using purposive and simple random sampling techniques. Findings from the study indicate that internet banking services in Zimbabwe include checking of balances and account activity, request for cheque book and same bank funds transfer. Lack of awareness on internet banking security, accessibility, lack of familiarity, age, gender, educational level and cultural resistance are some of the factors that affect internet banking adoption among customers. Internet banking is still in its teething stage and most of the banks do not offer full-fledged Internet banking though they have plans to do so. Bankers see Internet banking as a strategic opportunity that can be used to reduce transaction costs and enhance customer service delivery. It is therefore recommended that banks develop appropriate internet banking marketing strategies that maximizes value for customers and satisfaction in the long run.

ARTICLE INFO

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1 INTRODUCTION

Internet is transforming the banking and financial industry in terms of the nature of core products/services and the way these are packaged, proposed, delivered and consumed as reviewed by Sathye (1999). It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness in the financial industry as noted by Kamel (2005). Banks and other businesses alike are turning to Information Technology (IT) to improve business efficiency, service quality, attract new customers and subsequently profitability. Technological innovations have been identified to contribute to the distribution channels of banks and these electronic delivery channels are collectively referred to as electronic banking. Chang (2003) has it that the evolution of banking has

been driven by changes in the distribution channels as evidenced by automated teller machine (ATM), Phone-banking, Tele-banking, and most recently internet banking.

According to the internet banking comptroller's handbook (1999) cited by Ntsiful et al (2010), internet banking refers to systems that enable bank customers to access accounts and general information on bank products and services through a personal computer (PC) or other intelligent devices. Internet banking products and services can include wholesale products for corporate customers as well as retail and fiduciary products for individual customers. Liao and Cheung (2000) preached that, internet banking is the use of the internet as a remote delivery channel for banking services, including viewing and verifying transactions on accounts, checking balances, printing statements, monitor uncredited and unpaid cheques, and many more.

Before technology took the banking industry into the 21st century, all transactions were done in the banking hall, thus there was need for more 'brick and mortar' physical structures, overhead costs were high, and all transactions were to be done in the bank. Customers could not enjoy services during off-working hours but rather had to stick to the stipulated banking hours. This means that customers were inconvenienced since they had to wait for the bank to open in order to make transactions and also had to wait in very long queues at times. Thus there was need for banks to find new ways of conducting business in order to satisfy their customers more and to reduce their costs.

As internet access exceeded 1.596 billion people globally in the first quarter of 2009 according to the Internet World Statistics (2009), an increasing number of banks worldwide have increased their business investments in internet technology, driven by the expectation that the internet technology would provide better opportunities to establish a distinctive strategic position/advantage compared to other traditional forms of banking services as noted by Evans and Wurster (1997).

According to Liao and Cheung (2002), the development of the internet as a service and marketing channel has breached the geographical and industrial barriers, creating new products, services and market opportunities for all institutions.

A major driving force of adopting Internet banking is the potential for productivity gains that it offers. The change towards internet banking has been driven by four interlinked factors as echoed by Rahman (2007) which are: accelerated client demand, increased competition between banks, the threat of new levels of efficiency and the worldwide deregulation of the financial services market.

1.1 TECHNOLOGY AND BANKING IN ZIMBABWE.

In Zimbabwe, the first visible form of electronic innovation in banks was in the early 1990s when Standard Chartered Bank and Central Africa Building Society (CABS) installed ATMs. Other forms of

electronic innovations that have found their way into Zimbabwean banks are Electronic Funds Transfer Systems (EFTS), Tele-banking, and recently internet banking.

The majority of commercial banks in Zimbabwe offer internet banking facilities. The launch of broadband internet by Econet, Africom and Powertel among others has expanded the availability of internet in Zimbabwe and it may mean acceleration and growth in internet banking.

While the rest of Southern Africa has been carried forward on the wave of internet banking, the development of the phenomenon in Zimbabwe has rather been slow, hampered mainly by the haemorrhaging effects of the past decade that made investments into new sectors difficult and unprofitable. However, internet banking revolution seems to have gathered pace since the adoption of multicurrency system in 2009.

Globalization and the need to upgrade services to internationally accepted levels have prompted Zimbabwean banks to offer internet banking services. In Zimbabwe the face of banking is fast changing and focus is now on new delivery channels, to improve customer service and give way to 24 hours daily access to banking services. With internet banking customers are supposed to transact from the comfort of their homes and offices instead of visiting the banking halls.

The Zimbabwean economy has been suffering from liquidity squeeze ever since dollarization in 2009 and these liquidity problems can be minimised by use of digital money as well as plastic money. The benefits of a cashless society to the transacting public go beyond convenience and safety associated with the payment system. The present tight liquidity, coin shortages and the need for financial transparency can be solved through the adoption of plastic money as financial transactions can be completed without the involvement of tangible cash, as noted by Chishamba (2010). It is believed that the internet banking will help banks to cut costs, increase revenue, and become more convenient for customers, according to Halperin (2001).

However, low broadband internet penetration, customers' preference for traditional branches, fear of online threats/scams, lack of basic knowledge of computers and the high cost of internet accessibility are some of the problems threatening the growth and usage of internet banking in Zimbabwe.

1.2 THE EXTENT OF INTERNET BANKING USAGE IN ZIMBABWE

In view of the extent of internet banking adoption, a majority of the banks in Zimbabwe have adopted this technology and are offering the service to reach and serve their clients (corporate and individual customers). Despite a seemingly good adoption rate, the extent of usage has remained relatively low as only few customers are using the facility. The main usage of e-banking in Zimbabwe has been for checking account balances, payment of bills and funds transfers. The adoption process of e-banking by

banks was fraught with several challenges such as compatibility with legal systems, cost of implementation and security concerns among others as lamented by Dube et al (2009).

Reports from World Internet Statistics (June 30, 2012) suggest that the rate of internet adoption in Zimbabwe is fairly high (ranked 12 in Africa) and is increasing with every passing year. Since Econet launched its mobile broadband package in the last quarter of 2010, the uptake has been exponential. That is, more than 30% of the mobile operator's subscribers now have internet on mobile phones, and the number is growing on a daily basis.

With reference to Dube *et al* (2009), despite the increase in Internet usage by Zimbabwean citizens, and the high mobile penetration rate as indicated above, the adoption of Internet banking by Zimbabwean customers remains low and the reasons why Internet banking is low in Zimbabwe are not yet clear.

2. EMPIRICAL AND THEORETICAL LITERATURE

Garau (2002) noted that the promise of ICTs in the banking sector has been seen in terms of its potential to reduce cash crisis, increase customer base, reduce transaction costs, improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitates self-service and service customization, and improve customer communication and relationship. Most banks in developed and some in developing parts of the world are now offering e-banking services with various levels of sophistication. However, most African banks seem to be content with having a web presence with only a few of them making strides towards full-fledged e-banking applications. Since the mid-1990s, there has been a fundamental shift in banking delivery channels toward using self-services channels such as internet banking services.

2.1 INTERNET BANKING ADOPTION AND USAGE IN OTHER NATIONS

The adoption of Internet banking in developed countries (like the United States (U.S) and Australia) and developing countries like Malaysia is growing. Internet banking services was first available in the U.S in 1995, Australia in 1999 and in Malaysia in 2000. According to Yuen et al (2010), as of the year 2007, 16.6% of the 307 million U.S population, 42% of the 21 million Australia population, and 16% of the 25 million Malaysia populations, were Internet banking service users. Internet banking services have been available in Bangladesh since 2001. As of 2007, 29 out of 48 banks have offered online financial services according to Rahman (2007).

In the US, the Internet era in the banking industry started in 1995 when Wells Fargo first allowed its customers to access account balances online and the first Internet-only bank, Security First Network Bank, opened as noted by Bradley and Stewart (2003). Ever since then, banks have steadily increased their presence in the Web. A major driving force of adopting Internet banking is the potential for productivity gains that it offers. On one hand, the internet has made it much easier for banks to reach

and serve their customers, even over long distances. On the other hand, reduces cash crisis, provides cost savings for banks to conduct standardized, low-value-added transactions (for example; bill payments, balance inquiries, account transfer) through the online channel and paperless environment.

2.2 THEORIES OF INTERNET BANKING ADOPTION

There is a number of internet banking adoption theories and the major ones are articulated below:

- ◆ Theory of planned behaviour (TPB)

This theory provides a comprehensive way of understanding factors that can influence a person's decision to use information technology. It postulates that the intention to adopt information technology is determined by: attitude and perceived behavioural control as postulated by Sadeghi and Farokhian, (2011)

- ◆ Technology Acceptance Model (TAM)

One of the most utilized model in studying information system acceptance is the Technology Acceptance Model (TAM) as viewed by Davis *et al.*, (1989) and Mathieson, (1991) in which system use (actual behaviour) is determined by perceived usefulness (PU) and perceived ease of use (PEOU) relating to the attitude toward use that relates to intention and finally to behaviour.

- ◆ Technology Readiness (TR)

Developed by Parasuraman (2000), technology readiness (TR) models consumers' personality traits and beliefs associated with technology usage. More specifically, it measures consumers' propensity to embrace and use new technologies.

- ◆ Service Quality Model (SERVQUAL)

SERVQUAL, according to Parasuraman, et al (1991) is one of several theories that have had considerable applicability in Information Systems (IS) and Internet related research. SERVQUAL (Service quality) is basically an operational instrument used in measuring customer perceptions of service quality along five key dimensions: tangibles, reliability, responsiveness, assurance and empathy.

2.3 APPLICATION OF INTERNET IN FINANCIAL INSTITUTION

There are mainly four types of internet use in financial institutions according to Li & Zhong, (2005) which are;

- 1) Information presentation: it is when a financial institution uses the internet to present its products, services, branch locations and hours to the public. This type, not only announces that

the bank exists, but also provides a kind of electronic brochure that informs the customers about facts concerning banks.

- 2) Information presentation with two way communication: it is when the client sends an electronic mail or fills a feedback form to the bank, requesting further information.
- 3) Interaction with users: it is when there is quick exchange of information between the user and server because the former is data stored in the databases of the financial institution. Information on the interest rates for loan and deposit products can be featured but with the added ability for Web site visitors to complete loan and new account applications on-line. In this way, the bank directly receives the applicant's information.
- 4) Transaction banking: this includes various financial transactions, such as opening and closing of accounts, paying bills, securities transactions, money transfers, implementation and deletion of standing orders, applications for loans or insurance acquisitions, credit card applications, financial planning services, information for tax purposes.

2.4 DETERMINANTS OF INTERNET BANKING ADOPTION AND USAGE IN DEVELOPING COUNTRIES

Mahajan et al (2002) identified that lack of awareness, uncertainty about the benefits of e-banking, concerns about lack of human resources and skills, set-up costs and pricing issues, and concerns about security, are the most significant barriers to e-banking by customers and suppliers. Concerns about security, legal and liability aspects, high costs of development, limited knowledge of e-banking models, are also other factors.

Organizations adopting ICT and e-banking in developing countries face problems such as lack of telecommunications infrastructure, lack of qualified staff to develop and support e-banking sites, lack of skills among consumers needed in order to use the Internet, lack of timely and reliable systems for the delivery of physical goods, low bank account and credit card penetration, low income, and low computer and Internet penetration, in general as claimed by Bingi, et al (2000).

2.5 BENEFITS OF INTERNET BANKING

By offering internet banking services, traditional financial institutions seek to lower operating costs, improve customer banking services, retain customers, reduce their branch networks and downsize the number of their service staff according to Parisa (2006). With the advent of the Internet, the communication and operational costs incurred in any business are reduced. The specific benefits of Internet banking are discussed as follows:

- ◆ *Cost reduction-* With reference to Cheng et al (2006), banks can benefit from lower transaction costs as Internet banking requires less paper work, less staff and few physical branches hence, limiting overheads associated with bank staff and bank branch costs.

- ◆ *Improved service quality for banks and enhanced customer satisfaction and loyalty* - Al-Sukkar and Hassan (2005) support the view that technology can improve service quality for banks and enhance customer satisfaction and loyalty as clients can access services in the comfort of their homes and offices. According to Nath et al (2001) provision of high quality services may also lead to high profit customers for the bank.
- ◆ *Convenience the customer*- internet banking offers customers more convenience since the customer does not need to visit the banking hall when making transactions and there are no time restrictions as to when transactions can be made.
- ◆ *Long term survival of bank*- Al-hawari and Ward (2005) indicate that internet banking is positively related to customer retention, better competitive edge, higher returns and this can lead to the long term survival of the bank.

2.6 CHALLENGES OF INTERNET BANKING ADOPTION AND USAGE

The challenges are double-pronged, that is, those constraints peculiar to customers and those which hamper commercial banks.

2.6.1 Challenges of Internet banking to customers

Some customers are hesitant to use internet banking because of problems they see in transacting over the internet. Such challenges includes;

- ◆ *High Cost of Internet Services*-The high cost of internet services and products is leaving majority of less developed nations out of the enormous opportunities and benefits that the technology offers in education, government, commerce and research as echoed by Nancy et al (2001).
- ◆ *Security*- Security is a problem for many user of internet banking. The user names and passwords are often complex. This is good, for the most part, because no one else would guess them. However, it can be a problem if the customer cannot remember them. The customer might not be able to access their account when they want to, without going through an intense security procedure.
- ◆ *Fraud*- Sohail and Shanmugham (2002) in their empirical investigation in Malaysia on e-banking cited that Internet banking, like any other business arena, is susceptible to fraud. Phonies abound in every type of business, and Internet banking is no different. One kind of fraud is done on fake bank websites. These are look-alike sites that imitate your internet banking website. They sometimes pop up when there is a slight misspelling of your bank's web address. If care is not taken, a customer can type in his username and password before he realizes he is not connected to his own bank at all.

- ◆ *Uptime of Internet Banking Services*- The problem happens when the bank's computer system has an extremely high traffic volume. Customer transactions may not be made in a timely manner. There can be other failures in the communications of banks that will cause errors or lags. If a computer virus ever get into the bank's computers, it could be a real problem. Clearing up the chaos might take a while.
- ◆ *Expensive and Unreliable Internet Connection*- Extremely high internet connection costs and frequent breaks in this service affect negatively the use of internet banking services.
- ◆ *Lack of specific laws and regulations to govern internet banking*- Larpsiri et al (2002) argue that it is not clear whether electronic documents and records are acceptable as sufficient evidence of transaction. They also point out that the jurisdiction of the courts and dispute resolution procedures in the ease of using the internet for commercial purposes are important concerns. Disputes can arise from many sources. For instance, website is not a branch of the bank. It is difficult for courts to define the location of the branch and decide whether they have jurisdiction as lamented Speece (2003).
- ◆ *Technophobia*- With reference to Yuen et al (2010), technophobia is the fear or dislike of advanced technology or complex devices, especially, computers. There are still quite a number of people (especially the old ones) who do not use internet banking because they feel that it is too difficult to learn.

2.6.2 Challenges of Internet banking to Banks

Cited in Nwobodo (2011), Ron Webb (The Manager Paynet E-company), in his report on virtual conference on E-banking for the poor, stated some draw-backs that most internet banks do face in the case of adopting and implementing the new technology. These are the key constraints as regarding e-banking:

Vision / Inertia- The fear of uncertainties is an everyday trauma that sets in when the idea of trying to make a change begins. So it becomes very difficult to let lose an already laid old method of doing things.

Infrastructure- It is obvious that lack of consistent, inexpensive data communications and electricity is a strong setback to adopting e-banking especially in less developed countries, like Zimbabwe. These constraints reduces the rate at which inspired users would have been using e-banking.

3. METHODOLOGY

The study employed qualitative method which accurately describes, decode and interpret the meanings of phenomena occurring in the normal social contexts of the research. The population included all the 15 commercial banks regardless of size or availability of internet banking services. Hence, respondents were drawn from these banks so as to come up with reliable answers to our research questions.

In sampling customers, the stratified technique was used to select the bank customers, whereby users and non-users of internet banking were grouped to get unbiased views. A total of five hundred customers were then randomly approached to find out if they accessed internet banking services (with each customer having an equal chance of being selected).

In picking respondents from the banking staff, purposive sampling technique was used. The branch managers and any other two bank officials were approached. This was to make the information collected from the field representative enough to draw conclusions.

3.1 DATA SOURCES

The researchers used both the primary and secondary data in the study. The primary research tools used involve questionnaires and interviews while the secondary data was collected from published information especially on the internet, which included websites with information on Internet banking services and articles on Internet banking.

4. DATA ANALYSIS AND RESULTS INTERPRETATION

A total of fifty (500) questionnaires were distributed to the bank customers, however, 450 were received. All the five (50) questionnaires sent to the staff of the bank were received. Only 10 out of the 15 targeted interviews were successful as other banking staff were too busy on corporate business. A response rate from questionnaire was 90%, though only 85% were usable for analysis.

4.1 DEMOGRAPHICS AND INTERNET BANKING USAGE

Gender and internet banking usage- The results showed that about 28% of males use internet banking whilst 11% of women use Internet banking. This disequilibrium might be due to different risk tolerance level, which is likely to be higher among males than females generally.

Educational background- From the clients who use internet banking, 2% had primary level, 15% had secondary education and 83% had tertiary education. Thus educational level determines the usage of Internet banking. That's, there is a positive correlation between these two variables.

Age and Internet banking use- Age seems to affect Internet banking adoption in Zimbabwe. Among the internet bank users, age-group of 26-35 had the highest percentage of internet users with 54% followed by the 36-45 age group with 30.3%, followed by the 16-25 age group with 10.7% and lastly the above 45 group which scored 5%. Possibly because the 26-35 age group is composed of young and working group whilst the 16-25 is composed mainly of students and dependents.

4.2 BANK-WIDE CHALLENGES OF INTERNET BANKING ADOPTION IN ZIMBABWE

The following aspects were indicated by bank staff as challenges to internet banking; lack of familiarity, cultural reluctance, security concerns, knowledge of IT and e-business, and high cost associated with ICT investments. A compilation of responses from bank officials are as follows, 80% respondents indicated lack of familiarity, 60% also ticked cultural reluctance, 80% security concerns, 60% knowledge of IT and e-business, and 100% indicated high cost associated with ICT investments as shown in the figure 1 below.

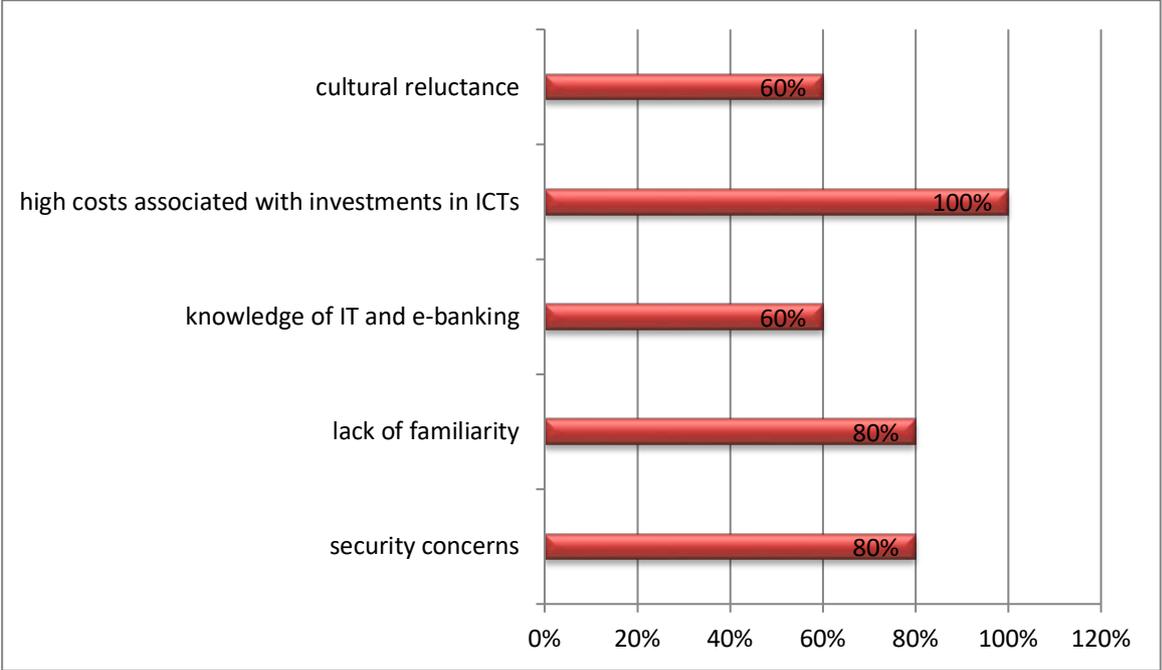


Figure 1: some challenges affecting internet banking

As can be seen, all the factors were cited as the constraints in usage of internet banking from the banking staff’s perspectives.

4.3 CUSTOMER-RELATED CHALLENGES OF USING INTERNET BANKING.

Responses from customers who do not use Internet banking indicated that the main challenges which hinder them from adopting and utilizing Internet banking are; risk, accessibility, and lack of familiarity as discussed below.

Security of Internet banking - The results shows that 26% of those who do not use Internet banking strongly agree that it is risky or not secure to do money transactions over the Internet, 42% agree, 23% neither agree or disagree, 6% disagree and only 3% strongly disagree. So the largest percentage of the customers perceive that it is of high risk to make financial transactions over the internet. The results

concur with Sathye's (1999) results of the study of adoption of Internet banking by Australian consumers where security was significant in determining internet banking usage.

Access to Internet banking - The figure 4 below shows that 23% of customers who do not use Internet banking at all, strongly agree that access to internet is the hindrance, 29% agree, 6% neither agree nor disagree and 16% strongly disagree. Therefore the results portray that 52% perceive that access to Internet is the hindrance while 6% neither agree nor disagree and 42% disagree that Internet access is the problem

Lack of familiarity in using Internet banking technology - 19% of the clients who do not use internet banking strongly agree that lack of familiarity with Internet banking technology/resources is the hindrance, 26% agree, 13% neither agree nor disagree and 26% disagree while 16% strongly disagrees. This depicts the results of the study as 45% of the customers perceive lack of familiarity with internet banking resources as a hindrance while 42% disagrees and 13% neither perceive lack of familiarity to Internet banking resources as a hindrance.

So the researchers can safely rank the hindering factors starting the most significant as follows:

- i. Customers perceive that Internet banking is risky or not secure (in other words there is lack of awareness of Internet banking security and use)
- ii. No access to Internet banking resources
- iii. Lack of familiarity with Internet banking technology
- iv. Not user friendly website designs
- v. Cultural resistance (resistance to change)
- vi. Education and age
- vii. Gender

4.4 INTERNET BANKING AND ITS OPERATIONAL VALUE

Operationally, it is a tool in the service delivery arsenal of banks and improves customer service delivery. The introduction of internet banking has reduced the cost of maintaining customer accounts given that the use of passbooks, withdrawal slips and other stationary have significantly reduced. This assertion was confirmed by bank officials' responses to questionnaires and interviews even though they were reluctant to give financial figures to support it.

Table 1 below shows responses to questions aimed at assessing the operational value of internet banking to banks in Zimbabwe;

Table 1: Operational value of Internet banking

Perception	Yes	No	%Yes
Benefits outweigh the costs	50	00	100%
Allows banks to increase customer base	20	30	40%
Improves customer service delivery	50	00	100%
Lowers transaction costs	40	10	80%
Offers opportunities to provide additional services	40	10	80%
Increases attempted fraud	30	20	60%
Customer accounts would be less costly to maintain	20	30	40%

All responses from staff the banking staff reported that the benefits of Internet banking outweigh the associated costs. Also, the bank stated benefits in the following areas: increases in the customer base, improvements in customer service delivery, lower transaction costs which confirms Pikkarainen et al (2004)'s assertion that banks get notable cost savings by offering online banking services, and opportunities to offer additional services such as insurance, loan repayments, bill payment.

4.5 HOW INTERNET BANKING AFFECT CUSTOMERS IN ZIMBABWE.

As indicated in the table below, 80% of bank officials thought that Internet banking significantly benefits their customers. Also, about 60% believed that it would reduce the frequency of customer visits to a physical bank branch which confirms Howcroft et al's. (2002) assertion that time, cost savings and freedom from place have been found the main reasons underlying online banking acceptance. The percentage of respondents who agreed that Internet banking would lead to a reduction in customer - banker relationship was 20%.

Table 2: Effect of Internet banking on the on the Bank's customers

EFFECT	TRUE	FALSE	% TRUE
Significantly benefits customers	40	10	80%
Reduces the frequency of customer visits to a physical bank	30	20	60%
Reduces customer-banker relationship	10	40	20%
Customers mind paying a monthly fee for Internet banking	10	40	20%
Access to accounts 24/7 is important to customers	50	00	100%
Internet banking security is concern of our customers	40	10	80%

As shown in Table 2, all 50 responses received from bank staff (100%) mentioned that access to accounts 24/7 is important to their customers, 20% reported that their customers would not mind paying a monthly fee for Internet banking. On Internet banking security, 80% agreed that it is a concern of their customers.

4.6 CUSTOMERS' SATISFACTION LEVEL OF INTERNET BANKING SERVICE IN ZIMBABWE

When customers of internet banking were asked to rate their satisfaction levels of the internet banking service they use, the majority were only satisfied. A compilation of the results show that 24% are very satisfied, 39% are Satisfied, 33% are somewhat satisfied, 4% are unsatisfied, and 0% very unsatisfied as can be seen in the chart below.

5. CONCLUSIONS AND RECOMMENDATIONS

The utilization of Internet banking in Zimbabwe by the commercial bank customers is 20% which is way below half. The significant factors which hinder customers from adopting and using Internet banking are; security concern, resistance to change, lack of familiarity, high costs associated, education, age and gender which concurs to conclusions made by Maholtra and Singh (2007), Corrocher (2002), Sullivan and Wang (2005), Hannan and McDowell (1984)

The internet banking services provided by banks in Zimbabwe generally cover information-push where customers can access banking information, information download where customers can access account information and simple transactional banking involving fund transfer. Thus, it can be deduced that the future holds a lot of prospects for internet banking in Zimbabwe.

The challenges hindering banks from adopting and using of internet banking include; the problems of internet connectivity, high cost of implementation, security concerns for customers, perceived customer readiness and other problems they encounter.

Against the background of highlighted findings and conclusions, the following recommendations are made;

- ◆ The banks are encouraged to create awareness of Internet banking security and use.
- ◆ Banks might consider target marketing (for example targeting the working class)
- ◆ The banks are recommended to participate in training projects and supporting public Internet access points
- ◆ Ensure constant availability of internet service - banks and internet service providers are recommended to ensure that the internet banking service is always available. Periodic routine maintenance and replacement of faulty equipment must be prompt to prevent service disruptions.
- ◆ Government intervention in technology infrastructure- the government of Zimbabwe has a lot to do for the improvement of technology in the country so that bank customers have easy

and reliable access to Internet. This means that unless specific measures are employed at a national level the activities taken by banks might not be significant. Such measures includes:

- i. Identifying and initiating suitable steps to remove the legal and regulatory barriers to e-commerce in general and Internet banking in particular like speeding up the process of granting licences to telecommunications companies.
- ii. Inviting more players in the telecommunications industry so that there is more competition on internet providers.
- iii. The government can regulate effectively, costs of telecommunications services so as to encourage and motivate customers to use internet frequently which will in turn cause them to consider internet banking.

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An Analysis of Machine Effectiveness on the Production Line by Using Overall Equipment Effectiveness (OEE) Method Based on Total Productive Maintenance (TPM) Principle (A Study Case of Ball Tea Machine in PT Kabepe Chakra)

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ABSTRACT

Total Productive Maintenance (TPM) is an approach in Preventive Maintenance which can be used by a company to evaluate the effectiveness of the company's facility. This evaluation is conducted to improve the facility value of Overall Equipment Effectiveness (OEE) and to eliminate the main loss known as The Six Big Losses. TPM is a maintenance approach focusing on the equipment which is suitable to be implemented on the manufacture company and production industries. This research is conducted on the Ball Tea machine in PT Kabepe Chakra which is a production machine to dry tea. The calculation of OEE value is conducted based on the data in January-December 2014, the calculation results show that the OEE value is 59.30897433% and it is still under the World Class standard. The calculation of Six Big Losses shows that the percentage of the most dominant of machine losses is on the Set-Up and Adjustment Loss which is 42.6768183%. The research results can be used to show that the effectiveness of Tea Ball machine still has to be improved by focusing on the most dominant loss elimination.

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Keywords:

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1. INTRODUCTION

Along with the development of technology, today's production activity is more performed by using production machines. Moreover, there have been some businessmen who prefer machines for production (Rusadi, 2013). However, the performance of machine may not be always stable if it is used continuously in a long term. The industry machine is an important part to smoothen the production process; it is the reason why maintenance is so important (<http://www.vibrasindo.com>, 2015). One of the maintenance process methods which are developed to improve the productivity is Total Productive Maintenance (TPM). The indicator of the success of TPM implementation is determined by OEE (Overall Equipment Effectiveness) (<http://shiftindonesia.com>, 2012).

Overall Equipment Effectiveness (OEE) is the best practice metric which identifies the percentage of production time which is really productive in planning (Vorne Industries, 2013). The OEE value of 100% is a perfect production. The OEE value of 85% is considered as the World Class standard manufacture. The OEE value of 60% is a typical value for Manufacture Company. The OEE value of

40% is a low value but it is possessed by many manufacture companies. The OEE value can be easily improved through simple stages of specification (OEE Industry Standard, 2014).

The usage of machine and equipment itself increasingly improves. The very potential markets for domestic machine industry are food and beverage industry. Food and beverage industry in each year always purchases the capital goods around 15-20% from its budget to fix the machine (Dharmawan, 2008). The percentage amount of machine repair budget usage shows the low value of machine effectiveness so that there are still many spaces to repair the machine of food and beverage machine in Indonesia.

One of food and beverage Industry Company in Indonesia, especially in West Java, tea production company, PT. Kabepe Chakra. PT Kabepe Chakra uses the production machine technology in processing the tea. The tea processing consists of several stations; every station processes the average tea of 91.792,58 kg per month with the highest operational working hours which is in the drying station using Ball Tea in which it reaches 24 hours per day where it will influence the effectiveness of the machine (Kabepe Chakra, 2014). Thus, to maintain the performance and the effectiveness of the machine, the suitable maintenance activity is necessary to be conducted in order to minimize all forms of losses.

This research aims to find out the effectiveness level of Ball Tea machine used by the company and the losses of the machine so that the company can focus on the most dominant loss elimination to improve the OEE value.

2. THEORY AND HYPOTHESIS

2.1 Preventive Maintenance

Maintenance covers all activities related in maintaining the system equipment in order to keep working. The preventive maintenance covers the routine inspection and maintenance and maintains the facilities in a good condition. This activity is intended to build a system which will find the potential failure and to make a change or repair which will prevent the failure. The emphasis on the preventive maintenance is on the understanding of process and keeping it working without obstacles (Heizer and Render, 2005).

2.2 Total Productive Maintenance

Total Productive Maintenance (TPM) is a productive maintenance performed by all employees through a small group activity (Nakajima, 1988). The definition of TPM completely covers five those elements (Nakajima, 1988):

1. TPM aims to maximize the effectiveness of the equipment (Overall Equipment Effectiveness).
2. TPM makes a detailed system to expand the life of the equipment.
3. TPM is implemented by various departments (machine, operation, maintenance).

4. TPM involves each employee, from the highest management until the lowest level of employee.
5. TPM is based on the promotion from PM through the motivation management: autonomous small group activities.

2.3 Overall Equipment Effectiveness

TPM has a measuring tool to consider important points within it, namely Overall Equipment Effectiveness (OEE). OEE is a result from availability, performance, and quality (Borris, 2006). The formula of OEE calculation value is:

$$OEE = Availability \times Performance \times Quality \quad (1)$$

Availability Rate is a ration from the amount of time which can be used by the machine to produce a qualified product divided by the total of time in which the machine works. The mathematic formula of availability is:

$$Availability = \frac{Operation\ Time}{Loading\ Time} \times 100 = \frac{Loading\ Time - Down\ Time}{Down\ Time} \times 100 \quad (2)$$

Performance Efficiency or performance of equipment can be meant as the ratio from the amount of products divided by the amount of the products which should be produced (Borris, 2006). The formula of Performance Efficiency is:

$$Performance\ Efficiency = \frac{process\ amount \times theoretical\ cycle\ time}{operation\ time} \times 100 \quad (3)$$

Rate of Quality. The meaning of product quality is a ratio from the amount of the products which can be accepted divided by the overall amount of the products which are made (including the products that failed). The formula of Quality Product is:

$$Rate\ Of\ Quality = \frac{number\ of\ units\ produced - number\ of\ defects}{number\ of\ units\ produced} \times 100 \quad (4)$$

OEE Industry Standard is a recognized world class target where each factor of OEE has different values. It is shown in following table (Vorne Industries, 2008):

Table 1: OEE Industry Standard

OEE Factor	World Class
Availability	90.0%
Performance	95.0%
Quality	99.0%
OEE	85.0%

The world class OEE standard forms some hypothesis:

Hypothesis 1. The Availability level of Ball Tea machine used by Chakra Group Company in 2014 met the world class standard which is $\geq 90\%$.

Hypothesis 2. The Performance Efficiency of Ball Tea machine used by Chakra Group Company in 2014 met the world class standard which is $\geq 95\%$.

Hypothesis 3. The Rate of Quality Product of Ball Tea machine used by Chakra Group Company in 2014 met the world class standard which is $\geq 99\%$.

Hypothesis 4. The Overall Equipment Effectiveness of Ball Tea machine used by Chakra Group Company in 2014 met the world class standard which is $\geq 85\%$.

2.4 The Six Big Losses

Facilities suffer losses from things which prevent them to effectively operate and from problems caused by the errors and operational problems. TPM seeks to eliminate The Six Big Losses which become the main obstacles against the effectiveness of equipment to reach OEE (Nakajima, 1988). Steps of losses calculation refer to previous research (Hasriyono, 2009).

1. Equipment Failure: breakdown

$$\text{Equipment Failure Loss} = \frac{\text{Total Breakdown Time}}{\text{loading time}} \times 100 \quad (5)$$

2. Setup and adjustment: Retooling of the dead machine

$$\text{Setup and Adjustment Loss} = \frac{\text{Total Set up and Adjustment Time}}{\text{loading time}} \times 100 \quad (6)$$

3. Idling and minor stoppages: The abnormal operation from censor, the obstruction of the machine works, etc.

$$\text{Idling and Minor Stoppage} = \frac{\text{Nonproductive Time}}{\text{loading time}} \times 100 \quad (7)$$

4. Reduced speed The difference between the recorded speed of equipment and the actual speed.

$$\text{Reduced Speed} = \frac{\text{Operation Time} - (\text{Theoretical Cycle Time} \times \text{Processed Amount})}{\text{loading time}} \times 100 \quad (8)$$

5. Defect in Process: The bad record and quality which have to be improved.

$$Defect\ In\ Process = \frac{Theoretical\ Cycle\ Time \times Rework}{Loading\ Time} \times 100 \quad (9)$$

6. Reduced Yield: The needed time from start-up the machine until the stable production process.

$$Reduced\ Yield = \frac{Theoretical\ Cycle\ Time \times Scrap}{Loading\ Time} \times 100 \quad (10)$$

3. METHODOLOGY

The type of the research is basic research. Basic research is general knowledge as a tool to solve the practical problem although it does not give the thorough answer for each problem, (Nazir, 2005).

This research is a research which uses a mixed method based on the type of the data and its processing. The mix method research is an approach of research which combines or associates the qualitative and quantitative forms (Creswell, 2010). The qualitative approach of this research is used when the primary data are being collected from the interview to find an idea from the problems that may occur on the machine that can cause a loss in the production process. The interview is conducted against three resources (source triangulation) in order that the obtained data are valid. The resources are selected based on the consideration of their knowledge of machine; production, machine technician and general affairs. The quantitative approach of this research is used when the secondary data are being processed to calculate the value of Overall Equipment Effectiveness and the identification of losses. The needed secondary data are Loading Time, Down Time, Planned Downtime, Number of Defect (reduced yield/reject and rework component, Output, Theoretical Cycle Time, and Actual Cycle Time. The used secondary data are the data of Ball Tea machine in 2014. This machine is selected based on the level of influence of the machine against the product quality, machine usage frequency, and the damage frequency.

The technique of data analysis which is firstly used is Fishbone Diagram. Fishbone Diagram of his research is used to process the interview results regarding the condition and the performance of the machine to dig and learn the cause of the problem which may cause losses against the machine. The Fishbone Diagram technique refers to the previous research (Hasriyono, 2009; Rinawati and Dewi, 2014). The causes are usually divided into the main cause from methods, material, measurement, people, equipment, and environment (Besterfield et al., 2003).

The further analysis is conducted by calculating the percentage of OEE by multiplying the three constituent factors of OEE namely availability, performance, and quality based on each formula.

The calculation results are then compared to the attainment with world class OEE standard. The calculation of OEE value has been conducted on some previous research (Afefy,2013; Almeanazel, 2010; Hasriyono, 2009; Rinawati and Dewi, 2014).

The further analysis is by calculating the six big losses with each formula based on the theory of The Six Big Losses. Sorting the percentage of the greatest or the most dominant losses is depicted through the Pareto diagram so that the causes can be analysed and the repair can be focused on the losses. The usage of Pareto diagram is for sorting the percentage of the losses, based on the research (Hasriyono, 2009; Rinawati and Dewi, 2014).

4. RESULTS

4.1 Descriptive Data

The early used data are the results from interviews with some related parties, they are the production department, the machine technician, and the general Affairs. The interview results data are then processed by using Fishbone diagram so that the link of the problem becomes clear.

The Fishbone diagram on the picture 1 shows that the root cause of the low value of OEE on the Ball Tea machine can be identified into four categories: Material/Spare part, Machine, People, and Method. The problems of Material/Spare part factor are that the spare part suffers the damage because of the worn-out, the spare part is not original, the spare part is sometimes not available in the company storage, and the hard tea raw materials can damage the machine.

The problems of machine factor are that the machine has the highest working hours so that it needs a special treatment, then, the machine has a high delay time so that the existing working hours becomes less, the technical problems often occurs on the machine where the machine often suffers the breakdown.

The problems of the people are that the machine operators are still lack of awareness about the importance of machine inspection, the operator does not check and report to the technician when there are peculiarities on the machine. The machine operators are also still lack of knowledge, when the machine suffers the congestion, they tamper the machine without a clear understanding and procedure.

The problems of the processing method are the screening of raw materials with Roll causes a very strong vibration so that the Roll will be loose sooner or later and its performance decreases, the machine is also set in a very high temperature to dry the tea leaves so if it is not treated well, the machine will be easily broken.

Those problem are then adapted with the theory of Total Productive Maintenance which focuses on the machine to calculate the OEE and the Six Big Losses in details.



Figure 1: Fishbone Diagram of Problem Causes of the Machine

The needed secondary data are Loading Time, Down Time, Planned Downtime, Number of defect (reduced yield/reject and rework component), Output, Theoretical Cycle Time, and Actual Cycle Time. Those data are obtained based on the data of Ball Tea machine in 2014 in the company. Table 2 and table 3 are the outcome of the collected data recap:

Table 2: Delay Time of Machine

Month	Available Time (Hour)	Delay				Total Delay (Hour)
		Schedule Shut-down (Hour)	Warm-up Time (Hour)	Planned Downtime (Hour)	Machine Break (Hour)	
January	744	168	48	96	2.17	314.17
February	672	96	48	112	1.50	257.50
March	720	120	50	100	0.67	270.67
April	720	120	50	100	1.17	271.17
May	744	192	46	92	0.42	330.42
June	720	120	50	100	2.75	272.75
July	744	96	54	108	0.92	258.92
August	744	120	52	104	0.42	276.42
September	720	96	52	104	1.17	253.17
October	744	120	52	104	0.17	276.17
November	720	120	50	100	1.25	271.25
December	744	120	52	104	4.50	280.50

Table 3: Working Hours and Production Machine

	Item
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Month	Loading Time (Hour)	Down Time (Hour)	Total Production (kg)	Good Product (kg)	Number Of Defect (kg)	Theoretical Cycle Time (hour/kg)	Actual Cycle Time (hour/kg)
January	648	218.17	86,581	85,800	781	0.004323842	0.007484321
February	560	145.5	81,209	79,100	2,109	0.004253391	0.006895787
March	620	170.67	102,946	101,399	1,547	0.003758508	0.006022575
April	620	171.17	107,563	106,600	963	0.003593144	0.005764064
May	652	238.42	101,010	100,500	510	0.003588162	0.006454806
June	620	172.75	101,528	90,800	10,728	0.003793354	0.00610669
July	636	150.92	78,151	77,599	552	0.005305954	0.008138092
August	640	172.42	68,435	66,900	1,535	0.005877414	0.00935194
September	616	149.17	85,762	85,300	462	0.004657027	0.007182668
October	640	172.17	58,374	57,738	636	0.006894028	0.010963785
November	620	171.25	101,357	99,563	1,794	0.003812477	0.006116992
December	640	176.5	128,595	126,901	1,694	0.003100488	0.004976865

4.2 Calculation Results

The analysis of the machine effectiveness is conducted with a calculation by using OEE formula as well as the losses of the machine which cause the low value of OEE. The calculation of OEE and the losses of the machine are as elaborated as following:

1. The calculation of Availability, Performance, Quality, and OEE.

Availability Ratio is calculated to find out how much the ratio of the amount of the time which can be used by the machine to produce products with the total of the time when the machine works. To calculate the Availability Ratio, it needs the data of Loading Time which has been found out previously and the data of Operation Time.

Performance Efficiency is the performance of the machine which is showed by the ratio of the products made by the amount of products which should be produced in a cycle. The calculation of Performance Efficiency uses the data of Good Product Ideal Cycle Time, and Operation Time of Ball Tea machine.

Rate of Quality Product is calculated to find out the level of product quality which is produced by the machine. The calculation of Rate of Quality Product uses the data of Good Product and Total Broke which have been known.

Overall Equipment Effectiveness shows the overall effectiveness value of machine based on the factors of Availability, Performance Efficiency, and Rate of Quality which have been obtained.

The calculation results of OEE and the three factors are presented in table 4:

Table 4: The Calculation Results of Availability, Performance, Quality, and OEE

Month	Availability (%)	Performance Efficiency (%)	Rate Of Quality Product (%)	OEE (%)
January	66.3317901	86.3098526	99.08974359	56.72974056
February	74.0178571	81.1684437	97.33375474	58.47728541
March	72.4725807	84.81716947	98.47434393	60.5313831
April	72.3919355	85.33948307	99.09662289	61.22080705
May	63.4325153	87.19239741	99.49253731	55.02766172
June	72.1370968	77.01207446	88.18502203	48.99054936
July	76.2704403	84.88017506	99.28865063	64.27796641
August	73.059375	84.09234144	97.70553064	60.02767816
September	75.7840909	85.09401146	99.45838218	64.138446
October	73.0984375	85.08376934	98.89847241	61.5098119
November	72.3790323	84.58643272	98.19812581	60.11968285
December	72.421875	84.88780454	98.66510114	60.65667939
Average	71.98308554	84.20532961	97.82385727	59.30897433

2. The Calculation of The Six Big Losses

Based on the principle of TPM, the losses of the machine are classified into six types which are called The Six Big Losses. Those Losses are: Equipment Failure Loss, Set-up and Adjustment Loss, Idling and Minor Stoppage, Reduced Speed, Yield/Scrap Loss, and Rework (Davis,1995). On the Ball Tea machine which is used by PT Kabepe Chakra to dry the tea, the losses have been identified in accordance with the theory of The Six Big Losses.

Table 5: The Calculation Results of the Six Big Losses

No	Six Big Losses	Total Time Loss (Hour)	Percentage (%)	Cumulative Percentage (%)
1	Set up and Adjustment	2,092	42.67681828	42.6768183
2	Idling and Minor Stoppage	1,845.11	37.64026012	80.3170784
3	Reduced Speed Loss	853.013013	17.40147292	97.7185513
4	Scrap/Yield Loss	94.72567189	1.932404534	99.6509559
5	Equipment Failure Loss	17.11	0.349044149	100
6	Rework Loss	0	0	100
	Total	4,902		

5. DISCUSSION

5.1 Overall Equipment Effectiveness

The calculation results show that the value of Availability is only around 63.43251534% until 76.27044025%, the average of the level of available machine (availability) in 2014 is 71.98308554% which is still under the world class standard which is 90%. The Performance Efficiency value is around 77.01207446% until 87.19239741%, the average of the level of performance efficiency in 2014 is 84.20532961%, and this value is still under the world class standard which is 95%. The Quality value of the machine is around 88.18502203% until 99.49253731%, although in January, April, May, and September, the value of machine Quality has met the world class standard which is over 99%, however, when it is averaged in a year, the value of Quality becomes 97.82385727% that has not met the standard by 99%. The combination of those three factors produces an average value of OEE which is 59.30897433%. This value has not met the world class standard of 85% and it still needs to improve, however, according to Vorne Industries (2013), the OEE value has been good enough for the standard of industry since the average of industrial machine commonly still produces the OEE value of 35% until 45%.

The compliance of OEE value criteria on the Ball Tea machine in 2014 at PT Kabepe Chakra has been obtained based on the calculation is as following:

Table 6: The Comparison of OEE Value

OEE Factors	Results	World Class	Meet or does not meet the standard
Availability	71.98308554%	90%	Does not
Performance Efficiency	84.20532961%	95%	Does not
Rate Of Quality	97.82385727%	99%	Does not
OEE	59.30897433%	85%	Does not

The OEE value and those three factors are in table 5, thus, the conformity with the proposed hypothesis are:

Hypothesis 1 that is “the level of Availability of Ball Tea machine which is used by Chakra Group Company in 2014 met the world class standard which is $\geq 90\%$ ” is rejected.

Hypothesis 2 that is “the level of Performance Efficiency of Ball Tea machine which is used by Chakra Group Company in 2014 met the world class standard which is $\geq 95\%$ ” is rejected.

Hypothesis 3 that is “the level of Rate of Quality Product if Ball Tea machine which is used by Chakra Group Company in 2014 met the world class standard which is $\geq 99\%$ ” is rejected.

Hypothesis 4 that is “the level of Overall Equipment Effectiveness of Ball Tea machine which is used by Chakra Group Company in 2014 met the world class standard which is $\geq 85\%$ ” is rejected.

5.2 The Six Big Losses

The order of Six Big Losses percentage on the machine is depicted in the Pareto Diagram:

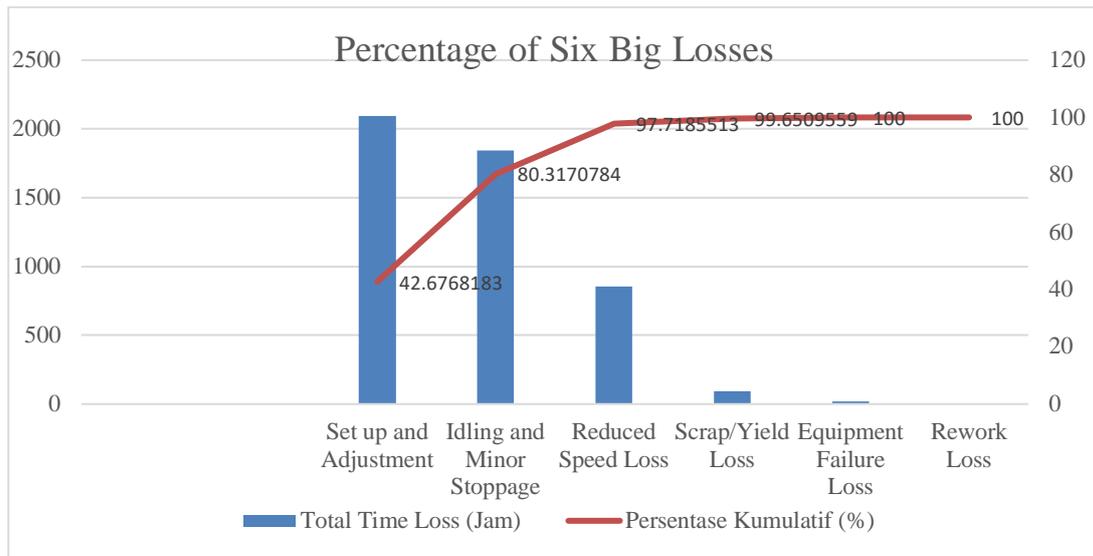


Figure 2: Pareto Diagram of Six Big Losses Percentage

The percentage of losses on the machine which causes the machine not working optimally is calculated based on the theory of The Six Big Losses and is sorted based on its percentage as following:

- The most dominant loss is the set-up and adjustment loss. The Percentage of set-up and adjustment loss in 2014 is 42.6768183%, it is caused by the time length of the machine set-up during the heating and during the machine stoppage schedule so that it produces the high time total of set-up and adjustment.
- The second loss is the loss which is caused by the idling and minor stoppage. The total of loss percentage in 2014 is 37.64026012%. This loss is caused by the existence of unproductive time where the machine cannot work.
- The third loss is the reduced speed loss with the percentage total of 17.40147292%. This loss is caused by the machine which operates under the standard of the speed.
- The fourth loss is the scrap/yield loss. The scrap produced by the machine is in forms of tea shoots which cannot be sent because it is scorched during the drying process in the Ball Tea. The calculation of the loss based on the production data in 2014 is 1.932404534%.
- The percentage of the lowest loss is the equipment failure loss with the percentage total of 0.349044149% in 2014. The failure occurs only in form of small damage on some parts of the machine like chain, clutch, roll, etc in which the repair does not take long.

6. CONCLUSION

The average of the effectiveness level of Ball Tea machine in January-December 2014 is 59.30897433%, this average of the effectiveness level of Ball Tea machine is still under the world class

standard which is 85%. The effectiveness of Ball Tea machine which does not meet the standard is caused by those three factors, they are availability, performance, and quality by which each of them does not meet the world class standard. It shows that the Ball Tea machine has the total of loss which is 40.69102567% which means that there are still many things which have to be improved in order that the performance is getting better. It is in accordance with the aim of TPM that is to improve OEE by eliminating the loss suffered by the machine.

The identification of the loss on the Ball Tea machine in 2014 is Set-up and Adjustment (42.67681828%), Idling and Minor Stoppage (37.64026012%), Reduced Speed (17.40147292%), Scrap/Reduced Yield (1.932404534%), and Equipment Failure Loss (0.349044149%). Those losses are caused by the amount of delay time and defect product. The Six Big Losses which are not identified is re-work loss. The company can improve the OEE value by focusing on the most dominant loss elimination which is on the Set-Up and Adjustment. The management of maintenance which can be applied to reduce the loss in the machine based on the TPM principle is education and training, the autonomous maintenance principle, planned maintenance, and focused improvement.

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Local Firms versus MNCs in India: A Study of Competitive Performance

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ABSTRACT

We studied the performance of 187 firms drawn from MNC subsidiaries (55), domestic private-owned (76), and domestic state-owned (56) firms operating in India. The underlying objective was to assess which group of firm demonstrated superior economic performance and competitiveness. We analyzed data for two periods of time 2002-03 and 2011-12 using four measures of economic performance namely operating profit margin (OPM), net profit margin (NPM), return on net worth (RONW) and asset turnover ratio (ATR). As the data set did not lend itself to parametric analysis, we adopted the nonparametric method. We employed Kruskal-Wallis H Test, Mann-Whitney U Test, Two-Step Cluster Analysis, and Chi-Square Test. We found that domestic private-owned firms performed better and were more competitive than the other two groups of firms.

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1. INTRODUCTION:

During the past two decades foreign direct investment (FDI) flow into emerging markets has increased considerably, particularly to the BRICS (Brazil, Russia, India, China, and South Africa) countries. These countries have experienced relatively higher levels of economic growth rate compared to the developed economies and hence have attracted substantial amounts of FDI. While on the one hand

such investment can lead to positive implications in terms of stimulating economic activity, generating employment, raising the standard of living, increasing competition, bringing in new technology and international brands, it can also have certain negative consequences. A prominent factor is the fear that international competition is primarily inflicted by multinational firms (MNCs) which are more efficient vis-à-vis domestic firms in emerging markets; that the former will eventually dominate the latter and may even eliminate them from the competitive arena. This is based on the assumption that MNCs are better resource-endowed in terms of technology, capital, brands and management practices. With such assets multinational firms will be able to win over the loyalty of customers, attract the best talent and be able to quickly gain confidence of supply chain partners.

At a policy level emerging market governments enact laws to protect and nurture domestic firms. Protectionism has its consequences in terms of inefficiencies and below par quality besides creating unequal playing field for all players. We felt it necessary to study the performance of local and MNC firms to determine the level of competitiveness of both these sets of firms in India. Should the local firms panic and the government in turn legislate to give preferential treatment to Indian firms over MNCs?

There is yet another dimension of competition that happens between domestic firms. This is the competition between the private and the public sector firms. The general perception is that the private sector is more efficient and proactive and therefore more competitive. Consequently products and services offered by the private sector are of superior quality in comparison to the public sector counterparts. Our study intends to analyze this aspect as well.

2. LITERATURE REVIEW:

Extent literature on corporate performance and firm ownership is divided when it comes to performance between foreign firms and domestically owned firms. Some of the studies find that foreign firms are more efficient compared to domestically owned firms while other studies have found that both these types of firms have performed equally well. Very similar is the debate between domestic government-owned firms vis-à-vis privately-owned firms.

2.1. Studies supporting superior performance of foreign firms over domestic firms:

A study conducted by (Asheghian, 1982) examined the comparative efficiencies of foreign firms, which consisted of Iranian-American joint venture firms (IAJV) and local firms in Iran during the pre-revolutionary 1971-76 period. This study of inter-firm efficiency comparison of eleven matched firms was based on three indexes of efficiency namely, labour productivity, capital productivity and total factor productivity. The study concluded that with minor exceptions the IAJV firms were more efficient than their Iranian firms' counterparts. (Willmore, 1986) analyzed data of 282 pairs of foreign-owned and Brazilian firms in the manufacturing industry. The study found that differences between the two types of firms were large and highly significant. Compared to their local counterparts, foreign firms operated fewer plants, had higher ratios of value-added to output, higher levels of advertisement and royalty payments, higher labour productivity, greater exports, higher wages and greater capital intensity.

(Voicu, 2004) examined whether foreign firms in Romania were technologically superior to domestic firms by separately estimating the technology-related productivity differentials between domestic firms and international joint ventures, and between domestic firms and foreign wholly owned enterprises. The study revealed that both types of foreign firms exhibited a technological advantage in virtually all manufacturing sectors compared to domestic Romanian firms. (Kimura and Kiyota, 2004) utilized micro-panel data for firms located in Japan to examine differences in static and dynamic corporate performance between foreign-owned and domestically-owned firms in the 1990s. The authors found that foreign-owned firms not only reflected superior static characteristics but also achieved faster growth. Further, foreign investors invested in firms that may not be immediately profitable at the time of investment but those that had profit potential.

(Ayudin et al., 2007) in a study investigated whether foreign-owned firms performed significantly better than domestically-owned Turkish corporations listed on Istanbul Stock Exchange. The t-test statistic was applied to examine if there was significant differences in operating profit margin, return on assets and return on equity between the two groups of firms. The results revealed that firms with foreign ownership performed better than domestically-owned ones in respect of return on assets.

(Kesari, 2010) empirically examined the differences in the relative characteristics, conduct and performance of two different ownership groups of firms, namely, foreign affiliates of multinational enterprises and domestic firms. The study was restricted to non-electrical machinery industry in India for the period 2001 to 2007. Three alternative techniques were employed, univariate statistical method based on Welch's t-test, the multivariate linear discriminant analysis and the dichotomous logit and probit models. The findings suggest that foreign affiliates had greater technological efficiency, firm

size, export intensity, intensity of import of intermediate goods and intensity of import of disembodied technology along with lower advertisement and marketing intensity and financial leverage.

In a study which explored the differences between domestic and foreign-owned firms operating in Greece, (Valsamis et al., 2011) in particular focused on financial management characteristics of the firms under investigation for the year 2008. The firms were grouped into two categories based on the origin of their capital share. Using a non-linear model the study found that foreign enterprises made higher use of capital, managed more financial elements, had more access to long-term capital, while they fell short against domestic firms in short term financing. Overall, foreign firms had higher sales and presented greater profitability.

2.2. Studies that found no difference in performance between foreign and domestic firms:

In their study (Barbosa and Louri, 2003) investigated whether multinational corporations operating in Portugal and Greece performed differently than domestic firms. They used two sets of sample firms one set operating in Greece in 1997 and another set operating in Portugal in 1992. Results suggested that ownership ties did not make a significant difference with respect to performance of firms operating in both the countries. However, it was also found that when firms in the upper quartiles of gross profits were compared, MNCs were found to significantly perform better than domestic firms.

A study undertaken by (Basti and Akin, 2008) compared the relative productivities of foreign-owned and domestically-owned companies operating in Turkey. Non-financial sector companies listed in Istanbul Stock Exchange from the period 2003-2007 were included in the analysis. Malmquist index, which is a data envelopment analysis type nonparametric technique, was utilized as the productivity measurement tool. Study results indicated that there was no difference between productivity of foreign-owned and domestically-owned firms operating in Turkey. (Basti et al., 2011) analyzed the performance of foreign-owned firms in contrast to domestically-owned firms in the manufacturing sector in Turkey. The impact of several firm indicators like age, size, assets, firm risks on different corporate performance measures such as ROE, ROA, Basic Earning Power and Total Factor Productivity were investigated by a panel data regression model. Contrary to findings of former studies in Turkey, the results of this study revealed that there was no significant difference between the performances of foreign-owned and domestically-owned firms.

(Caves and Douglas, 1980) compared the post-war productivity performance of a public firm (Canadian National Railroads) with a private firm (Canadian Pacific Railroad) through a case study approach. In their study they found no evidence of inferior performance by the government-owned railroad. Their study concluded that any tendency towards inefficiency resulting from public ownership was overcome by the benefits of competition.

2.3. Studies that had mixed findings:

(Xu et al., 2006) examined the performance of domestic Chinese firms in various ownership categories versus foreign-invested enterprises based on two nation-wide surveys conducted by the National Bureau of Statistics in 1998 and 2002. The study found that both domestic non-state-owned firms and foreign-invested enterprises performed better than state-owned enterprises. Meanwhile, three categories of Chinese firms - privately owned, collectively owned, and shareholding - had higher performance levels than the foreign-invested enterprises.

(Erdogan, 2010) analyzed the major aspects of conduct and performance that distinguishes foreign-owned and domestically-owned firms that operated in Turkey. Repeated measures logistic regression technique was used on 77 foreign-owned and 215 domestically-owned firms for the period 2004-2008. The results showed that domestically-owned firms had higher capital productivity vis-à-vis foreign-owned firms. In terms of the other performance variables studied such as pre-tax profit margin, return on equity and labour productivity there was no difference between foreign-owned and domestically-owned firms. The two groups of firms also do not differ in terms of size, capital intensity, export intensity, patent intensity and trademark intensity.

2.4. Studies supporting superior performance of private firms' vis-à-vis public sector firms':

A study undertaken by (Majumdar, 1998) evaluated performance difference between public sector, joint sector (joint venture between private and public sector firms) and private sector enterprises in India for the period 1973-74 to 1988-89. The study results established that enterprises owned by the central and state governments were less efficient than joint sector or private sector enterprises. Further, it found that joint sector enterprises were less efficient than those in private sector. (Boitani et al., 2013) focused on how the ownership and selection procedure of firms operating in the Local Public Transport sector affected their productivity. A comparative analysis of 77 firms operating in large European cities over the period 1997 to 2006 was conducted using the measure of Total Factor

Productivity. The authors found that totally and partially public firms displayed lower productivity than privately owned firms.

3. RESEARCH METHODOLOGY

We intended to attempt a study on the competitive performance of multinational firms versus domestic firms as well as between domestic firms. We categorised domestic firms into private-owned and state-owned. In all, there are three groups of firms: MNCs, domestic private-owned and domestic state-owned. The study is for two different time periods; the base year 2002-03 and the recent year 2011-12.

There was a reason why these two time periods were considered for the study. The government of India ushered in reforms in periodic dosages from 1991 to liberalize the economy from a controls-driven to a market-driven one. It was assumed that over a ten-year period the economy would have changed significantly. Therefore, the base year of 2002-02 was chosen to determine how different groups of companies had performed in the post reform competitive era. Further, the year 2008 saw major changes in the global economy with recession raising its ugly head. By 2011-12, three years post the commencement of global downturn, the idea was to assess how well the firms had done given the hostile nature of the environment. The idea was also to observe the change in performance of the three groups of firms over the nine-year period.

Four financial measures are considered namely, Operating Profit Margin (OPM), Net Profit Margin (NPM), Return on Net Worth (RONW), and Asset Turnover Ratio (ATR). We found very little published research work on competitive performance of local firms and multinational firms in India. Our research, it is hoped, will fill this gap to an extent. We had done an earlier study taking a sample size of 45 firms (15 each from the three groups of firms mentioned above). The limitation of the study was the small sample size used which did not satisfy the requirements of some of the statistical tests employed. Therefore we undertook this exercise using a larger sample size of 187 firms using SPSS (16).

The hypothesis proposed to be tested is:

H0: There is no difference in the performance of foreign companies in India compared to domestic private-owned and domestic state-owned companies.

3.1. Sample:

The data for this study was extracted from secondary sources. The main source is the Ace Analyzer data base, besides the websites of the firms listed in the BSE (Bombay Stock Exchange) and NSE (National Stock Exchange) in India. 187 firms operating in India have been included in the study, of which 55 are foreign firms, 76 are domestic private-owned firms and 56 are domestic state-owned firms.

3.2. Data Analysis Method:

Our research design has two stages. First stage involved classifying the firms into three categories namely, low (7%), medium (7% to 15%) and high (>15%) performing ones using the financial measure 'Return on Capital Employed' (ROCE). To validate this classification we used four variables mentioned above namely OPM, NPM, RONW, and ATR. We wanted to use parametric tests for analyses and began with the one-way ANOVA test. The idea was to carry out this test for each of the four independent variables to determine if there is significant variation in the performance of the three groups of firms. However, the data set did not satisfy the basic tests of normality of population distribution and homogeneity of variance. If these two tests would have been satisfied and the ANOVA results were to be significant we intended to use a post hoc test and subsequently the discriminant analysis test to validate our initial classification of the three sets of firms. This would have enabled us to comment on the competitiveness of the three groups of firms.

Since this was not possible owing to the limitations of the dataset we decided to adopt the nonparametric approach to pursue our study. We chose the Kruskal-Wallis H test (the non-parametric version of the one-factor independent measures ANOVA) for comparing two or more independent samples. We then wanted to performed the Mann-Whitney U test (the nonparametric version of the independent samples t test) to determine which group median score(s) is/are responsible for the variation. Next, to cross validate our initial classification we used the Two-Step Cluster Analysis, which is somewhat similar to the discriminant analysis used in parametric analysis. Finally, we employed the Chi-Square test to find out if there exists an association between groups of firms and their performance during the two periods of time considered for the study. This was done to compare

and determine how foreign, domestic private-owned and domestic state-owned firms performed over the ten-year period and to comment on their competitiveness.

4. DISCUSSION

We intended to formally test the data vis-à-vis the two main conditions –normality of population and homogeneity of variance – for reliable results for the one-way ANOVA. To test for normality we used the Kolmogorov-Smirnov Test (since our n is >50), as it assesses whether there is a significant departure from normality in the population distribution of the four variables being studied.

The test statistic is:

$$W = \frac{(\sum_{i=1}^n a_i x_i)^2}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

Where:

x_i (With parentheses enclosing the subscript index i) is the i^{th} order statistic, i.e., the i^{th} smallest number in the sample;

$\bar{x} = \frac{\sum_{i=1}^n (x_i)}{n}$ is the sample mean; the constants a_i are given by

$$(a_1, \dots, a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{1/2}}$$

When we look at the test statistic and significance column (see table 1) for each of the variables for both 2002-03 and 2011-12, we find that the P-values are less than the chosen α (.05), so we reject the null hypothesis and conclude that the data violates normality assumption.

Table 1: Tests of Normality of Population Distribution 2002-03

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NPM 2003	.346	187	.000	.190	187	.000

OPM 2003	.301	187	.000	.340	187	.000
RONW 2003	.286	187	.000	.641	187	.000
ATR 2003	.224	187	.000	.737	187	.000

a. Lilliefors Significance Correction

Table 2: Tests of Normality of Population Distribution 2011-12

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NPM 2012	.436	187	.000	.129	187	.000
OPM 2012	.411	187	.000	.194	187	.000
RONW 2012	.155	187	.000	.862	187	.000
ATR 2012	.208	187	.000	.739	187	.000

a. Lilliefors Significance Correction

To test homogeneity (equality) of variance assumption we used Levene's Test, which assesses whether the population variances for the variables are significantly different from each other.

The Levene's test statistic, W , is defined as follows:

$$W = \frac{(N - k) \sum_{i=1}^k N_i (Z_{i.} - Z_{..})^2}{(k - 1) \sum_{i=1}^k N_i (Z_{ij} - Z_{i.})^2}$$

Where:

W is the result of the test,

k is the number of different groups to which the samples belong,

N is the total number of samples,

N_i is the number of samples in the i^{th} group,

Y_{ij} is the value of the j^{th} sample from the i^{th} group,

$$Z_{ij} = \begin{cases} |Y_{ij} - \bar{Y}_i|, & \bar{Y}_i \text{ is a mean of } i\text{-th group} \\ |Y_{ij} - \tilde{Y}_i|, & \tilde{Y}_i \text{ is a median of } i\text{-th group} \end{cases}$$

When we look at table 3 we see that the P-values for three variables in 2002-03 are $<.05$, which is less than our chosen α (.05), we reject the null hypothesis and conclude that the data violate the homogeneity assumption. Only for OPM the P-value is $>.05$ and it alone satisfies the homogeneity assumption. For the year 2012-13 again the P-values for three variables are $<.05$ (see table 4). Here again we reject the null hypothesis and conclude that the data violate the homogeneity assumption. However, in case of the OPM variable we accept the null hypothesis as the P-value is $>.05$.

Table 3: Test of Homogeneity of Variances for 2002-03

	Levene Statistic	df1	df2	Sig.
NPM 2003	3.605	2	184	.029
OPM 2003	1.620	2	184	.201
RONW 2003	10.020	2	184	.000
ATR 2003	10.698	2	184	.000

Table 4: Test of Homogeneity of Variances for 2011-12

	Levene Statistic	df1	df2	Sig.
NPM 2012	4.977	2	184	.008
OPM 2012	2.029	2	184	.134

RONW 2012	4.947	2	184	.008
ATR 2012	9.851	2	184	.000

Since the data did not satisfy the assumptions of one-way ANOVA, we decided not to proceed using parametric tests but shifted to the nonparametric method. Since Kruskal-Wallis H test enjoys the same power properties relative to the one-way ANOVA F test, we decided to employ this test.

The K-W test statistic is given by:

$$K = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{r}_i - \bar{r})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (r_{ij} - \bar{r})^2}$$

Where:

- n_i is the number of observations in group i
- r_{ij} is the rank (among all observations) of observation j from group i
- N is the total number of observations across all groups

$$\bar{r}_i = \frac{\sum_{j=1}^{n_i} r_{ij}}{n_i},$$

$$\bar{r} = \frac{1}{2} (N + 1), \text{ is the average of all the } r_{ij}.$$

When we look at table 5, we see that the P-values for 2002-03, where three of the variables have significance level of $<.05$, which is less than our chosen $\alpha (.05)$. We reject the null hypothesis and conclude that there are differences among the groups of firms and therefore their rank score cluster systematically. Only for ATR the P-value is $>.05$ and so we do not reject the null hypothesis. For the year 2011-12 (see table 6) for all the four variables P-values have significance level of $<.05$ and therefore we reject the null hypothesis. Thus considering the data for both the base year as well as the recent year, it is clear that there are significant differences in the performance of the three groups of firms.

Table 5: Kruskal-Wallis H Test for 2002-03

Test Statistics^{a,b}

	NPM 2003	OPM 2003	RONW 2003	ATR 2003
Chi-Square	22.424	16.037	37.047	3.447
df	1	1	1	1
Asymp. Sig.	.000	.000	.000	.063

a. Kruskal Wallis Test

b. Grouping Variable: PERM2002-03

Table 6: Kruskal-Wallis H Test for 2011-12

Test Statistics^{a,b}

	NPM 2012	OPM 2012	RONW 2012	ATR 2012
Chi-Square	51.654	34.561	93.773	32.842
df	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: PERM2012

Since Kruskal-Wallis test revealed significant differences in P-values for the variables being studied, we attempted the Mann-Whitney U test, a nonparametric test that can be used when there are two independent samples with the assumption that they are drawn from population with the same shape, although not necessarily normal. This test is used in lieu of parametric post-hoc tests. The null hypothesis is that the scores from the two groups are not systematically clustered and thus there is no difference between the groups.

The Mann-Whitney U test statistic is given by:

$$z = \frac{U - m_u}{\sigma_U}$$

Where, where m_U and σ_U are the mean and standard deviation of U

$$m_U = \frac{n_1 n_2}{2},$$

$$\sigma_U = \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}$$

When we examine table 7, it is observable that for all variables the significance level is lower than the chosen α (.05). This clearly indicates that there are significant differences in the values or median scores amongst the three groups of firms in the year 2002-03. The only exception is for the variable ATR 2003 and that too for one pair of 'low-medium' performing firms.

Table 7: Mann-Whitney U Test for 2002-03

Low-Medium

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	280.000	354.000	144.500	571.500
Wilcoxon W	776.000	850.000	640.500	1067.500
Z	-4.735	-4.005	-6.087	-1.857
Asymp. Sig. (2-tailed)	.000	.000	.000	.063

a. Grouping Variable: PERM2002-03

Low-High

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	323.000	550.000	67.000	831.000
Wilcoxon W	819.000	1046.000	563.000	1327.000
Z	-6.813	-5.655	-8.122	-4.222
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Grouping Variable: PERM2002-03

High-Medium

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	1443.500	1618.500	646.000	1964.500
Wilcoxon W	2668.500	2843.500	1871.000	3189.500
Z	-4.498	-3.830	-7.543	-2.509
Asymp. Sig. (2-tailed)	.000	.000	.000	.012

a. Grouping Variable: PERM2002-03

The results are similar when we examine the table 8, which shows SPSS output for the year 2011-12. We again arrive at the same conclusion as did for the year 2002-03. However, there are three variables which have P-values that are $>.05$, these are, ATR 'low-medium' firms and NPM and OPM 'medium-high firms. We decided to ignore these as aberration, since K-W test too showed significant differences in the performance of the three groups of firms and proceeded with further analyses.

Table 8: Mann-Whitney U Test for 2011-12

Low Medium

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	165.000	210.000	118.000	535.500
Wilcoxon W	795.000	840.000	748.000	1063.500
Z	-4.958	-4.393	-5.551	-.308
Asymp. Sig. (2-tailed)	.000	.000	.000	.758

a. Grouping Variable: PERM 2011-12

Low-High

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	442.000	753.000	281.500	1187.500
Wilcoxon W	1072.000	1383.000	911.500	1817.500
Z	-7.096	-5.765	-7.783	-3.905
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Grouping Variable: PERM 2011-12

Medium-High

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	1674.000	1887.000	404.000	816.000
Wilcoxon W	2202.000	9147.000	932.000	1344.000
Z	-1.112	-.149	-6.851	-4.990
Asymp. Sig. (2-tailed)	.266	.881	.000	.000

a. Grouping Variable: PERM 2011-12

As we found all four variables indicating significant differences in the performance of the groups of firms, hence we decided to use all the four variables to cross validate our initial classification of the three groups of firms (which was done using ROCE). We chose the Two-Step Cluster Analysis for this purpose. The Two-Step Cluster is an algorithm primarily designed to analyze large datasets. The algorithm groups the observations in clusters, using the approach criterion. The procedure uses an agglomerative hierarchical clustering method. Compared to classical methods of cluster analysis, the Two-Step enables both continuous and categorical attributes. Moreover, the method can automatically determine the optimal number of clusters.

Table 9: The Two-Step Cluster Analysis for 2002-03

			Two-Step Cluster Number_PERM2003			Total	
			Low	Medium	High		
PERM 2002-03	Low	Count	31	0	0	31	
		% of Total	16.6%	0.0%	0.0%	16.6%	
	Medium	Count	48	1	0	49	
		% of Total	25.7%	0.5%	0.0%	26.2%	
	High	Count	0	4	103	107	
		% of Total	0.0%	2.1%	55.1%	57.2%	
	Total		Count	79	5	103	187
			% of Total	42.2%	2.7%	55.1%	100.0%

Table 10: The Two-Step Cluster Analysis for 2011-12

			Two-Step Cluster Number_PERM2012			Total
			Low	Medium	High	
	Low	Count	34	1	0	35

PERM 2011-12		% of Total	18.2%	0.5%	0.0%	18.7%
	Medium	Count	32	0	0	32
		% of Total	17.1%	0.0%	0.0%	17.1%
	High	Count	0	1	119	120
		% of Total	0.0%	0.5%	63.6%	64.2%
	Total	Count	66	2	119	187
% of Total		35.3%	1.1%	63.6%	100.0%	

Table 9 shows the Two-Step Cluster Analysis results for 2002-03 data. Prominent is the fact that 48 or 25.7% of firms are classified as Low (instead of Medium) and 4 or 2.1% firms are classified as Medium (instead of High). In all 71.13% of the 187 firms are classified in the same way as we had done earlier. Table 10 shows the outcome for 2011-12 data. 81.87% of the 187 firms are classified as per our earlier classification. Here again the major difference in classification, like the base year, is with Medium performing firms with 17.15% classified as Low performing ones. We considered the overall classification which emerged from the Two-Step Cluster Analysis as a validation of our initial classification which was done using ROCE. Therefore, we decided to follow the same to study the relationship between the groups of firms' and their performances as well as competitiveness.

Superior firm performance can be inferred from the movement of firms from low-performer to medium or high-performer and medium to high. Maintaining high performance even after the lapse of a decade in a growing and competitive market is also an indicator of superior performance. To determine this, we undertook cross tabulation of the firms being studied to check the movements of low, medium and high performing firms from the base year (2002-03) to the recent year (2011-12). The result of this cross tabulating exercise can be seen in table 11. It is obvious from the table that domestic private-owned firms have shown greatest level of competitiveness as the number of high performing firms increased by 15 during the period of study. MNC as well as domestic state-owned firms have maintained status co.

Table 11: Result of cross tabulation of classification of groups of firms (2002-03 & 2011-2012)

Groups of firms	Classification	2002-03	2011-12	Difference
MNC	Low	8	11	+3
	Medium	9	6	-3
	High	38	38	0
Domestic Private	Low	11	8	-3
	Medium	27	15	-12
	High	38	53	+15
Domestic Public Sector	Low	12	16	+4
	Medium	12	9	-3
	High	30	29	-1

After observing the results of cross tabulation, we next wanted to use the Chi-square test to statistically arrive at a conclusion about the performance and competitiveness of the three groups of firms being studied. The test results revealed that the calculated P-values for MNCs and state-owned firms were .006 [significant at α (.01)] and .061 [significant at α (.05)] respectively. Thus the null hypothesis that there is no significant association between the performances of MNC firms and state-owned firms was not rejected. However, the calculated P-value for domestic private-owned firms was .250, which was higher than α (.05). Thus, in this case we reject the null hypothesis and conclude that there is significant difference in the performance of these firms during the two periods of time studied. In other words, the domestic private-owned firms have performed significantly differently in 2011-12, vis-à-vis 2002-03, which in fact is better performance. This finding matches our previous finding based on the cross tabulation. Thus, despite passage of time and increase in competition owing to liberalization of the economy and arrival of foreign competition, the domestic private-owned firms have managed to perform better than MNC and state-owned firms.

Table 12: Association between groups of firms and performance using Chi-Square Test

Chi-Square Tests

Sector		Value	df	Asymp. Sig. (2-sided)
MNC	Pearson Chi-Square	14.542 ^b	4	.006
	Likelihood Ratio	13.945	4	.007

	Linear-by-Linear Association	11.890	1	.001
	N of Valid Cases	55		
PVT	Pearson Chi-Square	5.380 ^c	4	.250
	Likelihood Ratio	6.659	4	.155
	Linear-by-Linear Association	.000	1	.998
	N of Valid Cases	76		
PSU	Pearson Chi-Square	8.992 ^d	4	.061
	Likelihood Ratio	9.325	4	.053
	Linear-by-Linear Association	4.786	1	.029
	N of Valid Cases	54		
Total	Pearson Chi-Square	18.552 ^a	4	.001
	Likelihood Ratio	18.593	4	.001
	Linear-by-Linear Association	11.292	1	.001
	N of Valid Cases	185		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.03.

b. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .87.

c. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.16.

d. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 2.00.

5. CONCLUSION:

In this study, we analyzed the performance of 187 firms operating in India drawn from MNC (55), domestic private-owned (76), and domestic state-owned (56). The null hypothesis tested is that there is no difference in performance of MNC, domestic private-owned, and domestic state-owned firms. This hypothesis was arrived at based on the review of several research studies conducted in different countries, which indicated that subsidiaries of MNC firms perform better than domestic firms. A limitation of our study is that we could not undertake parametric analysis as the data did not satisfy the assumptions of one-way ANOVA model. This gives scope for future research using larger or different data set which may permit the use of parametric as well as nonparametric analysis and thus increase the robustness of the study.

At a managerial level, it indicates that executives of private-owned firms have demonstrated superior competitiveness vis-a-vis MNC firms despite increase in competition (both domestic and foreign) owing to liberalization of the economy and the global recession. This finding goes against many earlier research findings as well as general belief that MNCs are more competitive than local firms. However, in a dynamic environment there is no room for complacency for local private-owned firms. They have to further strengthen their competitiveness to take on the better endowed MNCs in future. As far as state-owned firms are concerned, there is need for introspection and self-analysis to determine reasons for less-than-desired performance. Corrective measures will enable them to improve performance and competitiveness. Same holds for MNC firms as well.

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An Output Driven Analytical Construct on the Choice Criteria of Indian Consumers for Organized New Retail Outlets

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ABSTRACT

Indian Consumers always remain a marketer's challenge. The great Indian ever increasing consuming class has arrived and is waiting to be served. Currently as the services sector contributes 60% to GDP of India (Source: IBEF) and 50% population is below 25 years of age, 65% population of the country is below 35 years of age (Census of 2011), Indian retail sector promises to scale new heights in times to come. India's largest retailers (in terms of turnover) are Future Group, Aditya Birla, Shoppers Stop, RPG, WEST SIDE, Life Style, Ebony, Pyramid and Globus. In Bhubaneswar, the field of Groceries and Consumer Durables is dominated by organized new retail outlets like Reliance Fresh, BIG BAZZAR, Pantaloon, The World, The Grains etc. Hence, data for the purpose of the study was collected from who patronize these retail outlets. The perceptions of the consumers as regards the new retail outlets and select variables like educational qualification and income of the consumers were analyzed by applying the Chi-Square test. Factor Analysis is incorporated to identify the factors that influence the buying decision of consumers. Five factors were identified, viz., product features & assortments, extended marketing mix, pragmatic consumption, customer relationship & loyalty and sales offers. The Chi-Square test was also applied to assess the significance of consumer perception factors. It is concluded that pragmatism and functionality are the hall mark of modern consumption. This research paper is an honest endeavor of the researcher to understand consumer psychology for ONRO

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INTRODUCTION

Consumer in India has always been pretty tricky to double guess. It is a market whose potential and desire to consume has perhaps moved ahead of the marketer's mental model of it. It continues to be a multitier market. In short, it does appear that the Great Indian Consuming class has arrived, and is waiting to be served. Shopping is emerging as an important activity. Consumers prefer one stop shopping arcades with food courts and gaming Jones. Hence, organized retailing has centered on our retail radar. Interesting developments are taking place in the world of retailing. RAI (Retailers Association of India) is the voice of the Indian organized and modern retailers.

RAI represents the modern retail Industry of India. Technopak survey shows that the Indian consumer is willing to shop at a place where his time is valued, where he knows that the store genuinely wants his money, and is willing to work for it.

OBJECTIVES OF THE STUDY

1. To examine the association between consumer's perceptions as regards organized new retail outlets (ONRO) and select variables.
2. To identify the factors that influence consumer's perceptions as regards new retail outlets.
3. To ascertain the significance of consumer perception factors.
4. To suggest measures for improving the proper functioning of new organized retail outlets.

SCOPE OF THE STUDY

In recent times, a new set of players have entered in to the retail party. The field of groceries and consumer durables is dominated by organized new retail outlets like Reliance Fresh, BIG BAZZAR, Pantaloons, The World, and The Grains etc. Hence data for the purpose of the study was collected from consumers who patronize these new retail outlets.

LITERATURE REVIEW

While brand choice is devoid of any geography, the choice of a store is very much influenced by location (Fotheringham, 1998 and Meyer and Eagle, 1982). It is as much an information processing behaviour as any other purchase decision. In a study of store choice behaviour among audio equipment shoppers, Dash, Schiffman and Berenson (1976) found that the level of pre-purchase information regarding the brand determined the type of store chosen. Shoppers who had higher level of pre-purchase information generally shopped at the specialty store, whereas shoppers with low pre-purchase information bought at departmental stores. This is mainly attributed to customers adopting a risk reduction policy with regards to their impending purchase. Leszczyc, Sinha, and Timmermans (2000) have shown that store choice is a dynamic decision and can be conceptualized as a problem of deciding when and where to shop. The first decision is the traditional store location choice problem. The second is the shopping trip incidence problem relating to the timing of shopping trips. The two decision processes are correlated. Store choice is dependent on the timing of shopping trips as consumers may go to a local store for short 'fill-in' trips and go to a more distant grocery store for regular shopping trips (Kahn and Schmittlein, 1989). Both decisions are influenced by shopper characteristics and consumption patterns (Leszczyc and Timmermans, 1979; Kim and Park, 1997).

METHODOLOGY

Given the limited amount of information available on the choice criteria of Indian consumers for organized new retail outlets (ONRO), the researcher have decided to design an exploratory study to identify major preferences among shoppers in India. This involved a field survey conducted across different stores in Bhubaneswar. Respondents were approached at the shop after they had finished shopping and were leaving the store. It was felt that shop intercept (exit interviews) would capture the recency effect and an interview away from the shop might bring only "visualized perception" and not the real experience. The Study is based on primary data. The primary data was collected by issuing questionnaires to 750 consumers in Bhubaneswar during April-October 2013. The perceptions of the consumers with regards ONRO were analyzed by applying appropriate stastical analysis like Chi- Square test and factor analysis. The hypothesis that consumer's perceptions as regards organized new retail outlets (ONRO) are positively correlated with the independent variables like education and income group of consumers.

RESULTS AND DISCUSSION

Association between perceptions of consumers with regards organized new retail outlets and independent variables like education and income groups of consumers.

Table. 1: Chi- Square Results

Independent Variables	d.f	X2 values	p- values	Inference
Educational qualification of consumers	2	7.893	0.019	Significant
Income of the consumers	2	9.199	0.010	Significant

Table shows that there is significant association between perceptions of consumers with regards organized new retail outlets and independent variables like education and income group of consumers.

Factor Analysis for Identifying Relationship Factors

Factor analysis has been applied to investigate the underlying structure of the variables that influence consumer behavior with respect to organized new retail outlets (ONRO). KMO measure of sampling adequacy is 0.676 and Bartlett’s test shows a significance of 0.000. Therefore factor analysis can be applied to 15 variables measuring perception of consumers with regards to the organized new retail outlets (ONRO). The anti image metrics of variables measuring perception of consumers with regards to the organized new retail outlets was calculated and it is observed that all measures of sampling adequacy (MSA) being more than 0.5, all the 15 variables can be subjected to factor analysis. Grouping of variables.

The Principal Component Method of factor analysis method and varimax rotation method has been used to group the 15 variables measuring perception of consumers with regards to the organized new retail outlets.

Table 2: Factor extraction perception of consumers with regards to the organized new retail outlets (ONRO)

Variables	Initial Eigen value and extraction sum of squares loadings			Rotation sum of squared loadings		
	Eigen value	% of variance	Cumulative %	Total	% of variance	Cumulative %
I purchase all my requirements from ONRO	4.676	27.171	27.171	2.135	14.230	14.230
I think that the quality of the products is good	1.458	9.718	36.889	1.887	12.580	26.810
I feel that the price of the product charged is reasonable	1.355	9.035	45.923	1.817	12.111	38.920

Products are available in all sizes	1.213	8.087	54.010	1.786	11.906	50.826
I feel that the packages are convenient to handle	1.090	7.268	61.278	1.568	10.452	61278
I am a regular customer of ONRO	0.982	6.546	67.824			
I buy whatever brand of products are available in ONRO	0.939	6.261	74.084			
There is good after sales service	0.747	4.982	79.066			
There is good customer relationship in ONRO	0.704	4.695	83.761			
Terms of sale are attractive in ONRO	0.577	3.846	87.607			
There is facility for physical inspection before purchase of goods	0.504	3.363	90.970			
ONRO deliver products on time to my house	0.449	2.992	93.963			
There are a lot of offers & complimentary products in ONRO	0.401	2.671	96.634			
I am satisfied with the money spent in ONRO	0.278	1.852	98.486			
Prices are low in ONRO when compared to other petty shops	0.227	1.614	100			

Extraction Method: Principal Component Analysis

Table No 2 gives the results of factor analysis. The five factors have accounted for a total variance of 61.27%.

Rotated Component Matrix

Table.3 Rotated Component Matrix

Variables	Component 1	Component 2	Component 3	Component 4	Component 5
I purchase all my requirements from ONRO	0.356	0.280	0.104	0.500	0.115
I think that the quality of the products is good	0.854	0.159	0.005	0.110	0.0046
I feel that the price of the product charged is reasonable	0.809	0.0072	0.240	0.126	0.0040

Products are available in all sizes	0.116	0.709	0.107	0.0023	-0.003
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I feel that the packages are convenient to handle	0.312	0.612	-0.262	0.284	0.007
I am a regular customer of ONRO	0.219	0.0017	-0.002	0.725	0.200
I buy whatever brand of products are available in ONRO	0.500	-0.221	0.447	0.002	0.324
There is good after sales service	0.188	0.500	0.387	0.250	0.195
There is good customer relationship in ONRO	-0.007	0.0077	0.199	0.829	0.003
Terms of sale are attractive in ONRO	0.109	0.283	-0.140	0.242	0.649
There is facility for physical inspection before purchase of goods	-2.55	0.587	0.296	0.0006	0.246
ONRO deliver products on time to my house	-0.0006	0.137	0.788	0.160	-0.199
There are a lot of offers & complimentary products in ONRO	0.0022	-0.0001	0.131	0.007	0.807
I am satisfied with the money spent in ONRO	0.347	0.399	0.500	-0.145	0.252
Prices are low in ONRO when compared to other petty shops	0.157	0.158	0.526	0.273	0.357

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalizations

Table 4: Naming of Factors

Sl. No.	Overall sample N= 750
Factor 1	Product Features
Factor 2	Extended Marketing Mix
Factor 3	Pragmatic Consumption
Factor 4	Customer Relationship
Factor 5	Sales Offers

% of total variance explained	61.278%
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Table 5: Consumer Perception Variables in respective Factors

Factors	Variables	Factor Loadings
Factor 1 Product Features	I think that the quality of the products are good	0.854
	I feel that the price of the product charged is reasonable	0.809
	I buy whatever brand of products are available in ONRO	0.500
Factor 2 Extended Marketing Mix	Products are available in all sizes	0.709
	I feel that the packages are convenient to handle	0.612
	There is good after sales service in ONRO	0.500
	There is facility for physical inspection before purchase of goods	0.587
Factor 3 Pragmatic Consumption	ONRO deliver products on time to my house	0.788
	I am satisfied with the money spent in ONRO	0.500
	Prices are low in ONRO when compared to other mom and pop stores	0.526
Factor 4 Customer Relationship	There is good customer relationship in ONRO	0.829
	I purchase all my requirements from ONRO	0.500
	I am a regular customer of ONRO	0.725
Factor 5 Sales Offer	Terms of sale are attractive in ONRO	0.649
	There are a lot of offers and complimentary products in ONRO	0.807

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalizations

Tables 2, 3, 4 and 5 shows that Principal Component Method of Factor Analysis and the Varimax Rotation Method have been used to group the 15 variables into 5 factors. The most dominant factor is ‘product features’ and it includes 3 variables viz, quality of the products, reasonable price of the products and availability of all brands of the product and it explains 14.23% of the variance. The next factor is “Extended Marketing Mix”, which comprises of 4 variables viz, availability of products in all sizes, convenient package, good after sales service and facility for physical inspection before purchase. This explains 12.58% of the variance. The third factor is ‘Pragmatic Consumption’ consisting of 3 variables viz, on time of delivery, satisfaction with

money spent in ONRO and comparatively lower prices. This explains 12.11% of variance. The fourth factor is ‘Customer Relationship’ comprising of 3 variables viz, purchase of all requirements from ONRO, regular customer of ONRO and good customer relationship at ONRO. This factor explains 11.90% of the variance. The last factor being ‘Sales Offers’ includes attractive terms of sales and lot of offers and complimentary products in ONRO. This explains 10.45% of the variance.

Association between Consumer Perception Factors with regards Organized New Retail Outlets (ONRO) and selected Variables

Chi- Square test was used to test the association between consumer perception factors with regards ONRO and independent variables like age and occupation groups of consumers, frequency of purchase, total value of purchase and factors influencing purchase.

Table 6: Chi- Square Results

Independent Variables	Factor	d.f.	X2 values	p- values	Inference
Age groups of consumers	2	2	7.893	0.019	Significant
Occupation groups of consumers	3	2	9.199	0.010	Significant
Frequency of purchase	5	24	38.478	0.031	Significant
Total value of purchase	2	30	49.521	0.014	Significant
Factors influencing purchase	3	60	118.340	0.000	Significant
Factors influencing purchase	3	48	85.780	0.001	Significant
Factors influencing purchase	4	54	75.102	0.030	Significant

Table shows that there is significant association between perception of consumers with regards to ONRO and independent variables like age and occupation of consumers. There is also significant association between consumer perception factors with regards to ONRO and independent variables like frequency of purchase, total value of purchases and factors influencing purchase. This shows that out of the five consumer perception factors, four are significant. Hence the ONRO should concentrate and improve them.

SUGGESTION

Pragmatism and Functionality are the hallmark of the modern consumption. Hence ONRO must provide

- Real value for money product/ services to the consumers.
- Availability of all sizes of products
- Good after sales service
- Facility for physical inspection of products
- On time home delivery
- Competitive prices
- Good customer relationship and loyalty
- Attractive terms of sale and offers

CONCLUSION

Indian consumer market is witnessing a lot of change because better literacy, affluence, income and spending pattern, demographic profile change and education. Values, attitudes, lifestyle and consumption patterns are changing. As the middle class consumer size is increasing not only in numbers but also in their purchasing power, family decision making locus, attitude towards shopping and the frequency as well puts organized retail at a higher and better footing. This has ushered a retail revolution in India and every retailer is adding scale in volume and size. One of the biggest opportunities and challenges that characterize the Indian retail sector is its structure. While it has matured over the years, it is still highly fragmented, with an estimated 12 to 15 million outlets. Its overall size is estimated to be INR31trillion (USD534 billion) in 2013-14, with a CAGR of 15 per cent over the last five years, which is much higher than the growth of the Indian GDP in the same period. Going forward, the overall retail sector growth is likely to witness a CAGR of 12-13 per cent, which would be worth INR55 trillion (USD948 billion) in 2018-19. With over 92 per cent of the business coming from the fragmented unorganised sector, such as traditional family run mom and pop stores and corner stores, the Indian retail sector offers immense potential for growth and consolidation. The revenue generated from organised retail (or modern retail) was INR0.9 trillion (USD15.5 billion) in 2009, INR2.4trillion in 2012(USD41.4billion), and is expected to continue growing at an impressive rate to a projected INR5.5trillion (USD94.8billion) by 2019 (*Source: KPMG*). So the country will witness a tremendous retail growth opportunities with the increase in the number of ONRO.

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