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Female Labor Force Participation in Azampur, Uttara

Dr. Kayemuddin

Professor

Department of Business Administration

Fareast International University

Email:uddinkayem@yahoo.com

Abstract

An international society where the role of women in the family and society is predetermined. The role of women in economic development in the developing country is currently an interesting area of research. However in the country where the role of women in the family and the society is determined by the culture and which has a religious orientation. The women have no decision making power. Decisions were made by the head of the family and the heads are mostly male members of the family. The women are not allowed to work outside their houses. The female labor force participation rates are very low, especially in the urban areas and are confined to a few activities, like teaching, tailoring garments and household works. Many women now work outside the homes and are trains no be came they have no other choice. Women participate in the labor force in developing countries because of poverty. The researcher himself has interviewed the women labor force individually and in groups to find out the reason for their participation in the labor market. Women usually, do not work in the market unless family income is not sufficient to support the family.

Keywords: *Female Labor, Female participation, Labor Force*

1. Introduction

With the passage of time, the family dynamic has changed. About 50 years ago a large number of women stayed at home to do the household work and take care of the children. Now, many of them work outside the home. Some wait before going to the work to make ready of their children and send them to the school. There are many other ways women are able to work from home, selling clothes of big company's products. Still, the number of women who began working outside the home has increased dramatically over the three-four decades. Many people of our society used to feel that women's place is the home for taking care of the family and children, but there are a few people who do not feel this in this way. Many women who are working outside the home are doing so because they have no other alternative. Even when their husband has some works, they have to work to meet the unfulfilled need of the family. Even part-time work can help bring in money for the food bill utility bill etc. Many women want their children to be able to meet their other needs. Their experience enhances quickly and leaves many women with no choice but to take a job/work outside our homes. The Role of women in economic development in third world countries is currently an active area of research. However, in some countries where the role of women in the family and the society is determined largely by a culture that has a religious orientation, little is known about the decision-making behaviors of women with regard to their

participation in the job market. Women take care of their children. Now, many women work outside the home.

2. Methodology

Women go outside the home for working if their family income is not sufficient to support the family. About 100 to 500 labor force concentrate in the job market (Near The Azampur foot over Bridge) Forty women and forty men were interviewed both individually and in a group. The researcher himself interviewed the sample labor on different aspects of their lives including the question of why they come out of their house for work.

The Questions and answers with the female labor face are given below:

How many women come to the job market in Azampur?

The reply is about 150 women come to the job market for works and 250 to 350 males come for works.

How many of the job seekers get work?

Ans: About less than 50% of women attending the market get jobs. They also reported that in a month they get jobs only 10 days to 15 days. Other 15 days they do not get any jobs and pass miserable lives (without food) or very little food.

How much time they are to wait in the job market to get the jobs?

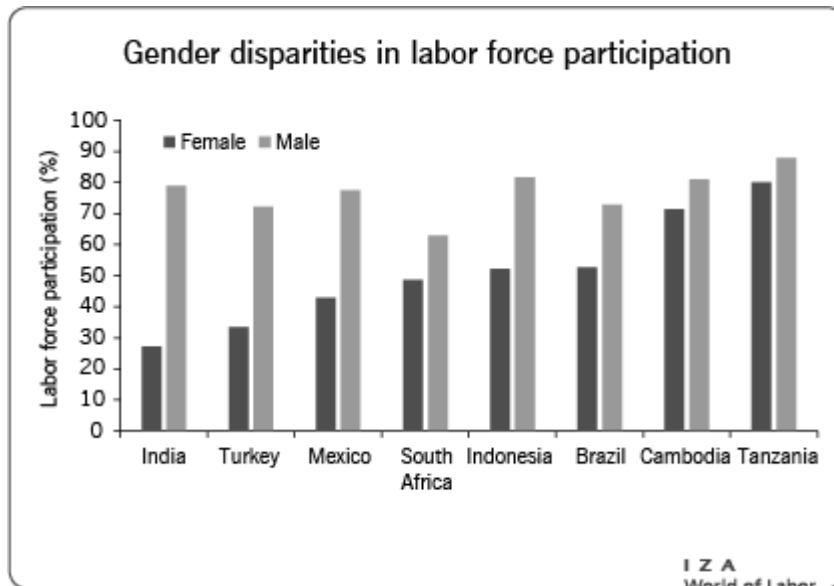
Ans: They come to the market between 7 a.m to 8 a.m and if they do not get a job, they leave the market between 10 A.M to 11 A.M

What is their duration of working hours?

Ans: Those who get jobs, are to work between 8 a.m and 5 p.m and they get one hour break for lunch. They reported that during their working hours they are not given any tiffin or any kind of food.

3. Women Want to Work

Of course, that's not to say there aren't women out there who don't enjoy working and want to go back to work. The average age of a first-time mom is 26 Years. Because of this, many women are well established in their careers before they become a mother. This can make them more likely to want to get back to work as soon as possible. This may be partly because they want to keep their position at work, but also because they enjoy the work they do and look forward to it. The relationship between female labor force participation and economic development is far more complex than often portrayed in both the academic literature and policy debates. Due to various economic and social factors, such as the pattern of growth, education attainment, and social norms, trends in female labor force participation do not conform consistently with the notion of a U-shaped relationship with GDP. Beyond participation rates, policymakers need to focus on improving women's access to quality employment.



4. Religious Perspective

Many more conservative people feel a woman should stay inside the home to raise the children if possible. It may be an unpopular opinion, but it's still one many people who consider themselves to be religious have. They believe that children fare better when they have a parent at home with them versus going to daycare from the time the child is six weeks old. Sometimes, children don't have anything to do with it. The vast majority of women who don't have children work at an outside job. While some have the perspective that a woman should stay home to care for her husband and keep the house clean, this isn't what usually happens. Whether or not a woman works outside of the home is a decision she and her family have to make. Whether she is single, married, or has children, each situation is individual so there is no simple "yes" or "no" that can be given. The fact is, many women have to work outside the home whether they like it or not, and it has become the new norm.

5. Female Labor Force Participation in Developing Countries

While women's labor force participation tends to increase with economic development, the relationship is not straightforward or consistent at the country level. There is considerably more variation across developing countries in labor force participation by women than by men. This variation is driven by a wide variety of economic and social factors, which include economic growth, education, and social norms. Looking more broadly at improving women's access to quality employment, a critical policy area is enhancing women's educational attainment beyond secondary schooling.

- a) The relationship between women's participation in the labor force and development is complex and reflects changes in economic activity, educational attainment, fertility rates, social norms, and other factors. Standard labor force participation rates paint only a partial picture of women's work. More important is understanding the quality of women's employment. To achieve gains in employment quality, policies need to

focus on both labor demand and supply dimensions. Expanding access to secondary and higher education is particularly relevant.

- b) Women's participation in the labor market varies greatly across countries, reflecting differences in economic development, social norms, education levels, fertility rates, and access to childcare and other supportive services.
- c) The relationship between female labor force participation and these factors is complex. One dimension that has been widely examined is the U-shaped relationship between economic development and women's labor force participation. Focusing on these issues is critical because female labor force participation is a driver of growth, and thus participation rates indicate a country's potential to grow more rapidly. It is also important because in many developing countries women's labor force participation is a coping mechanism in response to economic shocks that hit the household. However, beyond the numbers is the far more important concern with the quality of work that women are able to engage in.
- d) Development, as seen during the Industrial Revolution and more recently in East and (parts of) Southeast Asia, has involved two related transitions: the movement of workers from agriculture to manufacturing (and more recently services) and the migration of people from rural to urban areas. These transitions were associated with rising levels of education, declining fertility rates, and shifts in other socio-economic drivers of labor force participation, with specific implications for the role of women, especially in the labor market.
- e) The female labor supply is, therefore, both a driver and an outcome of development. As more women enter the labor force, economies can grow faster in response to higher labor inputs. At the same time, as countries develop, women's capabilities typically improve, while social constraints weaken, enabling women to engage in work outside the home. For this reason, policymakers need to understand the nature of women's labor supply and to monitor women's labor force participation. Ultimately, labor force participation is the outcome of not only supply-side factors but also of the demand for labor.
- f) The relationship between evolving socio-economic and demographic factors and how women participate in the world of work is multifaceted. In particular, whether a woman is working may be driven, on the one hand, by poverty (as evident in low-income countries) and, on the other, by women's increasing educational attainment and the opportunities to work that are made available in a more modern economy. Moreover, during periods of crisis and in response to economic shocks, women are often required to take up (typically informal) employment to smooth household consumption. This occurred in Indonesia in the wake of the East Asian Financial Crisis of 1997–1998.
- g) Beyond analyzing labor force participation, it is also important to look at the nature of women's employment. In general, when women work, they tend to be paid less and to be employed in low-productivity jobs. Educational attainment is a major driver

of better employment outcomes for women in both developed and developing countries. Trends in female labor force participation rates in India have been particularly puzzling. Female participation rates fell from 34.1% in 1999–2000 to 27.2% in 2011–2012. Research has posited several reasons behind this decline in India, from increased school enrollment of girls and young women and lack of job opportunities for women to the income effect (see below) and mismeasurement of female labor force participation.

- h) Though the trend in India is considered puzzling, India is not an isolated example. Turkey has experienced declines as well, with female participation rates dropping from 36.1% in 1989 to 23.3% in 2005. This downward trend has been explained by rising urbanization and structural transformation: as households moved from rural to urban areas, husbands shifted out of agriculture, resulting in a withdrawal of women from the labor force (reflecting women's increased engagement in domestic duties). Since 2005, however, a period of better macroeconomic conditions, Turkish women have rejoined the labor force. Participation rates rose to 29.5% in 2012. Other countries in the Middle East and North Africa have similarly low rates of participation but have not experienced such strong growth in recent years.
- i) One of the strongest determinants of labor market outcomes in both developed and developing countries is educational attainment. From a supply-side perspective, education has an important impact on an individual's decision to participate in the labor force. Education is a key factor behind the U-shaped hypothesis: women's education lags improvements in educational attainment among men, but once women's education levels catch up and job opportunities emerge, women start to participate in greater numbers.
- j) Education levels of girls and young women have improved considerably in many developing countries in recent decades. However, the remaining disparities within countries play a critical role in determining labor market outcomes for women. A nonlinear (at times, U-shaped) relationship between educational attainment and participation of women in the labor force is an ailment and the opportunities to work that are made available in a more modern.
- k) The relationship between educational attainment and participation of women in the labor force is evident in many developing countries. The most uneducated women in poorer countries are the most likely to participate in subsistence activities and informal employment, while women with a high school education may be able to afford to stay out of the labor force. Once women have more than secondary school education, higher wages encourage women to join the labor force, particularly if appropriate jobs are available.

6. Key Findings

Over time, the family dynamic has changed. Just 40 to 50 years ago, a large percentage of women stayed at home to keep up with the house and take care of the children. Now, many works outside the home. In addition, there are a growing number of women who are working inside the home. Many make things from scratch, whether it's fancily decorated birthday cakes or pretty hair bows created to match a special outfit for pictures. Many of these women are quite successful. There are many other ways women (and men) are able to work from home, including things like: writing, selling a larger company's product, telemarketing etc. Still, the number of women who have begun working outside the home has increased dramatically over the last several decades. Many people used to feel that a woman's place is inside the home caring for the family, but there are only a few people who feel this way anymore. Of course, this number can vary widely based on a large number of factors. Still, it's easy to see why many women get a job, whether it's inside the home or outside the home.

7. Recommendations

At a times the women's labor force does not get any job for consecutive three-four days, as a result, the job-seeking labors do not manage any food for the family members including children. The family goes on starving for more than one day. Thus it may be recommended the following actions to be taken to solve their problems.

- a) A revolving fund will be created requesting the rich people of the higher income community to provide funds in freehand.
- b) The labor force also should accumulate savings from their income when they get works.

In these manners, the accumulated savings and revolving fund will be used to issue a loan to the labor force at a low rate of interest when they do not get any work/jobs consecutively 3/4 Days. They are to form co-operative or informal groups like NGO's Raising funds by way of contribution from the richer people and their savings both will be accumulated to a large amount of fund to give loan to the labor force, poverty and thus they may get a tension free and better life.

8. Conclusion

The purpose of the study is to analyze the female labor supply response to various demographic and economic conditions and estimate the influences of productivity endowment on earnings. The results indicate that besides family income and education of the respondent, a number of other family characteristics influence both the decision to participate in the labor force and the level of earnings. The marginal rates of return to education are substantial and far more significant than those attributable to experience. Return to a Masters's degree and a professional degree are close to each other. Finally, our results also indicate that women in the teaching profession are relatively underpaid.

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Enhancing Brand Equity through Brand knowledge of Consumer Products: An Analysis on Consumers of Bangladesh

Ahmad Bin Yamin

Senior Lecturer

Department of Business Administration

Fareast International University

Email: abyamin000@gmail.com

Abstract

The purpose of this study is to understand the brand, brand equity, brand knowledge and their impact on consumers, especially on consumer products. In order to achieve this purpose, we first analyze the concept of brand equity; then analyzing how brand knowledge and its elements are engaging consumer of consumer goods' perception towards choosing or rating brands, and next the Bangladeshi environment towards brand and the demographic (age, gender) interaction to brand knowledge and brand preferences are pointed out. The concept of brand equity emerged in the early 1990s. Brand equity can be regarded as a managerial concept, as a financial intangible asset, as a relationship concept or as a customer-based concept from the perspective of the individual consumer. Previous research has suggested that brand knowledge could be affected by companies and consumer characteristics such as consumer personality. Significant differences are found with respect to usage, gender, and age. Since brand knowledge and associations are used in positioning, the results of the open-ended questions advise firms operating marketing activities whether to strengthen or to alter these associations and elements to highlight regarding the type of products and their attachment with age and gender preference. Marketing strategies including the promotional or communication strategies should further exclusively screen brand knowledge associations of target market before preparing their marketing plan.

Keywords: *Brand, Brand Equity, Brand Knowledge, Consumers of Bangladesh*

1. Introduction

Brand knowledge one of the key aspects towards enhancement of brand equity in business, deserve a careful investigation and effective strategic brand planning. Proper management for sustainable brand equity, firms needs to gain competitive advantage through successful brands management. A successful brand management can not only leverages managers to control but also as assets, for example Cadbury-Schweppes paid 220 million dollar for the "Hires" and "Crush" product lines of Procter & Gamble signifies the importance of holding and owning a premium brand (Kamakura and Russell, 1991). So to maintain and establish sustainable brands, many successful companies created the position of brand equity manager. For enhancing the importance of the brand equity as well as the brand knowledge, the main tool for measuring and estimating customer perspective is vital to learn (Keller, 1993). This research is to understand key sources of brand knowledge which mainly refers consumer products' influence in Bangladeshi market. This article will analyze the elements of brand

knowledge and their influencing aspects regarding different product segment including customer's demographic orientations.

2. Objective of the Study

This research was conducted to find out the following aspects of brand and its implication in business strategies and positioning of consumer products. The objectives are:

- To understand the meaning of brand, brand equity, brand knowledge and its elements.
- To analyze the brand preferences with reference with brand knowledge of different demographic segments of consumer products.
- To create awareness among firms' and brand managers to focus on gender and age issues when managing brand strategically this includes designing positioning strategies.

3. Methodology

This study was conducted through questionnaire survey method. Both empirical and exploratory research method was used. Questionnaire was prepared close ended basis. Microsoft Excel was used to calculate the responses of the respondents. Total 120 respondents were taken as respondents of whom 78 were male and 42 were female. There were five different age groups in questionnaire. This research was conducted under the quota sampling of non-probability procedure. The age and gender was considered to understand their responses towards their preferred brands.

4. Literature Review

To find out and understand this topic, it needs proper reading of related articles and information. To analyze it effectively, this article's literature review are divided into four segments which includes brand equity, brand knowledge, elements and importance of brand knowledge and branding in Bangladesh.

4.1 Brand Equity

Brand equity generally represents as the value of a brand and it is determined by the consumer's perception in marketing literature. Brand equity, the fundamental source to manage brand can be into positive or negative side of the firms. When consumer recognize, feel and rate a brand favorably it represent positive brand equity on the other hand when consumer rate or feel dissatisfaction, unfavorable attitude towards any brand, it represent negative brand equity. An overall value of a brand demonstrates its equity. In short we can say, brand equity is the understanding of a firm's reputation into the mind of consumers.

The brand equity concept mostly emerged in the early 1990s. The concept was not defined specifically; where it was discussed as it's the financial assets and should be recognized as such by top management and the financial markets are strongly linked. Company's stock price though not always directly linked with brand equity, yet the positive and negative brand equity has significant influence of firm's stock price (Aaker 1996; Keegan – Moriarty – Duncan 1995, 325; Kerin – Sethuraman 1998; 260–261). Aaker (1991) described brand

equity is “a set of brand assets and liabilities linked to a brand, its name, and its symbol that add to or subtract from the value provided by a product or a service to a firm and/or to that firm’s customers”.

Value can be created for a brand through many ways and tools can be implemented to manifested or exploited to benefit the firm (Keller 1993, 1; Keller 1998, 42–44). One of the vital reasons for studying brand equity arises from a strategy-based drive to improve marketing productivity. When cost is high, competition are tough, market demand fluctuate companies try to seek to increase the effectiveness of marketing return on investment (ROI). For that the need of understanding consumer behavior becomes the key to success for the marketing manager. The more the effective understanding of consumer, the detail the idea about the target markets expectations the better the brand equity elements are designed. This ensures sustainable and cost effective approach backed by a scientific screening of the market.

There are several approach and understanding of brand equity in the literature of marketing. Some of the highlighted are given below:

- a) The impact that the brand knowledge has the distinguishing effect on consumer response to the marketing of that brand (Keller 1993, 2; Keller 1998, 45)
- b) The set of assets and liabilities of brand which are linked. Its identity, name and symbol that connects to the value positively or negatively to that product or service into the mind of that firms customers (Aaker 1991, 15)
- c) a unique and distinguishable product image that excludes general product preference (Barwise1993,100)
- d) A clear added value by the brand to the product as perceived by a consumer (Park – Srinivasan 1994, 271)
- e) It is the mixture of brand liking ,brand awareness, and brand perceptions (Moore 1993, 36),
- f) Unrecorded balance sheet intangible brand elements that are embedded in a company’s brand (Kerin – Sethuraman 1998, 260)
- g) A sustainable long-term affiliation with those people who loyally buy the brand frequent and longer period of time (Keegan – Moriarty – Duncan 1995, 340)

4.2 Brand Knowledge

The main purpose of establishing brand knowledge is to helps the target audience differentiate products and services from the others competing brands (Kotler and Keller, 2009). Brands also represent as the offering of companies that highlights product quality as well as an indicator of risk or trust for consumers of judging the brand (Keller and Lehmann, 2005). Measurement of brand equity can be done various ways, of whom financial and consumer perceptions are mostly noticeable. The financial point of view is about “estimates the value of a brand for accounting purposes” (Keller, 1993, p. 1). Another way to evaluate

brand equity is “consumer perceptions of the brand” (Elliot and Percy, 2007). Keller (1993) described this approach is called the customer based brand equity and noted as “the differential effect of brand knowledge on consumer response to the marketing of the brand”. Brand knowledge is the combination of brand awareness, brand related notions, and brand image that correlating different information including product and brand benefits, awareness, attributes, images, thoughts, feelings, attitudes and experiences which directly affect consumer responses (Keller, 1993).

Sharif (2004) described that brand knowledge could understand both explicit and implicit knowledge. Implicit knowledge is mostly subjective, practical, and personal but explicit knowledge is objective and theoretical which can be asserted all the way through many forms of media documentations, audiovisual equipment, digital records, etc.

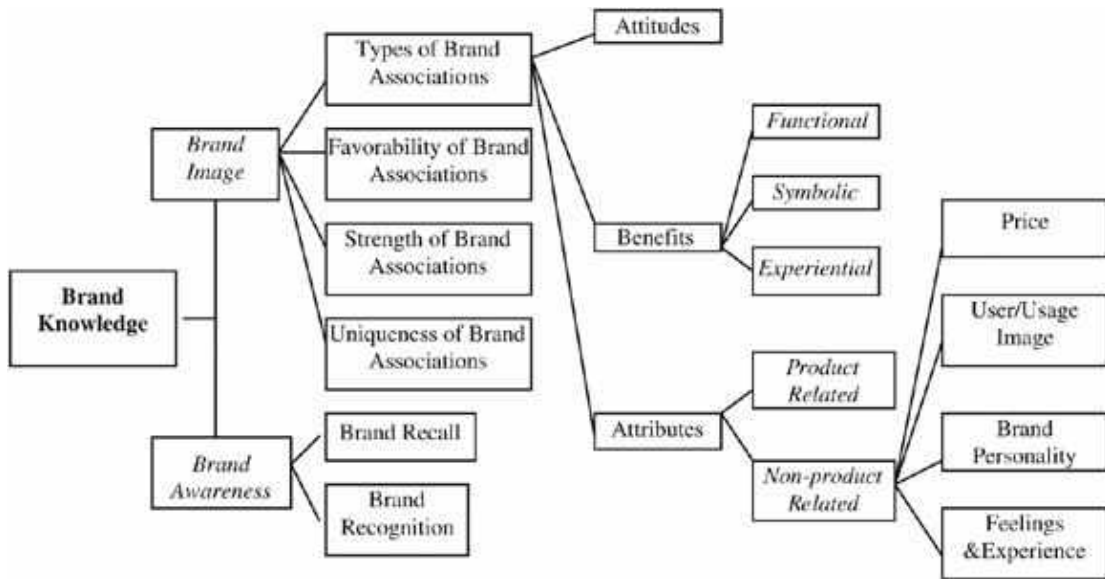


Figure 1: Dimensions of Brand Knowledge, Keller (1993).

5. Analysis and Findings:

Generally the most vital source of brand knowledge which we may fundamentally identify as the brand name popularity of the wide name usability among the market for any type of situation or just a basic awareness. In Bangladesh it’s not really a surprising scenario to know that the television is the most effective media for creating brand awareness or the main vehicle to develop brand knowledge. 48% of the total population surveyed replied positively about their preferred brand’s awareness came from direct from television advertisements. Interestingly the second highest response came from Internet presence or digital marketing. About 24% people responded they know, seen or observed their corresponding preferred brand through internet which of course including social media often mentioned in the other’s option in the surveyed form. Event sponsorship is among the top response factor for brand

awareness but importantly, the brands which were mentioned through event sponsorship has strong correlation with service providing industry rather than consumer goods.

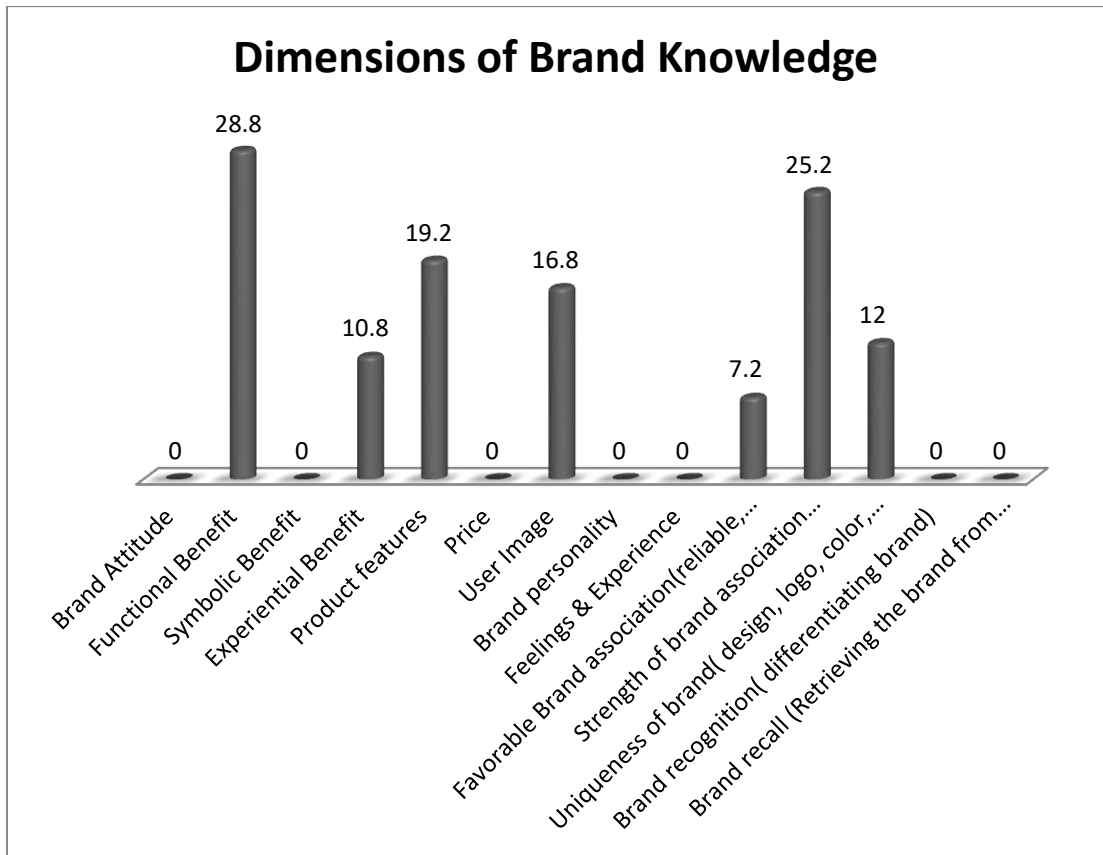


Figure 2: Result of brand knowledge dimensions of consumer products of Bangladesh.

This has a serious finding among the age groups. The teenage and your generation pointed the entire preferred brand from technological, fashion which they pointed they came to touch through internet, social media, friends (word of mouth). On the other hands older generation 38 and above reported consumer goods more specifically daily household brands. These brands mostly successfully communicated with these target market via television, newspaper or magazine advertisement or circulation, which significantly engaged featured article showing a positive public relationship management.

When the time to ranking the identifying tools and symbols towards preferred brands the result are even more interesting. Despite the age and gender most of the recognized telecommunication brands are identified or recalled by the corporate color rather than their logos of anything. Local brands are awarded to identify to them mostly by service quality, which was marked as the other option of the surveyed form meaning people are rating them for their service quality rather than traditional tools. Female respondent pointed the design and colors are vital source for them to rank their favored brands. Mostly clothing / fashion

brands were recognized by the younger generation (21-32) age group, where 82% of them were female respondents.

Study shows more interesting facts about the brand to choose in term of buying their brands for their personal consumption. Many of the respondents choose functional benefit of that brand (24%), strength of brand association (21%), Product features (16%), Uniqueness of brand (10%), user image (14%), experiential benefit (9%) and favorable brand association (6%). Non responded Brand Attitude, Symbolic benefit, feelings and experience, brand recognition nor brand recall as their criteria to choose their brand buy for their own of household use. This shows that not all the brand knowledge element equally important among the Bangladeshi customers. Many of the elements don't have direct impact but some have very strong conscious impact to the target market when choosing them for their use or consumption.

This study also touched the idea of the consumer groups to find out the general outlook for portraying their brands and how they identify their brand as representing its mood, personality or overall communicability to them. Among the 97 responses facts are divided into 7 major group of product or services namely technological/IT product and services providing brands, fashion and clothing brands, food and beverage brands, daily house hold brands, education and knowledge provider, real estate and entertainment industry. Respondent were ask to pick 3 top brands they believe and communicate those with given set of brand personality, representing and communicating pattern of attraction ability when picking them in the list. So total 291 answers came up (23 respondents fill up the questionnaire either improperly or did not answer some of the required response). Among them technological/IT product and services providing brands are mostly preferred or best communicated when they are creative and modern some also preferred them for trustworthiness. Fashion and clothing brands were preferred mostly because the respondent felt it's impressive and interesting, some reporting no special reason as well some pointed convenient as the reason to select those. Food and beverage brands have more complicated answers, maximum of the selector of beverage felt its friendly and funny then few pointed professionalism are the primary reason as recognized brands. Daily house hold brands has split decisions many believe trustworthy, many feel as continent, some pointed interesting, few funny even modern and impressive was among the criteria for their selection as top rank brands. When time to choose the education and knowledge provider respondent were very straight about communicating brand as inspiring, understandability and professionalism none select these brands beside these three major criteria. Real estate industry was surely concern with the trustworthiness and creative also modern was among the preferences. The last segment was entertainment industry very few respondent pointed this segment so the responses of the criteria was few. They believe funny and interesting as well as understandability becomes their main source of power to communicate among these top brands to them.

These all source are equally important for marketer to note and some of these are very raw and direct responses of the general consumer of Bangladesh including various age group and different gender groups.

6. Recommendations

- a) General brand knowledge or the brand equity development has significant role through television advertisements. Bangladesh being developing country many people still watch television in the rural part of the country hence, to create and develop brand knowledge for daily consumer goods, it can be an effective tool.
- b) Digital marketing and the influence of internet presence of companies are significantly noticeable. Especially the brand which has correlation with young, energetic, active and adventurous flavor must invest for long run customer engagements through digital marketing.
- c) Service products, for example education, banking, insurance, entertainment firms need to have a concrete identity of their target group as service products are observed uniquely with event sponsorships.
- d) It is noted that young and teenage generation rank and fascinated by the fashion, luxury, technological brands but on the other hand matured, aged population has larger involvement and deliberate brand choice of the daily household brands. So, firms should focus distinguish age group according to the type of product they are branding.
- e) International brand who have bigger budget has the privilege to use color and logo as influential tool to recognize brands, yet local brands are mostly acknowledged by their service. New or local small budget firms should highlight their service quality to make their brand popular.
- f) Female population are mostly influenced and responded towards fashion, clothing but male are more brand aware of technology, service and daily household brands. Firms need to design their branding strategies according to the type of product and the gender engagements.
- g) In term of brand knowledge development, functional benefit of that brand is the most vital area to focus, then the strength of brand association and Product features should be develop. Besides many other important aspects these seems have heavier influence in brand equity development in Bangladesh among consumer products.
- h) While branding of consumer products firms should research which favorable identity favors them to notify their brand among their target group(s). In Bangladesh result shows that technological or IT products are best communicated their brand identity through creative and use of modern technological features. Even service industries should be more creative and modern along with trustworthiness to highlight their brand. Fashion and clothing brands need to be impressive and interesting and convenient. Food and beverage brands are highly valued when it represents itself as friendly and funny. Daily house hold brands brand are more sensitive to trustworthiness but also need to be interesting.
- i) Education or knowledge industry must be inspiring, understanding and professional that boosts the brand among their target groups. Real estate industry is acknowledged for being trustworthy and creative, whereas the entertainment industry should portray their brand as funny, interesting and understandable.

7. Conclusion

Branding and brand equity development has always been a crucial task for the marketer. The strategic branding needs to go through the whole process of brand knowledge development. Both the brand image and brand awareness are vital for the managers to effective branding. As the resources are limited and strategies needed to be unique, marketer must analyze their brand into different aspects, which includes, the type of product they are selling, the target group they focusing, the demographic segmentation of that target group mostly with age and gender examinations. Companies then need to highlight with favorable identity which favors unique and positive brand positioning. Instead in investing all the areas of brand knowledge development, it is recommended that firms should go for top two or three criteria which are most impactful and design their whole branding strategies accordingly. It is absolutely identical that brand management has absolute engagement with brand knowledge development; as such it should be monitored with the specific tools of response of the specified demographic segments inherent features.

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Novel One-Pot Two Component Synthesis of Thiadiazole Compound of Biological Interest

Soma Mitra

Lecturer

Department of Chemistry

Fareast International University

E-mail: somamitra5557@gmail.com

Abstract

One-pot reaction is the simplest and the most economical methods for the synthesis of biologically important and pharmacologically useful thiadiazole derivatives. Without using catalyst under thermal condition is proven efficient method for a one-pot synthesis of thiadiazole derivative in excellent yields from thiadiazole, aldehydes in the presence of ethanol solvent. The present environmentally benign procedure for the synthesis of thiadiazole derivatives is suitable for library synthesis and it will find application in the synthesis of biological active molecules. The process presented here in operationally simple environmentally benign and has excellent yield. Furthermore, the reaction time is very short within an hour under steam bath reflux condition.

Keywords: *Thiadiazole, One-pot, Biological activities, synthesis*

1. Introduction

One –pot reactions where several reaction sequences are conducted in the same reaction flask are one of the methods that can be used in order to conduct synthesis in a greener fashion. The chemistry is greener due to the reduction of work-up procedures and purification steps required compared to a more stepwise approach. In catalytic reaction it is possible to combine several catalytic processes in the same reaction vessel.

The most significant advantage, in the synthetic point of view is that it is less likely to lose material that would otherwise be lost during work up and purification.

The second advantage is the economy of utilizing chemicals and solvents. To work up the reaction at each step, it always need to use some sort of solvents that would come to waste eventually. One-flask reaction, multicenter involving multiple steps would only requires final workup at the final step.

The third advantage is the minimal amount of work required , instead of working up each step of the synthesis involving , say , three steps it only need to do one work up at the end.

In chemistry a one-pot synthesis is a strategy to improve the efficiency of a chemical reaction whereby a reactant is subjected to successive. Chemical reactions in just one reactor. This is much desired by chemists because avoiding a lengthy separation process and purification of the intermediate chemical compounds would save time and resources while increasing

chemical yield. An example of a one-pot synthesis is the total synthesis of tropinone or the Grassman indole synthesis.

In chemistry thiadiazoles are a sub-family of azole compounds. Structurally they are five-membered heterocyclic compounds containing two nitrogen and a sulfur atoms, and two double bonds, to give an aromatic ring; with the name thiadiazole originating from the Hantzsch–Widman nomenclature. Four possible structures exist depending on the relative positions of the heteroatoms; these forms do not interconvert and hence are structural isomers and not tautomers. The compounds themselves are rarely synthesized and possess no particular application; however compounds bearing them as a structural motif are fairly common in pharmacology.

Some structures of Thiadiazole moiety

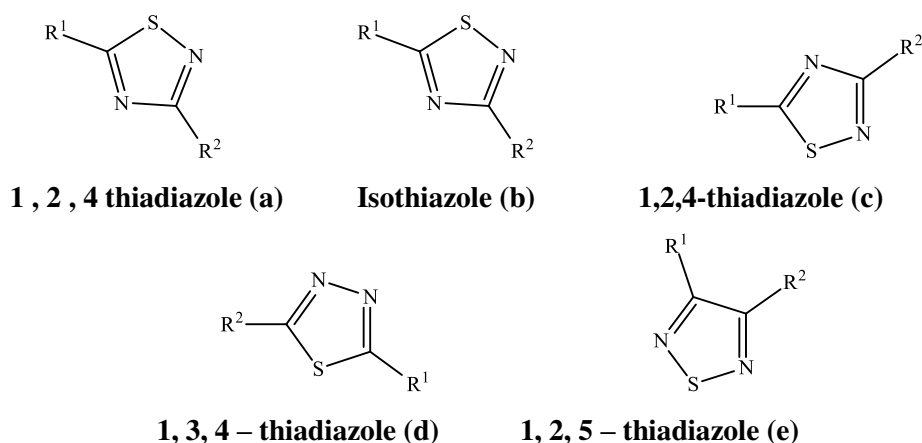


Figure 1 (a – e): Structures of thiadiazole moiety

Five membered aromatic systems having three hetero atoms at symmetrical position have interesting physiological properties. During recent years there has been intense investigation of different classes of thiadiazole compounds, many of which known to possess interesting biological properties such as antimicrobial, anti-inflammatory, anticonvulsants, antioxidant, anticancer and antifungal activities . The activity of 1, 3, 4- thiadiazoles is possibly due to the presence of the, N–C–S moiety. In view of these facts, synthesized several new 1, 3, 4- thiadiazole derivatives of 2-(4-formyl-2-methoxyphenoxy) acetic acid moiety in order to study their biodynamic behavior.

Derivatives of 1, 2, 3-thiadiazoles is known to exhibit antiviral, analgesic and antidepressant activity. Among the pharmacological profiles of 1, 2, 3-thiadiazoles and derivatives, their antimicrobial, anticonvulsant and antidepressant properties seem to be the best documented.

1,2,3-thiadiazoles and related compounds are of great interest in chemistry owing to their bioactivity of certain plant growth regulating effect as well as antimicrobial activity.

2. Experimental Procedure

2.1 Synthesis of [5-amino-1, 3, 4 -thiadiazol-2-yl] 4-chloro benzene

A mixture of thiosemicarbazide (0.01 mol, 0.912 gm), para chloro benzoic acid (0.01 mol, 1.221gm) and concentrated sulfuric acid 1 ml in 10 ml ethanol was taken in a round bottomed flask. The flask was then placed on water-bath with constant stirring for two hours and 45 minutes under reflux condition. The progress of the reaction was monitored by TLC. Reaction mixture was then kept on ice bath. The solid product was separated out by filtration. After filtration a white crude product was obtained. The crude product was then purified by recrystallization from 10% aqueous ethanol to yield 78% as white solid. The melting point was recorded as 210-215 °C.

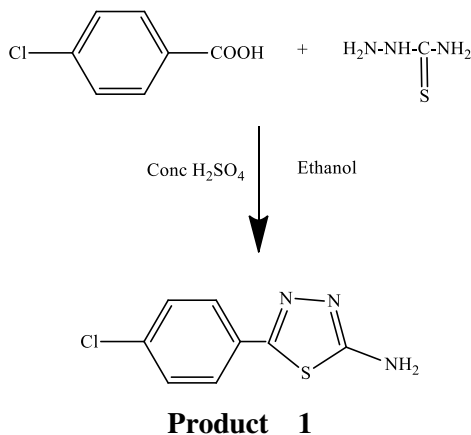


Figure 2: Synthesis of [5-amino-1, 3, 4-thiadiazol-2-yl] 4-chloro benzene

IR (KBr, cm^{-1}): 3391 (N-H, symmetric stretching), 3292 (N-H, asymmetric stretching), 3190 (C-H, aromatic), 1620 (C=N), 1600, 1570, 1530 (C=C, aromatic), 720 (C-S-C linkage of thiadiazole) .

^1H NMR (400 MHz, DMSO- d_6 , δ ppm): 7.27 (m, 4H, Ar-H), 7.01 (2H, Cl, NH_2), 10.81(2H, NH_2).

^{13}C NMR (100 MHz, DMSO- d_6 , δ ppm): 176.86 (1C, C=N), 128.45 (4C, Ar), 113.79 (1C, S-C-N), 31.7 (1C-S), C- NO_2 (20.0).

2.2 Synthesis of 5-chloro phenyl-2-benzylidene-4-nitro amino-1, 3, 4 -thiadiazole

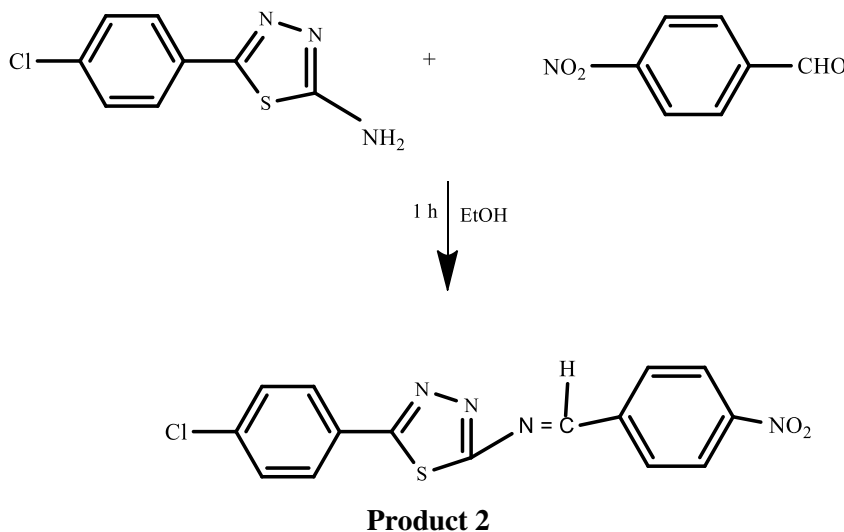


Figure 3: Synthesis of 5-chloro phenyl-2-benzylidene-4-nitro amino-1, 3, 4-thiadiazole

A solution of **product 1** (0.01 mol, 2.22 gm) and 4-nitro benzaldehyde (0.01 mol, 1.511 gm) in ethanol was taken in a round bottomed flask and the mixture was stirred for one hour at room temperature. The progress of the reaction was monitored by TLC. The reaction mixture was then poured into ice water. A orange precipitate was separated by filtration. The crude yellow product was recrystallized from ethanol and dried in a desiccators.

IR (KBr, cm^{-1}): 3190 (C-H, aromatic), 1620, 1625 (C=N), 1600, 1570, 1530, 1512 (C=C, aromatic), 720 (C-S-C linkage of thiadiazole).

^1H NMR (400 MHz, DMSO- d_6 , δ ppm) : 6.90 (d, 1H, $J=8.00$ Hz, =CH), 7.27 (m, 4H, Ar-H), 7.71 (d, 1H, $J=8$ Hz, C=CH), 6.75 (1H, N-CH), 6.86 (d, 2H, $J = 8.00$ Hz, =CH).

^{13}C NMR (100 MHz, DMSO- d_6 , δ ppm) : 176.86 (1C, C=N), 143.31, 142.50 (2C, C=C), 134.57, 130.46 (2C, C=C), 129.39, 129.11 (2C, C=C), 128.45 (4C, Ar), 113.79 (1C, S-C-N), 51.48 (1C, aliphatic).

3. Result & Discussion

3.1 Result & Discussion of Product 1

IR analysis

The IR spectra of the product **1** showed a absorption band at the range 3391 cm^{-1} for N-H symmetric stretching. The peak at 3292 cm^{-1} was designated for N-H, asymmetric stretching. The aromatic C-H stretching was assigned at 3190 cm^{-1} . The characteristic C=N moiety was distinctive at 1620 cm^{-1} . The peaks at 1600 , 1570 and 1530 cm^{-1} were distinguished for aromatic C=C bonds. The C-S-C linkage was identified at 720 cm^{-1} .

NMR analysis

The ^1H NMR spectra of the product **1** showed a sharp singlet for two proton of Cl-Ph-NH₂ group at 7.01. The two protons at 10.81 was designated for NH₂ group. The multiplet at 7.27 was distinguished for four aromatic protons.

^{13}C NMR

The ^{13}C NMR spectra of the product **1** showed a signal at 176.86 for 1C of C=N. The aromatic C-NO₂ showed the characteristics signals at 20.0. The signal at 113.79 was identified for 1C of S-C-N. The 1C-S was ascribed at 31.7. The aromatic 4C showed the characteristics signals at 128.45.

3.2 Result & Discussion of Product 2

IR analysis

The IR spectra showed a peak of 3190 for C-H aromatic. The two bonds at 1625 cm⁻¹ and 1620 cm⁻¹ were assignable for C=N bonds. The characteristic bands at 1600, 1570, 1530 and 1512 cm⁻¹ were for aromatic C=C bonds. The peak at 720 cm⁻¹ was for C-S-C linkage.

NMR analysis

The ^1H NMR spectra of the product **2** showed a sharp singlet for one proton of N-CH group at 6.75. The doublet with the coupling constant J=8.0 Hz at 6.90 was designated for olefinic one proton. The multiplet at 7.27 was distinguished for four aromatic protons. The doublet with the coupling constant J=8.0 Hz was ascribed for one olefinic proton at 7.71.

^{13}C NMR

The ^{13}C NMR spectra of the product **2** showed a signal at 176.86 for 1C of C=N. The signals 143.31, 142.50, 134.57, 130.46, 129.39 and 129.11 were distinctive for six olefinic protons. The aromatic 12C showed the characteristics signals at 128.45, 127.33, 126.77 and 126.39. The signal at 113.79 was identified for 1C of S-C-N. The aliphatic one carbon were ascribed at 51.48.

4. Antimicrobial Activity

The evolution and spread of antibiotic resistance, as well as the evolution of new strains of diseases causing agents, is of great concern to the global health community. Our ability to effectively treat disease is dependent on the development of new pharmaceuticals, and one potential source of novel drugs is traditional medicine. This study explores the antibacterial properties of fungal extracts of medicinal plants. Bacteria are responsible for many infectious diseases. The increasing clinical importance of drug resistant bacteria pathogens has lent additional urgency to antibacterial research. The antibacterial screening which is the first stage of antibacterial research is performed to ascertain the susceptibility of various bacteria to any agent. This test measures the ability of each antibacterial agent to inhibit the *in vitro* bacterial growth. This ability may be estimated by any of the following three methods.

- Disc diffusion method
- Serial dilution method
- Bio-autographic method

4.1 Principle of Disc Diffusion Method

Solutions of known concentration ($\mu\text{g/ml}$) of the test samples are made by dissolving measured amount of the samples in definite volume of solvents. Dried and sterilized filter paper discs (6 mm diameter) are then impregnated with known amounts of the test substances using micropipette. Discs containing the test material are placed on nutrient agar medium uniformly seeded with the test microorganisms. Standard antibiotic discs and blank discs (impregnated with solvents) are used as positive and negative control. These plates are then kept at low temperature (4°C) for 24 hours to allow maximum diffusion. During this time dried discs absorb water from the surrounding media and then the test materials are dissolved and diffused out of the media. The diffusion occurs according to the physical law that controls the diffusion of molecules through agar gel. As a result, there is a gradual change of test materials concentration in the media surrounding the discs. The plates are then incubated at 37°C for 24 hours to allow maximum growth of the organisms. If the test materials have any antibacterial activity, it will inhibit the growth of the microorganisms giving a clear, distinct zone called “Zone of Inhibition”. The antibacterial activity of the test agent is determined by measuring the diameter of zone of inhibition expressed in millimeter. The experiment is carried out more than once and the mean of the readings is required. In the present study synthesized compounds were tested for antibacterial activity by disc diffusion method.

4.2 In Vitro Bactericidal Profiles of compound in Terms of Zone of Inhibition

Comp.	Bacterial species						Fungal Species	
	Gram positive		Gram negative					
	<i>S.a</i>	<i>B.s</i>	<i>E.c</i>	<i>P.a</i>	<i>S.t</i>	<i>C.f</i>	<i>T.h</i>	<i>A.n</i>
P-2	5	7	8	6	-	-	6	7

* 50 μL dose used & concentration was 300 $\mu\text{g disc}^{-1}$. The observed zone of inhibition is indicated by diameters (in mm) and (-) represents no activity. *S.a.*, *Staphylococcus aureus* (cars-2), *B.s.*, *Bacillus subtilis*, (carsgp-3), *E.c.*, *Escherichia coli*, (carsgn-2), *P.a.*, *Pseudomonas aeruginosa*, (carsgn-3), *S.t.*, *Salmonella typhimurium*, (JCM-1652), *C.f.*, *Citrobacterfreundii*, (JCM-1657), *T.h.*, *Tricodarmaharzianum*, (carsm-2), *A.n.*, *Aspergillusniger* (carsm-3). *Michonazole (Mn)* used as Standard antifungal agent & *Ciprofloxacin (Cp)* as standard antibacterial agent.

4.3 Some Images of Bacterial Test

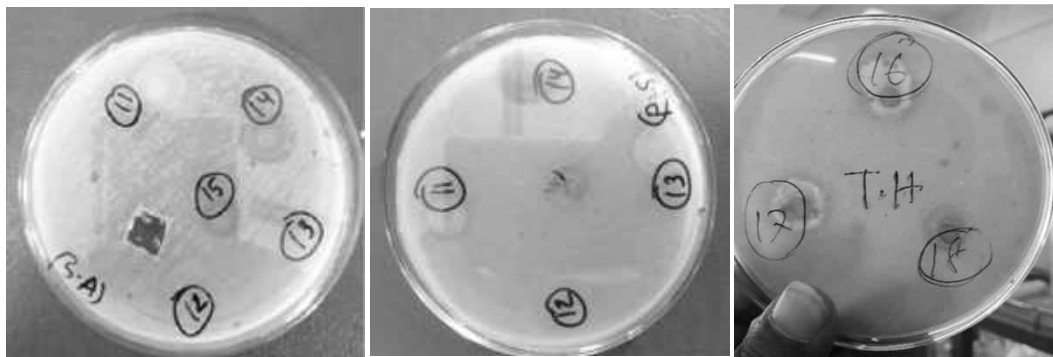


Fig 4: Antibacterial and antifungal result of the compound.

4.4 Comparatively Study of the Compound

The P-2 compound showed bactericidal moderate activity against *S. aureus*, *B. subtilis*, *P. aeruginosa*, *E. coli*. There is no activity at *S. aureus*, *C. freundii*.

P-2 compounds showed the antifungal activity against both *T. harzianum* and *A. niger*.

5. Conclusion

We have synthesized a novel thiodiazole derivatives. The products were synthesized by one pot process in which two reactants come together in a single reaction vessel gave a final product. One – pot synthetic method is very easy to carry out and provide rapid access to libraries of organic compounds with diverse substitution patterns. One – pot methods eliminate the isolation of intermediates, thereby reduces the reaction time and increases the yield than the normal multistep methods. One – pot method is the simplest and most straight forward procedure involves two components one–pot cyclo condensation of aldehydes and thiadiazole. The synthesized thiadiazole showed moderate to good antibacterial and antifungal activity.

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Women in Development

Rubaiyat Saimom

Lecturer

Department of Business Administration

Shanto-Mariam University of Creative Technology

Email: rubaiyat009@yahoo.com

Abstract

To educate a man means to educate a person to the contrary to educate a woman means to educate the whole family. Women are mostly involved in unpaid work. They only get involved in child care and look after the family and also they are involved in economic activities. More women farmers may be encouraged to participate in agriculture development programs, such as trainings on improved fertilizers, seeds, and dissemination trainings. The supporting services, such as credit market and other facilities necessary for agricultural development are targeted to women farmers. The loan program gives cooperative members access to relatively small amounts of capital with which they can attempt income-producing activities. Data Collected from the Women directly through interview and data and information also collected from the published & unpublished reports and articles. Data also collected through group discussion of the women members of the Co-operative societies and NGOs.

Keywords: *Women, Development, Women in Development*

1. Introduction

Educate a man means to educate a person to the contrary to educate a woman means to educate the whole family. According to the preliminary result of census of 1991, the population of women in the country was about 9,200,000, that is to say, more than fifty percent of the total population. Nepalese women have been unable to make the expected contribution in development activities due to illiteracy, poor health, poverty and a traditionally conservative attitude towards them. Financial resources and opportunities like property and income-generating employment are far from the reach of the Nepali womenfolk. In comparison to men, the average life span of Nepali women is 53 years (for men-56 years), the maternal mortality rate is 850 per 100,000 and the literacy rate for women is 25 percent (whereas for men- it is 555 percent). As long as women, who constitute more than 50 percent of the total population are not fully involved in the development activities of the nation, the economic development of the country is not be possible. Thus the government is committed to make possible the equal and meaningful participation of women in the development process by improving participation of women in the development process by improving their economic and social conditions. Special provisions have been made in the constitution of the kingdom of Nepal-1991 to hold women equal form the legal point of view and to ensure their economic and social development. A national action plan was prepared for the development of women in accordance with the declaration of the international year of the women 1975 A.D. For the development of women, this action plan has specified the areas of education, health, employment, agriculture, cooperatives and legal matters (where women can participate) and stated the basic objectives and policy measures for the development of

women. Keeping in view the importance of women's participation in national development for the first time in the five year plan, policies to increase the participation of women in national development were laid down. Similarly, the seventh plan also adopted national level policy and working policy for women development to increase their participation by raising their social and economic status. Mainstream of development efforts is a pilot project, such a record of how the original plan was translated into action, what the results are, and what lessons have been learnt for modifying the plan as it enters its second phase may be useful to those concerned with directing resources to rural women in the interests of national development. The programs which were launched for the development of women in the past have not been able to raise the social and economic levels of women as desired. In the efforts made for the development of women, certain distinct problems such as the inadequacy of the concerned program, the lack of institutions for the effective implementation and coordination of area wise policies, and the absence of the analysis of women's participation in development process have been observed. To make women participate in the main stream of development; to increase their involvement in every sector of development; to improve their social, economic, academic, political and legal status; to provide productive employment opportunities by increasing their efficiency through appropriate knowledge and skills; to create the appropriate environment and infrastructures so that they are provided with the opportunity to play a decisive role from the local to the national level, the following policies are adopted.

2. Methodology

Primary data were collected through interviewing the sample women. Purposive sampling was undertaken and a large number of women were include in the sampling. Women members of co-operative societies and women members of the NGOs were included in this study. Secondary data were also collected from the published and unpublished reports. Data were also collected from the published articles.

3. Policies

- a) Special programs will be conducted to increase the involvement of female students in primary, secondary and adult education. In such programs, the policy of increasing the admissions of female students; of reducing drop-out before completion; of making it compulsory to appoint a female teacher in a primary future will be adopted. In the field of adult and informal education, informal and job-oriented education like the celebrity program may be conducted. General and technical education will be made available to female students who are unable to acquire higher education or devoid of the opportunity to do so. A fixed quota should be set aside in order to encourage female students to join higher technical education. Arrangements may be made to allocate a certain percentage of national and international scholarships for girl students and women.
- b) In the context of high maternal and infant mortality rates, program targeted for women such as safe motherhood, extension of immunization, and services related to family planning which aim to improve the health standards of women, will be carried out. These programs will be extended to the rural sectors through maternal and child

workers and female community women health volunteers. Traditional birth attendants working at the local level will be provided appropriate training and mobilized. Emphasis will be given to the increased participation of women in the health sector. Keeping in mind the important contributions made by non-governmental agencies in providing health services to rural women, various program will be conducted through the active participation of organizations under the social services national Coordination Council and women's associations. Considering the role of women in controlling population growth, stress will be laid on family planning information, delivery of services and the use of semi-permanent devices for birth spacing. Beds will be increased for maternity service in primary health centers, district, zonal and regional hospitals.

- c) More women farmers will be encouraged to participate in agriculture development programs such as trainings on improved fertilizers, seeds, and dissemination trainings. The supporting services such as credit market and other facilities necessary for agricultural development will be targeted to women farmers, and arrangements will be made to provide them with the necessary training and physical and financial means. Provision will be made to guarantee trainings and jobs in order to increase mid and high level women agricultural technical work force.
- d) Women will also be involved in greater numbers in the field of forest and soil conservation. Women will be encouraged to actively participate in community forestation program in order to solve environmental problems by protecting and developing forest resources. Training and dissemination program will be conducted to increase awareness among women about the multiple benefits of proper management of forest resources. Women's participation will also be increased in production and processing of herbs, fodder, etc.
- e) As cooperative institutions can play an important role in the development of rural women, agricultural, cottage and rural industry programs as well as cooperative consumer stores and saving program will be encouraged through cooperatives. Women participation will be increased in various cooperative trainings.
- f) In order to improve the socio-economic status of women by increasing their participation in the industrial sector, provisions will be made to provide such facilities as skill-oriented trainings, raw materials and industrial management training, and easy and subsidized credit. Based on market feasibility and utilization of local skills, arrangements will be made to establish and manage the market of cottage and rural industries. Such industries will be given a position in the industrial estates. Women's participation will be increased in the implementation and management of industries. Trainings to enhance leadership, management, entrepreneurship and skill development, that increase women's participation in industry, commerce and tourism sectors, will be provided.
- g) Emphasis will be laid on the extension of the program such as production credit for rural women program and small women farmers' development program in order to improve the economic condition of the rural women.

- h) Encouraging provisions will be made in the policy and regulations in order to promote the involvement of the women working the government and non-government service sector in the policy making process to a greater extent.
- i) Provision will be made to provide institutional support and financial assistance to ensure the management of women and to provide entrepreneurship training and ensure its proper utilization. The welfare of minorities and backward classes will also be considered.
- j) Women development activities which aim to increase awareness organize public gatherings and mobilize necessary resources for assistance, launched by various women's organizations and other institutions directly involved in the welfare and protection of women will be made effective.
- k) Necessary measures will be taken to amend laws and acts that hinder women's development. Legal services and training will be provided to provide legal information to rural women.
- l) Women's participation will be encouraged in the formulation and implementation of rural infrastructure program in irrigation, drinking water and road construction. For this, women's participation will be made compulsory in users 'committees.
- m) Technologies that help to save time in the collection of firewood, fodder and water and other domestic activities will be extended to the rural sector.
- n) In order to promote the meaningful participation of women in development program, appropriate organizational structure will be established for coordination and monitoring activities. The planning commission will issue guidelines to the ministries for formulating sector-wise program for women's development.

4. Economic Program

The main goal of the Women's Program is to integrate rural women into the development process by enabling them to raise their subsistence level activities and skills to commercial level, thereby producing more of what is needed in the country and at the same time earning an income. It is a program assumption that opportunities for socio-economic self-support will enhance Women's personal dignity; lead them toward more equal citizenship and a fuller share in family decisions.

5. Loans

The loan program gives cooperative members access to relatively small amounts of capital with which they can attempt income-producing activities. A society is not eligible to receive loans until it has passed its probation period registered under cooperative law and developed a joint production plan. The production plan is a composite of all the separate loans that individual members want. Everyone may be given the same amount or the amount may vary by Number of shares and total savings for each member or by length of membership.

- a) The duration of the loan varies. In most thanas, it is given on a yearly basis; in other areas it is for six months. It was left to individual thanas to fix their own interest rate. Therefore, while most thanas decided on a low rate of 5% as an initial incentive, others have chosen higher interest rates. Two thanas charge 6%; one 9%; four 10%; four 10% and one even 12%, because they wanted to be at par with male societies as soon as possible.
- b) The female cooperators themselves decide which economic projects to undertake on the basis of what is feasible, what is profitable, what has growth possibilities and what is seasonal. With the help of the cooperative leaders, who themselves are guided through training classes and the support of staff members, the village women develop the production plans, which indicate economic projects to be undertaken, required inputs, duration and outputs. The plan is then submitted to the TCCA where it is discussed and approved. Because the project is still in the beginning stages and because of the poor economic condition of many of the members, it is important for women to get returns on their investment fairly quickly.
- c) Therefore they are advised to invest in what they already know how to do, with raw materials that are readily available in their areas and for local markets that are guaranteed. As of June 1979, a total of Tk. 18,09,750 had been given as 8065 separate loans in 356 societies. The highest amount of loan was Tk. 500, the lowest Tk. 25. Some of the older societies have received four installments of loans, other have received one, two and three. All cooperative loans have been paid when due with two exceptions, both of which were due to exceptional circumstances. Loan money comes from the general project fund.
- d) Reporting and case studies from the thanas have provided information about utilization of loans. Women have taken loans for a large variety of economic activity, such as raising goats, cows, poultry, fish, pigs; processing rice, muri-turmeric, mustard oil, dal, chili, fish, peanuts; manufacturing bamboo, cane and jute goods, mats, tiles, pottery, bidis; spinning; weaving; tailoring; selling vegetables, fuel, sweets, and general groceries, in shops or at Ferry Ghats; leasing and for cultivation. These activities are carried on either individually or with other family members.
- e) Besides credit from the project, members sometimes invest their own savings or money borrowed from other sources. When necessary, women take the help of their husbands, sons or male relatives to procure raw materials and for marketing of the products. Some women leaders who come to TCCA for training do the procurement and marketing themselves. Several cases of 'collective economic activity have been reported. In Gopalganj, for example, one society has used loans and other money to buy four rickshaws to rent out to rickshaw-drivers.
- f) Apparently the most profitable and the most popular enterprise with small investment is processing and selling paddy. An investment of Tk. 300 may bring a net monthly income of Tk. 300. Raising poultry and livestock has advantages 21:1 disadvantages. A larger loan for a longer period is needed to encourage such investment.

6. Economic Activities of Rural Women

There is a need for systematic investigation of women's involvement in economic activities as a Economic Activities. Co-operative sponsored the conference jointly with the National Women's Cooperative Society Ltd. It was held from December 4-6, 1978, and was attended by 100 cooperative women from 20 thanas throughout Bangladesh.

Before coming to the conference, they had prepared, with the help of thana staff, case studies including cost-return analysis of the economic activities they were engaged in. 'The women were divided into four groups according to their chosen Work, viz: (1) Agriculture and agriculture-related work, (2) food-processing,(3) Cottage Industry.(4)trade and business.

The resource persons guided the discussion and asked questions; the village women provided the content. Following is a brief summary of their observations and analysis:

- The Largest group was in agriculture and agriculture oriented activities.
 - The Cottage industry group was also a large one.
 - The food processing group was the smallest.
 - The group involved in trade and business handled such conditions.
- a) In order to improve the socio—economic conduct of women by increasing their participation in the industrial sector, provisions will be made to provide such facilities as skill—oriented trainings, raw materials and industrial management training, and easy and subsidized credit. Based on market feasibility and utilization of local skills, arrangements will be made to establish and manage the market of cottage and rural industries. Such industries will be given a position in the industrial estates. Women's participation will be increased in the implementation and management of industries. Trainings to enhance leadership, management, entrepreneurship and skill development, which increase women's participation in industry, commerce and tourism sectors, will be provided.
 - b) Encouraging provisions will be made in the policy and regulations in order to promote the involvement of the women working in the government and non-government service sector in the policy making process to a greater extent.
 - c) Provision will be made to provide institutional support and financial assistance to ensure the management of women and to provide entrepreneurship training and ensure its proper utilization. The welfare of minorities and backward classes will also be considered. Women development activities which aim to increase awareness, organize public- gatherings and mobilize necessary resources for assistance, launched by various women's organizations and other institutions directly involved in the welfare and protection of women will be made effective. Necessary measures will be taken to amend laws and acts that hinder women's development. Legal services and training will be provided to provide legal information to rural women. Women's participation will be encouraged in the formulation and implementation of rural infrastructure programs in irrigation, drinking water and road construction. For this, women's participation will be made compulsory in users' committees.

- d) Technologies that help to save time in the collection of firewood, fodder and water and other domestic activities will be extended to the rural sector. In order to promote the meaningful participation of women in development programs, appropriate organizational structure will be established for coordination and monitoring activities. The Planning Commission will issue guidelines to the ministries for formulating sector—wise programs for women’s development.
- e) To concentrate on young women is in fact the best investment we can make to avoid the disappointments of the past. The increase of poverty, disease, pollution and misery throughout our planet has helped us to see the direct link between development and the role and place of women as co-architects of development. When an individual feels and/or is perceived inferior, unequal, his or her performance will be diminished and his or her productivity will ultimately suffer the consequences. When the full-participation of each individual is not encouraged or acknowledged honestly and equally, applying the same criteria for all, development will be fragile, limited and incomplete. Such unbalanced development will lead ultimately to instability, frustration and conflict.
- f) Levitate the burden of domestic and subsistence work; to make available to all information and supplies required for promoting responsible parenthood; and to promote adult literacy among both males and females.

7. Role of Women for their Future Prosperity

Eleonora Barbieri MasiniEleonora Barbieri Masini examines the ways in which women influence the future as educators of their family and conveyors of their own historical experience. Data and experiences are drawn from both North and South, and women’s influence is seen as deriving both from inter-generational relationships and the historical process. In examining the role of women in building the future, we can describe women as:

- Contributors to the economic structures;
- Carriers of a specific mode of participation in politics;
- Builders of an alternative future;
- Having an indirect influence on the future through the new generations.

The women’s movement, which came into being at the end of the 19th century and developed more dynamically after the Second World War, has been a unique historical stimulant and promoter of awareness of women by women, a process, which, though at times not fully recognized, is nonetheless irreversible and worldwide. The awareness that women have of their role in society as mothers of future generations is evident in the industrialized countries; it is becoming increasingly important in the developing countries. Young people under the age of 15 today represent 22 percent of the 1,191 million inhabitants of the North and 37 percent of the 3,836 million inhabitants of the South. It is important to understand the influence on this vast population exercised by women as mothers and the effect of that influence on the future.

8. Recommendations and Conclusion

Women education should be made fully free. They should be given more facilities to grow and develop. Loan should be given to the woman at low rate of interest. Through co-operative and NGOs. Training need to be arranged for their skill development. More and more of women required to be involved in economic activities.

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Financial Leasing: A Considerable Instrument to Attain Financial Success in Developing Economy; A Focus on Bangladesh

Mohammed Sabirul Karim

*PhD Researcher
Department of Marketing
University of Dhaka*

E-mail: bappashabujbangla@gmail.com

Abstract

Building a sound financial system is an immense necessity for the economic development of a country. The main task of the financial system is to mobilize funds from the surplus budget unit to deficit budget unit. It provides a strong mechanism for collection and allocation of financial resources among the various alternatives. However, in a developing country like Bangladesh it is very hard to reach in a sound financial system due to the lack of requisite institutions, expertise and resources. Many legal and regulatory frameworks are needed to ensure discipline in the financial policy. For these reasons, careful assessment of the financial system is necessary to determine about which features are basic and which are secondary and the types of institutions that are essential in the process. To improve the quality of financial intermediation and meet up the growing needs of funds for financing investments in different sectors of the economy, the government intends to intensify the financial market by granting permission to establish private leasing institutions in conjunction with the private commercial banks. The IFC promotes leasing as a method of financing industrial development in the developing countries as a part of its capital market development strategies. In any capitalist economy, there are financial intermediaries side by side with banks to accommodate to diverse financial needs of those segments of the community which do not normally have easy access to bank credits. Increased investment in the energy sector as well as in power, transport, telecommunications, water and sanitation, and safe disposal of wastes is expected to bring further opportunities for leasing industries.

Key Words: *IFC – International Finance Corporation, SME – Small and Medium Enterprise, NBF – Non-bank Financial Institution, LI – Leasing Institutions*

1. Introduction

A financial lease is defined as a transaction in which the leaser purchases leased property selected by the lessee; the lessee has the right to possession and use of the leased property in exchange for payment of rent; and upon expiration of the lease, the lessee may renew the lease, exercise an option to buy the leased property or return it to the leaser. Basically lease is “an agreement where the leaser receives lease payments to cover its ownership cost. The lessee is responsible for maintenance, insurance, and taxes. Some finance leases are conditional sales or hire purchase agreements. Besides, lease is a contract outlining the terms under which one party agrees to rent property owned by another party. It guarantees the lessee, also known as the tenant, use of an asset and guarantees the leaser, the property owner or landlord, regular payments for a specified period in exchange.” (Chen, 2019)

Examining the features, leasing can be defined from economic, legal, fiscal and accounting angles. The European Leasing Association defines leasing as “A contract between a leaser and a lessee, for the hire of a specific asset, selected from a manufacturer or vendor of such asset by the lessee. The lessee has possession and use of the asset on payment of specified rentals over a period.” (IFC, 2003)

Leasing is relatively a new development in Bangladesh financial landscape with the incorporation of Industrial Development Leasing Company (IDLC) of Bangladesh Limited as a joint venture comprising of Korean Development Leasing Corporation, IFC, World Bank and others. (Ahsan, 2006) The leasing business became competitive with the increase in the number of companies and wider distribution of their market share.

Financial leasing is a type of lease in which a finance company is typically the legal owner of the asset for the duration of the lease, while the lessee not only has operating control over the asset, but also has some share of the economic risks and returns from the change in the valuation of the underlying asset.” (Altman, 1986) Commercial banks and Development Finance Institutions (DFIs) have been the traditional lending institutions in Bangladesh. Initially, leasing companies had to adopt the role of educators to make Bangladeshi entrepreneurs aware of the benefits of leasing. However, as DFIs demonstrated poor recovery and fund recycling performances, leasing got the opportunity to develop as an alternative source of funding.

A few other factors also contributed to development of the leasing business in the country. For example, the commercial banks have been keener in providing trade financing and foreign exchange dealings rather than long-term loans because of the risks involved and their longer development period. The selection of lease proposals is relatively free from extraneous pressure and is subject to a quality level appraisal. Because, “finance lease refers to the agreement where in the lessee gets the ownership of the asset before the lease expires. Simply, the finance lease is the type of lease wherein the leaser transfers all the risks and rewards associated with the asset to the lessee before the lease agreement expires.” (Anderson & Martin, 1979) Under lease agreements in the private sector, projects are sanctioned and implemented expeditiously, resulting in benefits in time and cost savings. Private leasing companies also attract clients by providing relatively better services.

1.1 Statement of the Problem

Leasing business is gaining increased importance in the economy of Bangladesh with its gradual transformation from an agrarian to industrial one. The government periodically revises the trade and industrial policy to create a liberal business environment both for domestic and foreign investment in leasing. Banks normally provide adequate cash margin in the form of equity and collateral to secure their loan whereas the leasing companies pay more emphasis on business potential and cash flow instead of collateral and equity. Thus the leasing companies have more penetration on the SME sector which is estimated to have about six million entities. About 90% of the finances of the leasing companies are focused on SMEs which contribute about 25% of the GDP. (Ahsan, 2006)

1.2 Objectives of the Study

The objectives of the study are:

- To develop a clear idea about the leasing sector in Bangladesh.
- To get a thorough know-how about lease loan financing in Bangladesh.

1.3 Methodology, Data Collection and Limitations

Basically, this is a content analysis of descriptive research technique. Secondary data are absorbed from related books, reports, journals; websites etc. The major constraints are unavailability and inconsistency of appropriate data alongside the lack of time & resources.

2. Conceptual Framework of Lease Finance

Lease is a contract between the owner and the user of assets for a certain time period during which the second party uses an asset in exchange of making periodic rental payments to the first party without purchasing it. Under lease financing, the lessee regularly pays the fixed lease rent over a period of time at the beginning or at the end of a month, 3 months, 6 months or a year. At the end of the lease contract the asset reverts to the real owner. However, in case of long-term lease contracts, the lessee is generally given the option to buy the leased asset or renew the lease contract. The three major types of leases are:

- a) Operating lease - is a short-term lease contract where the leaser bears all operating and repairing costs of the asset and the lessee pays periodic rental payments to the leaser, and where the lease is cancelable, and there is no bargain purchase option.
- b) Financial lease – is a long-term lease contract where the lessee bears all operating, repairing and maintenance costs, and makes periodic rental payments to the leaser. The lease is not cancelable and the lessee has the option for bargain purchase or renewal of lease contract at the end of the original lease period.
- c) Direct financing lease - the leaser leases the asset by manufacturing or by purchasing to the lessee directly and the lessee makes regular rental payments to the leaser.

In accordance with the Law, financial leasing is a form of investment activity, in which a lease is obligated to transfer a leased asset acquired from a supplier, held in ownership by the leaser, and agreed upon with the lessee, to a lessee for an agreed upon fee and terms for temporary use and possession for commercial purposes for a period of no less than three years.

3. Legal Framework for Leasing

The leased asset may be any non-consumable good, including companies, property complexes, building and structures, equipment, transportation, land, and other movable and immovable property. Leased assets cannot be natural resources, and property barred or restricted from general public circulation. The parties to a lease may be any legal entity or:

- Physical persons operating as lessors or lessees must have the status of a certified sole proprietor; and
- Suppliers may be any physical person.

3.1 Regulatory Requirements for a Financial Leasing Operation

a. Assets/Debt Ratio.

- Risk assets, including contingent liabilities shall not exceed 10 times the total assets.
- Investment in industries other than the financial lease industry cannot exceed 30% of the total assets.
- The leased assets under the financial lease and other financial leases cannot be less than 60% of the total assets.

b. Management of Leased Property- The leasing company shall set up separate accounts for leased property under sublease and entrusted lease business.

In a sale-and - lease - back transaction, the acquisition cost for the leased property shall not exceed 20% of the actual value or the book value of the leased property. (World Leasing Yearbook, 2003)

4. Term Uses in Leasing

- a) **Leaser:** The leaser's business license must have a scope that includes financial leasing operations.
- b) **Lessee:** The "lessee" is a natural person or enterprise that enters into a financial leasing contract with the leaser to obtain funds to finance the acquisition of the leased property, and to obtain the right of possession.
- c) **Leased Property:** The "leased property" is defined as any real property and movable durable—property (including the accessories technologies) other than natural resources.
- d) **Registration of Leased Property:** Leased property must be registered at the State Administration of Industry and Commerce, the government authority in charge of registration of mortgage or security interests of movable assets.
- e) **Lease Payments:** The law defines lease payments as periodic payments that include the total amount of the payments stipulated in the lease agreement over the entire period of the agreement. Lease payments must be calculated subject to full or partial repayment of the cost of the leased asset, based on its value at the moment of lease agreement execution.
- f) **Nature of the Rights to Leased Property:** The financially leased property is excluded from the bankruptcy estate of the lessee. If the lessee fails or delays in making a rental payment, the leaser may terminate the contract and repossess the leased property.
- g) **Term (Financial Leasing):** In general, the financial lease term should be shorter than the permissible period for depreciation for the leased property, but in no event less than 20% of the depreciation period.
- h) **Rent:** The financial lease rent shall be determined by the cost of the leased property, plus the reasonable profit of the lesser, unless otherwise agreed by the parties.
- i) **Risk Assumption:** When the lessee possesses the leased property, unless otherwise agreed upon by the parties, any damages, losses and risks shall be the sole responsibility of the lessee.

5. Risk Factors Associated with Lease Finance

As with all investments, investors should be aware that there are risks associated with an investment in the company. This risk could result in loss of income.

5.1 Internal Factors

a) Scarcity of Funds

The company's business is dependent on availability of fund. If the company finds it's difficult to get adequate fund to meet it business requirement then the company's business performance will be affected.

b) Default of Clients

A lessee may default in performing its lease obligations and the company may be unable to enforce its remedies. The company's inability to collect receivables due or to repossess lease assets in the event of default could have a materials adverse effect on the company's business.

c) Change in Interest Rate Structure

The company's leases are generally structured at fixed rates for specified terms. Increase in interest rates of borrowings could narrow or eliminated the spread, and hence, may have a material adverse effect on the company's business.

d) Inadequate Managerial Skill

If the management fails to procure proper human resources to increase managerial efficiency and to develop a team-effort to cope with the pace of the growing business operation there might be an adverse impact on the company's operations.

5.2 External Factors

a) Market Competition

The LI are operating in a highly competitive market. Major competitors have more resources than those of the company including better image, broader range of products, complementary lines of business etc. It is very difficult to predict in advance the move of the competitors the company will have to face in the coming years.

b) Change in Government Policy

Changes in govt. policy as well as policy of foreign countries may affect adversely.

c) Changes in Fiscal Policy

Any change of fiscal policy like: tax laws may appear lease financing less attractive and would have a material impact on the company's business.

d) Economic Slowdown

The overall demand for the leasing product is linked to macro parameters like GDP growth, demand for project finance, healthy capital markets and the overall growth of economy. A slowdown in economic growth will have an adverse impact on the demand.

e) Political Instability

The performance of any company may be affected by political and economic developments both in Bangladesh and worldwide. Any instance of political turmoil and disturbance in the country may adversely affect the economy in general.

f) Change in Regulatory Policy

The company operates under the specific guidelines laid down by the Bangladesh Bank as well as the Securities and Exchange Commission. Any sudden change of the guidelines or policies formulated by Bangladesh Bank and/ or the SEC may affect the business of the company adversely.

6. Advantages of Lease Finance

6.1 Leasing Conserves Capital

We live in a world where demands on working capital always seem to exceed supply. By providing 100% financing, leasing allows your customer to have more money available to put into profit-generating activities.

6.2 Leasing Provides an Alternate Source of Credit

Leasing provides your customers with an additional source of financing. Unlike most bank loans (which require 20%-30% down) leasing offers, financing for 100% of the equipment cost. Furthermore, leasing does not impact a customer's bank line of credit – the existing line remains intact for essential short-term needs.

6.3 Leasing Provides Tax Advantages

Lease payments are normally treated as a fully deductible operating expense for tax.

6.4 Lease Payments Are Fixed Payments

Since lease payments are fixed, leasing let your customer plan ahead with the assurance that his monthly payments will not change.

6.5 Convenience

Leasing provides one-stop financing for a total solution.

6.6 Protection against Obsolescence

The lease can be structured to include upgrades and partial or complete equipment swaps either at mid-term or at lease-end.

6.7 Provides for off Balance Sheet Financing

This potentially increases your borrowing capacity while easing the budgeting process and preserving key financial ratios.

7. Disadvantages of Lease Finance

7.1 Cost Consideration

Interest rate is higher than it would be for a purchase loan. Delinquent charge increases the cost of lease.

7.2 Ownership Flexibility

In opting for a lease, the lessee may sometimes invite restrictions on equipment use, insurance covenants, etc.

7.3 Ineligibility of Certain Incentives

Certain grants and incentives are available to owners of assets who use the assets. By setting up a lease arrangement, such benefits are sometimes lost by the lesser and lessee.

7.4 Taxation

In a case where the lessee has adequate tax capacity to utilize the tax benefit, long-term leases may sometimes prove inefficient.

7.5 Under Statement of Assets

Leasing leads to an effective under-statement of a lessee's assets and leads to an under valuation of the firm.

8. Policies Central Bank that Affect Lease Finance

The financial system of Bangladesh consists of Bangladesh Bank (BB) as the central bank; 64 commercial banks; 34 Non-bank financial institutions (NBFIs); 2 Specialized Financial Institutions. (BB Report, 2018).

Bangladesh Bank has legal authority to supervise and regulate all the banks. It performs the traditional central banking roles of note issuance and of being banker to the government and banks. It formulates and implements monetary policy manages foreign exchange reserves and supervises banks and non-bank financial institutions. BB has the power to impose penalties for non-compliance and also to intervene in the bank management if serious problems arise. It also has the delegated authority of issuing policy directives regarding the foreign exchange regime.

8.1 Interest Rate Policy

Under the new interest rate policy, which became effective in January 2019, all deposit rates are decontrolled. The market, except for exports, freely determines all lending rates.

8.2 Capital Adequacy

In June 2012, BB announced a new policy on capital adequacy recommended by the 'Basle Committee' on banking supervision. The revised policy on capital adequacy requires maintaining at least 9% of off-balance sheet risk.

8.3 Loan Classification and Provisioning

BB introduced a revised accounting policy with respect to loan classification, provisioning and interest suspense from May, 2015. The Revised policy calls for an independent assessment of each loan on the basis of qualitative factors and objective criteria. Each loan is branded with the worst level of classification resulting from these independent assessments.

8.4 Foreign Exchange System

On March 24, 1994 Bangladeshi ‘Taka’ was declared convertible for current transactions in terms of Article VII of the IMF. Consequent to this, current external settlements for trade in goods and services and for amortization payments on foreign borrowings can be made through banks authorized to deal in foreign exchange, without prior central bank authorization.

8.5 Exchange Rate Policy

The exchange rate policy of BB aims at maintaining the competitiveness of Bangladeshi products in the international markets, encouraging inflow of wage earners’ remittances, maintaining internal price stability and maintaining a viable external account position. Prior to the inception of floating exchange rate regime, adjustments in exchange rates were made while keeping in view the trends of Real Effective Exchange Rate index based on a trade weighted basket of currencies of major trading partners of Bangladesh.

9. Development of LI to Strengthen the Financial System of Bangladesh

Traditionally our banking financial institutions are involved in term lending activities, which are mostly unfamiliar products for them. Inefficiency of banks in long-term loan management has already led an enormous volume of outstanding loan in our country. At this backdrop, in order to ensure flow of term loans and to meet the credit gap, LI have immense importance in the economy. In addition, LI is important to increase the mobilization of term savings and for the sake of providing support services to the capital market.

Actually, financial system is decomposed of into two basic types of institutions. One is the banking financial institutions (BFIs) and the other is the non-banking financial institutions (NBFIs). These two financial institutions are different in respect of their activities and treatment of the assets and liabilities in the financial market. For a well functioning financial market along with the banks, NBFIs like LI have an important role to uplift the economic activity. These two financial sectors can simultaneously build up and strengthen the financial system of the country.

This paper analyses the importance and roles of LI in developing economy of Bangladesh. Our study is confined to 30 LI who got license from Bangladesh Bank up to 2001 under the Financial Institution Act-1993 and Financial Institutions Regulations–1994. Development of the LI in a sustainable basis contributes to the speed and efficiency of the financial system. The necessity for the development of LI could be best judged with the following issues:

- Firstly, the LI are noticeably different from the banking institutions and with different phenomena. These two kinds of financial institutions are complementary rather than substitute. Existence of banking and LI, money market and capital market keep the financial sector complete and enhance the overall growth of the economy.
- Secondly, there is a maturity mismatch in the sources and uses of funds in our financial system, which leads inefficiency. Commercial banks by their definition are unsuited for long- term lending. Inefficiency of banks in long-term loan management has already led an enormous volume of outstanding loan in our economy.

However, with the present status of expertise and efficiency, the BFIs are barely able to serve the future investment demand of the country. BFIs are not fully equipped in this regard and they would not take the load or be able to take future challenges of term lending of the country. At this backdrop, in order to ensure flow of term loans and to meet the credit gap, development of LI is a compelling necessity for the economy.

- Thirdly, sophisticated and well-developed capital market is considered as the hallmark for a market economy worldwide. Although our country is moving toward a full market based economy, capital markets are still in infancy. This is due to lack of requisite institutions those are needed in the system. In the last twenty years there has been a tremendous growth worldwide of LI to provide support services to the capital market. The capital market is largely relied upon NBFIs like, leasing.

Although LI have immense necessity and greater importance in the financial system of Bangladesh, they are severely suffering from some problems including the fund crisis in terms of both availability and cost. Initiatives from all concerns are necessary to eradicate the fund constraints to ensure easy flow of fund. The existing regulatory and legal frameworks for LI are not adequate in a greater extent as compared to banks. In some cases the types of regulation for the LI are analogous with the banks that create some problems. Again, judicial and legal reforms are also necessary to build up such organizations. However, BB has taken several initiatives in recent years to improve the suitability of the regulatory framework.

This paper attempts to highlight the necessity and importance of LI along with banks to strengthen the financial system of overall economic development of the country. The growth of LI in terms of assets and liabilities and diversified areas of Business has significantly increased within this short period of time after inception. This paper also focuses different features of LI to identify their importance in financial system of Bangladesh. Special emphasis has been given to the complementary role of LI with banks for efficiency of financial system, contribution in term lending, role in capital market development, problems in availability of fund, impact of deposit mobilization on the monetary policy etc. However, the initiatives taken by government and BB for the development of LI have also been discussed. These issues are mainly concerned with the development of LI as well as their role in strengthening financial system of Bangladesh.

10. Objectives of Leasing Companies

Lease financing, as organized in Bangladesh, operates with the following objectives:

- (a) To assist the development and promotion of productive enterprises by providing equipment lease financing and related services;
- (b) To assist in balancing, modernization, replacement and expansion of existing enterprises;
- (c) To extend financial support to small and medium scale enterprises;
- (d) To provide finance for various agriculture equipment; and

(e) To activate the capital market by operating as managers to the issue, underwriters, or portfolio managers.

11. Functions of Leasing Companies

The leasing business in Bangladesh moved away from regular leasing activities and is now involved in stock-market related activities such as issue management, underwriting, trust management, private placement, portfolio management and mutual fund operation. Broad capital market operations of the lease financing institutions include bridge financing, corporate counseling, mergers and acquisition, capital restructuring, financial engineering, and lease syndication. Prominent among the sectors of the economy that now receive lease financing services are textiles, apparels and accessories, transport, construction and engineering, paper and printing, pharmaceuticals, food and beverage, chemicals, agro-based industries, telecommunications, and leather and leather products.

12. Conditions for Setting up Financial lease Companies

- a) Minimum registered capital of Tk. 80,000,000.
- b) Required management team with professional knowledge of financial leasing and the law
- c) Adequate organization, management, internal management systems and systems for risk control and handling
- d) Business premise, safety measures and other required facilities corresponding to the business operation.

13. Sources of Funds

The prime sources of leasing are loan from the other commercial banks, term deposits from the public, and fund from capital market by issuing shares, debentures, bonds etc. and loan facilities from the international agencies like ADB, IDA, IFC etc. Eventually, 30 leasing institutions have found to hold the lease deposit with a total amount of TK. 870.30 billion. (Mohajan, 2012) Due to various reasons, the deposit collection of the leasing is not satisfactory and it holds insignificant portion of the country's total deposit.

Leasing is facing some difficulties in raising their fund. They have to collect fund from the credit lines of the commercial banks at a very high rate of interest ranging up to 15%. Moreover, they have to provide high and expensive collateral securities like fixed deposits and insurance guarantees etc to borrow fund from the commercial banks. Rising of fund from capital market has become a distant possibility due to absence of an efficient capital market in the country.

Moreover, the capital market in Bangladesh is yet to recover from several recent market crashes so there is lack of sufficient investors' participation till now. Again, it is also high risky for taking long-term foreign currency loan because of exchange rate fluctuations and lack of absorptions scheme against fluctuation.

International Development Agency (IDA) prepared a long-term credit line under its Financial Institutions Development Project (FIDP) to the Government of Bangladesh (GoB). IDA

funding is placed at USD 46.9 million. An important objective of this project is to develop the capability of the financial intuitions to raise medium/long-term resources. The project has established to implement the financing program for private sector enterprises through financial institution. BB is acting as the administrator and provided co-financing for the project an amount of US \$ 5.00 million. The FIDP has already started working since early 2000 and it is hoped that it will help raising medium/long resources for leasing. (World Bank & IFC, 2003)

BB has taken several steps to reduce the costs of the lease finance. The Statutory Liquidity Ratio (SLR) of the financial institutions was reduced from 10% to 5%, of which 2.5% was to be kept as Cash Reserve Requirement with BB and remaining 2.5% would be kept in cash or other liquid assets. Leasing that do not accept term deposits are required only to maintain the SLR at the rate of 2.5%. (Microfinance Industry Report, 2009)

14. Development of the Capital Market and the LI

A full pledged reform program of financial sector includes the development of both bank and non-bank financial institutions in the financial system so that the overall savings and investment activities improve significantly.

LI can venture in such types of risky businesses because of their particular type of sources of fund, which facilitate them to provide institutional support to the capital market. On the other hand, bank's money is the depositors money and so that they go for less risky short term financing. For this reason banks are subject to high regulations and leasing institutions are little or no regulations around the world and thereby can go easily for risky investment such as merchant banking, venture capital etc. LI are not permitted to use 'bank' in their names and use companies. Their funding is not covered by the government protection. These distinct natures make the leasing institutions separate from the banks and place a separate arena in the financial market place.

However, in the universal banking system, banks provide both commercial and investment banking services. The principal arguments are to lend from the equity and to provide economics of scale to the banking companies. But according to some economists, the model might be practically inappropriate. Kundleberger, Blommestein Spencer, Sleenhere, Huvencer and Muldure are few of them. (Mishkin, 2005) The weaknesses identified by them are first, it gives significant equity stake to the commercial bank and reach a certain proportion without approval from the central bank. Secondly, commercial banks feel lack of expertise and experience to assess the potential risk and return of the investment in the market. Commercial banking activities are less risky than the security operation and risky security business.

LI activities involves investment including the portfolio management, issue managing, underwriting and bridge financing, consultancy or advisory services, investment counseling etc. LI are required to take a separate licensee from the Security Exchange Commission (SEC) to do the activities related to the capital market. A careful analysis of the activities of 57 merchant bankers reveals that LI are now in the leading position among the merchant banks.

15. Leasing Performance in Term Financing

One important arena of leasing is the deployment of funds in the long term financing. By definition, BFIs should not involve in the long-term financing and they are the institutions related to the money market instruments and allowed to make only fully collateral short term lending. Bank business is based on the depositors' money. Lending long is risky because it creates least accountability to the borrowers. Borrowing short and lending long by the banks create a mismatch in the financial system and hamper the macroeconomic stability.

Time lag between lending and borrowing of the commercial banks has led to a maturity mismatch as there is about 10 months average maturity gap between the deposit fund and loan portfolio. Again the interest rate charged by banks does not cover the total cost of funds. There was direct monetary control and the central bank administered the interest rate for both deposit and credit. After that although interest rates were not controlled by the central bank, commercial banks did not have enough such professionally expert personnel to assess the lending risk. Banking sector in Bangladesh felt a lack of basic expertise, which was needed for the market-oriented approaches. In the same way performance of the two public Development Financial Institutions (DFIs) are very unsatisfactory as their non-performing loan is over 50% for the last several years. These issues demanded for a sustainable basis for long term financing which is a major part of the leasing business by nature.

However, in Bangladesh, the LI is still the important sources of long term financing accounted to about 70-80% term loan disbursement. (BB Report, 2018) Before 80s, there was no alternative mode of long-term lending other than the banks. So banks were in a tremendous pressure to provide long-term financing for industrialization of the country. After 80s, there was consensus among the government policymakers and international bodies to search an alternative source. Subsequently, leasing has started to emerge in the financial system of Bangladesh.

Without smooth long-term lending system, industrial development of the country is not possible. Analysis of the operational activities of the NBFIs shows that many of them have strong participation in lease financing. Though leasing is considered as an alternative mode of long-term lending, leasing contribution to total long-term financing is still very small in amount.

16. Recommendations

Following suggestions would be helpful to develop sustainable LI:

- Leasing has to be equipped with highly professional personnel and technological advancement to chase the future opportunities and competition.
- Strong institutional support is necessary for the development of capital market which is the core of economic development in the market economic system. So leasing institutions should concentrate more on their activities in the capital market.
- For rapid development of LI, fund problem should be solved on a priority basis.
- Opening of a refinancing window even for a limited period may be considered as a strategic evaluation.

- Government and the central bank will take initiatives to ease the fund constraint of leasing so that they can minimize their cost of fund and to bring it at a market level.
- Leasing deposit and credit have not yet been accounted in the money supply. So the money supply was underestimated. In the same way, there is no account of the overall credit participation by leasing. It should have to be accounted for effective monetary and credit management of the country.
- The LI should publish their annual report following a unique system. It is good that BB have simplified the rules and procedures for submission of returns. BB should include analysis of leasing sector in details in their periodical publications.
- Further research on the significance of LI contribution in the economy is required.

17. Conclusion

Emergence of leasing has created a new avenue in our bank dominance traditional financial system. Traditionally banks are doing such businesses that they are not supposed to do. Long-term lending of banks is mostly unfamiliar product for them, and has created a serious distortion in the financial market. Rather than gaining any benefit from such types of activities, the society is now carrying the load of overwhelming default loans. Leasing is considered as a strong alternative of long-term financing. The performance of the leasing business suggests that the industry can be growing up in a sustainable basis. But leasing must not be confined with selected sectors.

Eventually, Leasing is suffering from high cost and scarcity of funds. At present, with high cost of fund LI are forced to compete with the banks those have relatively low cost of fund. This situation somewhat hampers the growth and development of leasing. Banking has the versatile own activities so that for bringing more efficiency in their operation as well as the efficiency of the financial system. So, they may bypass the activities that the leasing can do. The policy making initiatives, administrative exercise of government and the central bank can ease the fund constraint of leasing. LI from their part shall be much more attentive in rigorous project analysis to perform the disbursement of loans well.

A modern and dynamic regulatory framework is required for the rapid and effective development of leasing businesses. Bangladesh Bank has formulated and declared policies for classifying and provisioning of LI in June 2000. This rule has been formulated with a view to judging quality of management, strengthening discipline in lending and recovery, securing peoples' deposit, having provisions for the loss of unrecoverable invested funds and imposing interest against bad investment. This classification procedure will definitely improve and promote the activities of leasing, but the procedure is always subject to improvement with the diversification of products.

Government of Bangladesh has already taken some important steps to patronize the sector. Since inception in 1985, leasing institutions are somewhat successful to draw attention of the people and establish its importance in the financial sector as well as in the economy of Bangladesh. It is hoped that in future leasing institutions would be able to play more significant role in the development of economy of Bangladesh.

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Value Relevance of Accounting Information in Predicting Share Prices: A Statistical Analysis on Dhaka Stock Exchange

Netai Kumar Saha

Lecturer

Department of Accounting and Information Systems

Jatiya Kabi Kazi Nazrul Islam University

E-mail: netaish006@yahoo.com

Md. Nazrul Islam

Associate Professor

Department of Accounting and Information Systems

Jatiya Kabi Kazi Nazrul Islam University

E-mail: nazrulais@yahoo.com

Abstract

This study empirically investigates the value relevance of earnings as measured by EPS and book value per share (BVPS) in projecting the market price of shares. The findings of the paper are based on processing secondary data of 68 companies from four distinct broad industries namely Bank; Pharmaceutical and Chemicals, Telecommunication and Service and Real Estate sectors listed on Dhaka Stock Exchange (DSE), Bangladesh. Basic Ohlson (1995) valuation model is mainly flourished in this paper to detain the impact of accounting variables on the market price of shares. Value relevance of accounting information is tested by the estimated regression coefficients of accounting variables (BVPS and EPS) and the adjusted (R^2). The findings of the study state the significant prominent capacity of book value per share (BVPS) and earnings per share (EPS) in projecting the share prices. In comparison of the individual explanatory power between BVPS and EPS, it is also evident that EPS has more descriptive power in projecting the market price of shares than that of book value per share. Hence, EPS has more value relevance and been mostly considered by both the existing and potential investors in projecting the market price of shares.

Keywords: *Value Relevance, Ohlson Valuation Model, BVPS, EPS and Market price of share*

1. Introduction

Value relevance of accounting information has become a paramount issue because of its inestimable contribution to guide both the existing and potential investors in assessing the market price of shares. Barth et al. (2001) indicated accounting variables are value relevant when they are measured with reliably and able to reflect the valuation of the firm as well as the projection of share prices. Gjerde et al. (2007) stated accounting variables like BVPS, EPS and ROE as value relevance if it has influential power in the predication of market price

of shares. Beisland (2009) affirmed the term value relevance as the ability of accounting information derived from the financial statements in influencing the projection of share prices in the stock market. Oyerinde (2011) stated value relevance as measure of the relationship between accounting variables and share prices or return of shares. If accounting variables have no significant impact on market values or the operational efficiency of the firm then it will be treated as valueless information. Hence, the value relevance can be narrated as the statistical association between stock prices and the accounting information. It is deliberated as the benchmark for the valuation of firm as well as one of the essential pre-requisites to enhance the knowledge of investors in the projection of share prices.

Preceding research studies relating to the value relevance of accounting information on the developed capital markets initiating from Ball and Brown (1968), Stanga (1976), Alford et al., (1993), Ohlson (1995), Barth and Clinch, (1996), Collins et al., (1997), Francis and Schipper (1999), Haw et al., (1999), Ali & Hwang (2000); Wang & Liang (2000), Kinney (2001), Sunday (2008), Pirie and Smith (2008), Khanagha, J.B. (2011), Babalola (2012), Eleke & Opoku, (2013); Wang, Gang & Chao, (2013) and Ijeoma N. B. (2015); found convincing evidence that the accounting information is statistically allied with market price of shares.

Over the last decade, there have been a number of studies in the existing literature that also support the incremental value relevance of accounting information in the capital markets all over the world. Examples include the similar studies conducted by Alford et al., (1993) in France, Australia, UK and Netherland, Harris et al., (1994) in Germany, Barth and Clinch (1996) in UK, Australia and Canada, Haw et al., (1999), Aharony et al., (2000), Chen et al., (2001), Samia and Zhou, (2004), Lin and Chen, (2005), Liu and Liu (2007) in China; Aharony, Barniv and Falk, (2010) in the 14 European countries and Graham and King (2000) in six Asian countries specifically, Philippines, Indonesia, Malaysia, Taiwan, Korea and Thailand.

Despite numerous research studies in the area of value relevance in existing literature, it is noticeable that most of the studies were conducted on large and developed securities markets and very few studies were conducted in South East Asian countries, like Dhaka Stock Exchange (DSE) in Bangladesh. The primary focus of the study is to explore the value relevance of accounting information and to measure the comparative significant impact between BVPS and EPS in projecting share prices. To draw the findings, basic Ohlson model (1995) is followed in this study. This research study will increase the existing perceptiveness of both the existing and potential investors to predict future actions relating to the share prices.

2. Literature Review

Value relevance is one of the prime attributes of the quality of accounting variables disclosed in financial statements. It is used to measure the influential ability of accounting variables in predicting share prices. Although the term is not a new phenomenon in accounting, it was not used widely in related literature before the 21st-century.

May dew, Collins, and Weiss (1997) found accounting information namely, equity book values and earnings as value relevance and did not get any significant fall in combined value relevance but the impact of earnings declined and that decrease was interchanged by a rise in

value relevance of equity book value of shares of the listed companies.. Consequent research studies also confirmed their findings notably, Francis and Schipper, (1999); Brown, Lo, and Lys (1999), Chen and Zhan, (2007).

Collins et al. (1997) experienced the logical changes of value relevance of accounting variables over an extended period of 40 years ranging from the year 1953 to 1993 by making yearly cross-sectional regressions and equated adjusted R^2 over the considered time period. The findings of the study were expressed in three points of view. Firstly, the combined value-relevance of EPS and book value per share had not dropped over the experimental period of 40 years and looked like improved marginally. Secondly, the incremental value relevance of EPS had diminished and been interchanged by a rise in the value relevance of book values over the considered period of time. Finally, interchange of value-relevance to book values per share from earnings can be expounded due to the increased frequency of adverse earnings, alterations in average firm size and intangible intensity across time.

Francis and Schipper (1999) validated the concept of value relevance in four ways, namely, fundamental analysis, prediction, information and measurement views. From the fundamental analysis point of view, experts construe value relevance of accounting variables by measuring the inherent value of accounting variables and the reflection of their changing trend in the movements of share price trends. From prediction point of view, value relevance of accounting information is judged by its predictive ability to forecast the expected returns in upcoming years. Lastly, from the information and measurement point of views, value relevance of accounting information can be found by expressing in a statistical association between the market price of shares and the accounting variables (EPS, Book value, dividend and ROE).

Suardi (2009) examined the relationship between accounting variables and the equity investments in the listed firms on the Jakarta Stock Exchange (JSX) from 1992-2001. The results signified that book value of net assets had a bigger impact on equity investment and the relative importance of financial statements as a source of supplying information on the JSK.

Imran and Mondal (2010) made a study on Dhaka stock exchange (DSE) for exploring the predictive ability of accounting variables in assessing share prices. The findings of the investigation disclosed positive association between accounting variables namely EPS, ROE, growth of firms, firm size and dividend and stock prices. Similarly, Al-shubiri, (2010) conducted a study on the listed firms in the Amman stock. The primary objective of the study was to find out the factors affecting the movements of market price of shares by applying both the simple and multiple regression equation analysis. The outcome of the study showed a higher degree of positive significant impact of EPS and BVPS in forecasting the market price of shares.

Nadana Abayadeera (2010) constructed a study using Ohlson's (1995) Equity Valuation Model on high-tech industries in Australia for observing the value relevance of financial and non-financial sectors. The findings evidenced that earnings were the least momentous factor in determining share prices but book value was the utmost influential factor in high-tech industries.

Khanagha, et.al (2011) surveyed an analogous study in Iran to originate the value relevance of accounting variable in assessing the share prices. The results of the study also implied that earnings per share (EPS) had more expounding power in jutting share price than that of book value of equity per share (BVPS).

Glezakos, et al. (2012) directed a study considering 91 companies from various sectors of the Australian economy for measuring the influence of returns as dignified by the EPS and book values for assessing the market price of shares in the Athens Stock Exchange. The outcomes of the study showed that collective descriptive influence of both EPS and book values increased in predicting market price of shares but the impact of book value was higher than that of predicting capacity of EPS.

Wang *et al* (2013) examined the relationship between accounting variables and stock price in Shanghai Stock Exchange considering 60 listed companies. The study found that accounting information had an important influence on the listed companies' stock price and investor's perceptions in the market, but the degree of importance varied. Earnings per share had the most significant effect in stock price prediction.

Vijitha P. and Nimalathasan B. (2014) directed an empirical study on manufacturing concerns in Srilanka. The outcomes of this investigation exposed that accounting variables had (Net Assets Value per Share, ROE, EPS, and Price Earnings Ratio) noteworthy impact in assessing share prices.

Similarly, Ijeoma N. B. (2015) conducted an experimental study for testing the effect of certain accounting variables on share prices on the listed firms in the Nigerian capital market. The findings showed a noteworthy relationship between selected accounting information (EPS, Book Value, and ROE) and Share Prices. Thus, accounting variables are playing a very considerable role in investigating the share prices.

3. Methodology of the Study

To conduct this study, 68 companies from four distinct broad industries namely Bank; Pharmaceutical and Chemicals, Telecommunication and Service and Real Estate sectors listed on Dhaka Stock Exchange (DSE), are taken as sample. The secondary data is collected from the companies' official website, DSE. Archival data for the period of 2014-2018 have been collected from the above-mentioned sites.

The study is mainly flourished on the basic Ohlson (1995) valuation model for detaining the impact of accounting variables on the market price of shares. The market price of shares is a linear function of EPS and book value of shares. Value relevance of accounting information is tested by the estimated regression coefficients of accounting variables used in this model and the adjusted (R^2). Earnings per share (EPS) and book value per share (BVPS) are the two descriptive (independent) variables and market price of the share is the dependent variable in this study.

Three models are used to test the value relevance of EPS and BVPS in projecting share prices. Model 1, is used to spotlight the collective value relevance of both EPS and Book value on share prices. But, Model, 2 and 3 are used to observe the descriptive influence of EPS and BVPS independently on the share price.

Model-1: $SP_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon$

Where;

SP_{it}, indicating the stock price at the end of each year,

BVPS_{it}, indicating the book value per share

EPS_{it}, indicating the earnings per share

Model-2 and Model-3 employ to observe the individual descriptive influence of book value per share and earnings per share on the share price respectively.

Model-2: $SP_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \varepsilon$

Model-3: $SP_{it} = \alpha_0 + \alpha_1 EPS_{it} + \varepsilon$

Table-1 Demonstrates the measurement of variables considered in this research study.

Types of variable	Variables Considered	Depiction	Measurement
Dependent	Share price	Market price of shares	Market price of shares as at the last working day of a particular year collected from the website of Dhaka Stock Exchange (DSE).
Descriptive (independent)	BVPS	Book Value Per Share	Total common stockholders' equity divided by the weighted average number of equity stock outstanding as at the end of every year.
	EPS	Earnings Per Share	Net profit available to ordinary shareholders (Net profit after tax less preferred dividend) divided by the weighted average number of equity shares outstanding as at the end of every year.

4. Results and Discussion

Table 2: Regression Analysis of Model 1

Model-1: $SP_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon$			
Variables	Co-efficient	t-statistic	p-value
Constant	2.1318	0.30	0.767
BVPS	0.1367	3.38	0.001
EPS	19.959	33.27	0.000
Adjusted R ²	0.7417		

The study mainly focuses on the prominent capacity of book value per share (BVPS) and earnings per share (EPS) in projecting the share price. Value relevance of BVPS and EPS is reviewed by examining the statistical implication of the slope of coefficients on BVPS and EPS. Model-1 is used to determine the combined value relevance of BVPS and EPS in projecting share prices. This model has been used to find out the two-tailed regression results specifically, coefficients, and t-statistics along with p-values. In model 1, stock price per

share is the dependent variable and BVPS and EPS are two independent variables. The calculated value of Adjusted R^2 from Model - 1 is 74.17% that indicates the significant descriptive influence of both the independent variables considered in this study (BVPS and EPS) in predicting share prices. The coefficient of BVPS and EPS is respectively 0.13 and 19.95 and t-Statistic is 3.38 and 33.27 correspondingly, which is acceptable at 99% of level of significance. The results signify that both BVPS and EPS have significant explanatory power in predicting share prices.

Table 3: Regression Analysis Model 2

Model-2: $SP_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \varepsilon$			
Variables	Co-efficient	t-statistic	p-value
Constant	103.0119	8.35	0.000
BVPS	0.4045	5.35	0.000
Adjusted R^2	0.615		

In this study, Model-2 has been primarily used to examine the value relevance of BVPS in predicting share prices independently. From the table-3, the calculated Adjusted R^2 is 61.5% which indicates the significant descriptive power of BVPS in predicting share price. Again, it is also found from table-3 that the coefficient and t-Statistic of BVPS is 0.4045 and 5.35 respectively, which is acceptable at 99% of significance level. The results state that book value per share (BVPS) is significantly associated with share prices. Hence, BVPS has the explanatory power in forecasting the share prices.

Table 4: Regression Analysis of Model 3

Model-3: $SP_{it} = \alpha_0 + \alpha_1 EPS_{it} + \varepsilon$			
Variables	Co-efficient	t-statistic	p-value
Constant	2.933037	0.41	0.681
EPS	20.36255	34.22	0.000
Adjusted R^2	0.7353		

In this study, Model-3 has been mainly applied to test the value relevance of EPS in predicting share prices independently. From the table-4, the calculated Adjusted R^2 is found at 75.53% which signifies the significant descriptive power of EPS in predicting share price. Again, it is also found from table-4 that the coefficient and t-Statistic of EPS is 20.36 and 34.22 respectively, which is acceptable at 99% of significance level. The results suggest that earning per share (EPS) is significantly connected with share prices. Hence, EPS has the explanatory power in forecasting the share prices.

It is evident from Table-2 and Model-1 that both BVPS and EPS have significant impact on projecting the market price of shares. It is also found from the calculated results of Model-2 and Model-3 shown in Table-3 and table-4 respectively that BVPS and EPS are also significantly associated with share prices and have explanatory power in forecasting the share prices independently also. But, comparing the results of Model- 2 with Model- 3, it is evident that the calculated Adj. R^2 of BVPS is 61.5%, which is significantly lower than the

calculated Adj. R^2 of EPS i.e.75.53 %. Hence, it can be concluded from the findings that EPS has more descriptive power in projecting the market price of shares than that of book value per share.

5. Conclusion

This study has been conducted to analyze empirically the value relevance of accounting variables specifically BVPS and EPS by testing the influential power of these selected variables on share prices and also observe the descriptive influence of BVPS and EPS independently in projecting share prices in the stock market. The study is conducted using secondary data sources having derived from 68 companies from four distinct industries, including Pharmaceutical and Chemicals, Telecommunication and Service and Real Estate sectors listed on Dhaka Stock Exchange (DSE), Bangladesh. The study is mainly flourished on the basic Ohlson (1995) valuation model for detaining the impact of accounting variables on the market price of shares. The market price of shares is a linear function of EPS and book value of shares. Value relevance of accounting information is tested by the estimated regression coefficients of accounting variables being used in this model and the adjusted (R^2). Book value per share (BVPS) and Earnings per share (EPS) and are the two descriptive (independent) variables and market price of the share is the only dependent variable discussed in this study.

Notably, the mixed results have been found between the associations of value relevance of accounting variables with the market price of shares by searching the existing literature. But, the results of this study signify that both BVPS and EPS have significant explanatory power in predicting share prices. By comparing the individual effect of BVPS and EPS, it is also found that EPS has more descriptive power in projecting the market price of shares than that of book value per share.

Every research encounters some limitations. This study is not beyond limitations also. Firstly, the main focus of the study is to analyze the impact of BVPS and EPS in projecting share prices using basic Ohlson's Model (1995). Again, the findings drawn by considering only secondary data ranging from 2014 to 2018 from four distinct industries listed on DSE. Thus, further research can be done by taking into consideration of more accounting variables like Return on equity (ROE), Return on assets (ROA), Assets turnover, Firm size and growth, Dividend per share (DPS) , Price earnings ratio (P/R) and Cash flows by considering large sample size mixing financial sectors, manufacturing sectors and also service sectors. Again, primary data can also be considered from the investors by making in-depth interviews to analyze their perceptions of projecting the share prices in the securities market.

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Strategic Analysis of Power Generation & Distribution Sector of Bangladesh: A Case Study on United Power Generation & Distribution Company Limited

Farhanaz Luna

*Assistant Professor
Department of Business Administration
Fareast International University
Email: farhanazluna001@gmail.com*

Mehnaz Lina

*MBA, Department of Accounting and Information Systems (AIS)
University of Dhaka
Email: mehnazleena@gmail.com*

Abstract

The power and energy sector is one of the success cases at present. This has happened because of undertaking targeted initiatives over the last one decade with a view to come out from the crisis of power in the country. The sector is moving towards attaining long term goals for ensuring energy sustainability: 27,400 MW (in 2030), and 51,000 MW (in 2041) (PSMP, 2016) according to CPD (Moazzem and Ali, 2019). It is the appropriate time to revisit the achievements till date. The main objective of this paper is to analyze the external and internal forces of the sample company and formulate different strategy and recommend some suitable strategy. Based on the external factor analysis, we prepared the EFE matrix for the company. By internal analysis we found there are lots of strengths and weaknesses exist for the energy industry. We have selected the major strengths and weaknesses for United Power Generation & Distribution Company. Based on the internal factor analysis, we prepared the IFE matrix for UPGDCL. We have also prepared a SWOT matrix where we have formulated strategies for UPGDCL by matching the strengths, opportunities, threats and weaknesses. We have formulated five strategies that can be taken by UPGDCL. Among the strategies, we recommended three intensive strategies for the company those are namely expand business in market, try to increase the presence in the renewable energy market and try to increase the market share through marketing effort. We have recommended a diversification strategy too. Hence, we suggest the company should link with the diversification strategy. So intensive and diversification strategies can be applied simultaneously.

Key words: *Company strategy, Strategic analysis, Power generation.*

1. Introduction

With a populace of 160 million, Bangladesh is one of the world's most populated nations. Agriculture used to be the fundamental wellspring of pay for the individuals of this nation. The Gross Domestic Product (GDP) in Bangladesh was 7.0% percent in 2018-19. Bangladesh Bank conjectures that on 2019-20, the financial development will be 6.8%. Fast urbanization powered by stable monetary development has made a colossal interest of energy. It is outstanding that vitality assumes an indispensable job in destitution annihilation, financial development, feasible foundation improvement and security of any nation. In Bangladesh, power is the most broadly utilized type of energy. Along these lines, future monetary development essentially relies upon the accessibility of power. Bangladesh Government ought to guarantee reasonable and environment-friendly well spring of electrical vitality for the individuals. In any case, since its autonomy from Pakistan in 1971, the nation has attempted to produce satisfactory power to fulfill the need. The state-claimed power utilities experience the ill effects of huge energy deficiencies. In addition, because of poor estimating arrangements and different bottlenecks, this area was likewise neglected to pull insufficient private interests in power business earlier but now the scenario has changed. Private companies are now showing interest in this sector and therefore, the deficiencies are overcome to some extent. The power and energy area is one of the achievement instances of the present government during its prior systems. This has happened as a result of undertaking focused on activities in the course of the most recent multi decade so as to turn out from the emergency of power in the nation. The segment is moving towards accomplishing long haul objectives for guaranteeing vitality manageability: 27,400 MW (in 2030), and 51,000 MW (in 2041) (PSMP, 2016). It is the fitting time to return to the accomplishments till date.

1.1 Objective of the Study

Some specific objectives of this study are as follows:

- To get an overall idea about the power industry in Bangladesh.
- To match theory with practical field for strategy formulation.
- To find out the market competitiveness of United Power Generation & Distribution Company Limited (UPGDCL).
- To formulate strategies for UPGDCL based on the SWOT analysis.
- To suggest strategies for the company.

1.2 Methodology of the Study

In order to complete the study we needed to collect information and data from several sources. Data sources for this study include both primary and secondary sources. Primary sources of data include observation, monitoring, interviewing the employees. Secondary data sources include annual report of the company, published news report articulated on different field of power industry of Bangladesh. Secondary data sources also include related case study on different company and various books on related topic.

2. External Analysis

In order to conduct the analysis we have evaluated the effect of external factors that are beyond the control of firms contending under power industry.

2.1 Analysis of Economic Forces

In the same way as other products, the business sectors for power, gaseous petrol, oil and sustainable power source are mind boggling and continually evolving. Truth be told, costs change hourly for generally energizes. Central monetary components – like supply, request and changes in fuel utilized for age – are generally unsurprising, yet when you add political and administrative variables to the blend, just as budgetary hypothesis, gauging vitality costs turns out to be additionally testing.

Here are the Top 10 Factors influencing the day by day cost of power:

- a) Supply: Energy from atomic, coal, gas, oil and sustainable sources responds rapidly because of interest. Costs change hourly thus.
- b) Demand: Demand for warming, cooling, light and procedures changes with movement in the US economy, innovation and effectiveness measures.
- c) Gas Storage: This represents energy "stock" (since you can't store power), for example the contrast among free market activity. Gas infusions and withdrawals are reported week by week.
- d) Weather Forecasts: This is a main consideration influencing spot market costs and momentary prospects contracts. Regardless of whether the figures become the truth this is less basic to longer-term costs.
- e) Transport across the country: There are extreme requirements in gas pipeline and electrical transmission limit, which require some investment and speculation to turnaround.
- f) Global Factors: Despite the gigantic development in gas generation, real changes in worldwide supplies can influence local energy costs.
- g) Imports and Exports Global oil and gas costs decide relative benefits providers can make selling energizes locally or abroad. All vitality costs are associated with some degree.
- h) Financial Speculation Like most other exchanged products, vitality costs can be influenced fundamentally by money related hypothesis, which is the least straightforward factor of all.

2.2 Social, Political and Environmental Analysis

Energy decisions are impacted by social factors, for example, convictions, qualities, frames of mind and information. Inquiries of morals, ethical quality, and social standards influence vitality basic leadership at all levels. Social factors regularly include financial, political, and natural components, as well. These days, clients of car businesses are condition touchy and have worry about different natural contaminations. Autos are undermining condition by dirtying air through carbon outflows from fuel utilizations. Energy is intrinsically connected to political change on the grounds that the supply of vitality is such a huge scale method. The

supply of energies like gas, power and coal requires a colossal measure of calculated guide, which means it requires backing from a huge number of government bodies.

2.3 Analysis of Technological Forces

Advances in technology guarantee answers for the absolute most serious issues looked by the oil and gas industry. In the Wall Street Journal's Risk and Compliance Journal, John McCue, bad habit executive and pioneer of Deloitte LLP's U.S. Vitality and Resources practice, talks about how enhancements in oil and gas creation, and nano-designed materials may have positive effects on the gas and oil industry as well as on the power and utilities industry. The power and utility industry right now depends on the low expenses and lower outflows profile of flammable gas, which fills in as the key base load fuel for electric power organizations.

2.4 Analysis of Competitive Forces

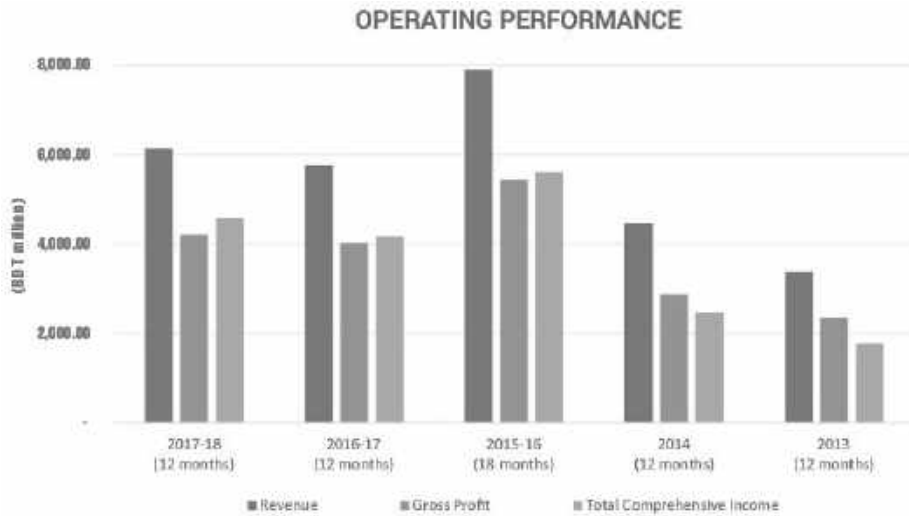
It is critical to recognize rivalry in the business to be effective in the business. Fundamentally, investigation of doormen five powers are the normal wellsprings of focused powers. As a noteworthy Power age organization, UPGD faces aggressive weights from numerous sources. Competitive Rivalry is a solid power in the power business as every comparative brand has distinctive uniqueness. Organizations are novel in advancement, promoting and different components that make contenders exceptionally forceful to one another. There are many power producing organizations contend with one another in the market. Each organization contributes gigantic cash which confine simple exit. Bargaining power of UPGD's rivals is moderate as exchanging cost is moderate due to the cost of each buy and accessibility of substitutes of UPGD is likewise moderate. Number of suppliers is moderate in this industry which applies moderate weight on UPGD. The weight would be high if there are less providers accessible for this industry. There are moderate quantities of substitutes in the power business and exchanging cost is additionally moderate. Subsequently, this moderate accessibility of substitutes contributes a moderate power on the energy business condition. UPGD faces solid weight from new potential entrance as they have high aggressive potential. It is conceivable that new firms can come into market as joint endeavor with these sorts of enormous organizations.

2.5 Performance Analysis

Performance Analysis is the process of studying or evaluating the performance of a particular scenario in comparison of the objective which was to be achieved. Performance analysis can be do in finance on the basis of ROI, profits etc.

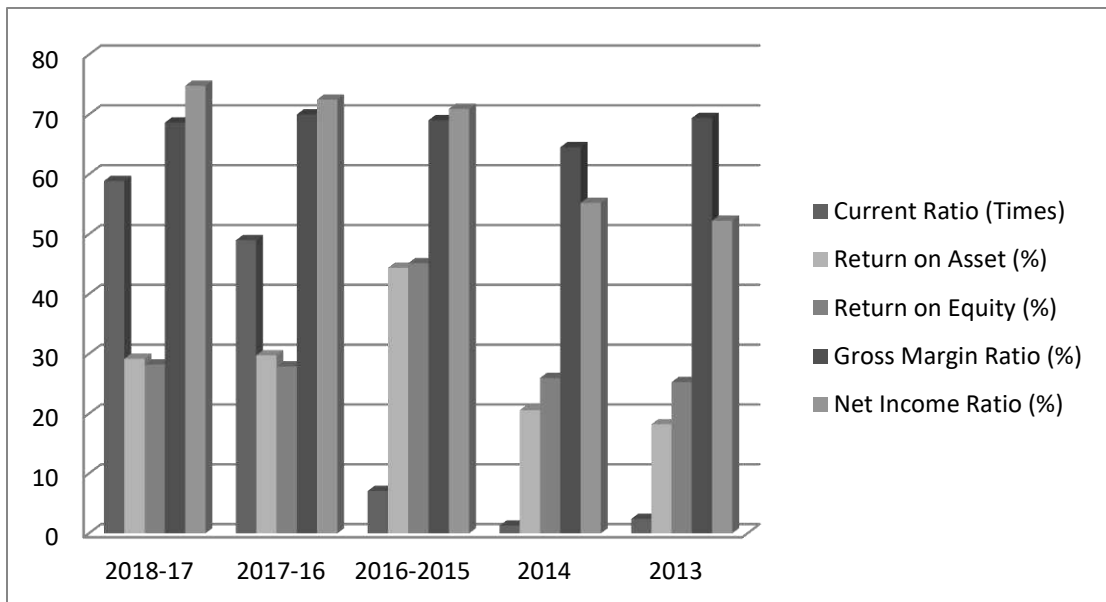
2.5.1 Operating Performance

Operational Performance measurements are the key metrics which are used to measure the operational performance of a company. Different companies have different metrics to measure their own performance but few of the metrics are common across the entire business environment. Above chart shows the revenue, gross profit and total comprehensive income of the company for the year 2013 to 2018.



2.5.2 Financial Performance

Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. The term is also used as a general measure of a firm's overall financial health over a given period.



Above chart shows some financial ratios which indicate firms financial strengths. Current ratio, ROI, ROE, Gross margin ratio Net income ratio is shown for the year 2013 to 2018 of the company.

2.6 Comparative Advantages of UPGDCL

Variable Tariff Rate: United Power Generation & Distribution Company Limited (UPGDCL) sells electricity to EPZs in Bangladesh under variable tariff rates that can be increased from time to time as per the Government Tariff Policy.

Only Power Company to operate within BEPZA under BOO (Build Own & Operate) System: UPGDCL is the only Commercial Independent Power Producer (IPP) mandated to build, operate and own power plants within the Export Processing Zones of Bangladesh by BEPZA; At present, UPGDCL has no competition in the markets in which it operates and sells electricity

Longer Tenure of Agreement: The Power Supply Agreement (PSA) between the Company and BEPZA is for 30 years and there are provisions for further extension for an additional 30 years thereafter; The Land Lease Agreement (LLA) between UPGDCL and BEPZA is also for 30 years and is valid based on the tenure of the PSA; Upon mutual consent, these agreements are renewable and hence, risk of inadequate operational years can be mitigated.

Longer Tenure of Gas Supply Agreement (GSA) with Karnaphuli Gas Distribution Company Limited: The Gas Supply Agreement (GSA) between UPGDCL and Karnaphuli Gas Distribution Company Limited is valid for the life of the power project and as per the signed Power Supply Agreement (PSA) with BEPZA.

2.7 SWOT Analysis

SWOT Analysis (otherwise called SWOT Matrix) is a business structure that aides evaluating a wide assortment of variables that may profoundly affect a business' presentation. These components may either be interior to an organization or outside. Moreover, these elements may either be good/useful or horrible/hurtful to an organization. By consolidating these two measurements one can draw a 2x2-framework comprising of four quadrants: Strengths, Weaknesses, Opportunities and Threats.

2.7.1 Strengths (*SWOT Analysis*)

An organization's qualities are its attributes that give it a bit of leeway over others (contenders). Some of the time these qualities are additionally alluded to as interesting selling focuses (USPs), firm-explicit focal points (FSAs) or upper hand. The well spring of these qualities are assets and abilities that are significant, uncommon, difficult to-copy and association wide up held.

2.7.2 Weaknesses (*SWOT Analysis*)

Weaknesses are exceptionally useful in surveying an organization's shortcomings. These shortcomings are organization attributes that spot an organization off guard with respect to other people. At the end of the day: they are unsafe to an organization.

2.7.3 Opportunities (SWOT Analysis)

Openings are the external components of the SWOT analysis that may emphatically impact an organization's performance. To survey the chances, an organization should search for components in the condition that could be misused to its very own bit of leeway. The most ideal approach to survey the outer components is by utilizing PESTEL analysis for the macro-environment.

Porter's Five Forces for the industry dynamics. PESTEL takes a gander at political, economic, social, technical, environmental and legal patterns in the macro-environment. Porter's Five Forces then again looks all the more explicitly at industry elements like the present challenge, upstream provider control, downstream purchaser control, potential new contestants and substitute items.

2.7.4 Threats (SWOT Analysis)

The threats are the external variables that could mess up the organization later on. Also to the chances, one could utilize a PESTEL examination and a Porter's Five Forces model to evaluate the components in the condition that could hurt the company. Together, the strengths and weaknesses structure the inner side of a company and the SWOT analysis. On the other hand, the opportunities and threats make up the outer side of the SWOT analysis.

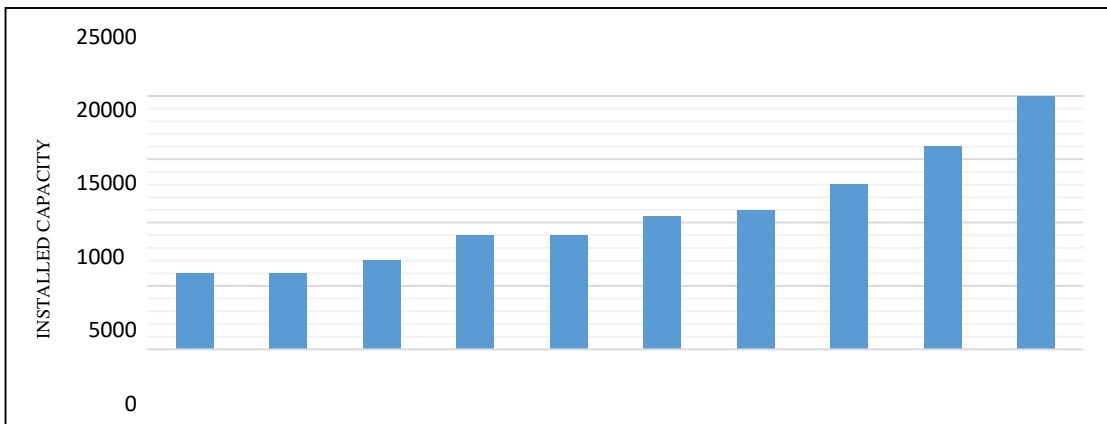
2.8 Identifying key opportunities and threats

a) The demand for electricity is increasing day by day.

This is a huge opportunity for UPGDCL to tap into this. The growth in terms of capacity addition in the last 10 years has been remarkable, from around 4.5GW in 2007–08 to 12.8GW in 2016–17. Private sector participation in generation accounts for about 60% of the total installed capacity. This is a great opportunity for the company to be stably successful in this industry so we gave a weight of .10 to this opportunity and UPGDCL is greatly responsive to this opportunity so we assigned 4 as rating score.

b) The Renewable Energy market for power is growing up these days.

Power Generation from Renewable Energy is utilized to scale up power age to 20 percent of absolute creation from sustainable power sources. Endeavors have been made to supply power by associating sun oriented home framework with the national lattice and produce power by introducing sun powered board in new structures and on the tops of the instructive foundations compulsorily. The renewable energy market for power is growing up these days and private power companies are going hand in hand with the public ones and UPGDCL has a great opportunity in the power generation sector. So, we have put a weight of 0.08 to this opportunity and a rating of 3.



Source: Bangladesh Power Development Board

c) Has Long-Term Agreements with BEPZA, REB and PDB.

United Power Generation & Distribution Company has long term agreements with BEPZA, REB and PDB which gives it a great opportunity for producing the needed power. It is a commercial power plant and unlike other power plants it can give power not only to PDB and REB but also to BEPZA. If BEPZA's demand is fulfilled, then UPGDCL can give power to other plants at its own price and the price must not be as per the PDB agreement. This is a great opportunity for the company and so we have given a weight of 0.10 to this and considering the responsiveness of the company to this opportunity the rating we put is 4.

d) Being the first commercial private power Generation Company, it has more exploration and expansion opportunity.

United Power Generation & Distribution Company is the first private power generation company and that is why it has more opportunities to explore the market than the new entrants. We think this is a great opportunity for the company to be stably successful and expand more in this industry so we have given a weight of .07 to this opportunity. As UPGDCL is averagely concerned about this factor so we assigned 2 as rating score.

e) Private power generating companies get incentives by law.

As per the Private Sector Power Generation Policy of Bangladesh, 1996 (revised 2004) and Policy Guideline for Enhancement of Private Participation in the Power Sector, 2008, there is exception from income tax for foreign banks to power organizations. Besides, Power organizations are permitted to import plant gear and spare parts at up to a limit of (10%) of the original value of total plant and equipment. We think this is a great opportunity for United Power Generation & Distribution Company to be stably successful in this industry so we have given a weight of .09 to this opportunity and as the company shows average response to this opportunity; the rate we gave to this is 2.

f) Shows significant financial performance.

Overall Revenue in the financial year reached BDT6,144.61 million (growth of 7%) –Power

sales stood at BDT 6,119.90 million and Steam sales to private customers was BDT 24.71 million respectively. Although not significant in terms of volume, Steam sales has growth prospects in the future and is proving to be an important dimension profitable re-use of wastes. It is a very important opportunity and so we put a weight of 0.10 and a rating of 1.

Revenue Segments	2017-18			2018-19	
	BDT mn	% of Total	% Growth	BDT mn	% of Total
Power sales	6,119.90	99.6	6.53	5,744.57	99.75
Steam sales	24.71	0.4	68.44	14.67	0.25
Total Revenue	6,144.61	100	6.69	5,759.24	100

g) Investors get more opportunities by law for investing in private power companies.

By the Private Sector Power Generation Policy of Bangladesh, 1996 (revised 2004) and Policy Guideline for Enhancement of Private Participation in the Power Sector, 2008, the rear numerous advantages for the remote potential investors such as- Tax exclusion on eminences, specialized ability and specialized help charges, and offices for their repatriation, capital additions from exchange of offers by the contributing organization. Avoidance of twofold tax collection, Exemption of annual duty for as long as three years for the ostracize work force utilized under the endorsed business, Facilities for repatriation of contributed capital, benefits and profits. This is a great opportunity for UPGDCL and the company superiorly response to this. Therefore, we put a weight of 0.10 to this and a rating of 4.

Threats

a) Raw material price gets affected by government rules and regulations.

As United Power Generation & Distribution Company uses natural gas as its raw material so any rules or regulations affecting the price of the gas will be a threat for the company. This is an important threat for the company and the company shows above average response to this threat. So, we have given a weight of .12 and a rating of 3.

b) Due to natural Causes, fuel price can be vulnerable.

Being a private commercial power generation company is the biggest threat to the UPGDCL. It does not sell its product to the government. So, if the demand of BEPZA falls, then the company cannot sell to the government. As this is a very important factor, so we put a weight of 0.16 as weight and 4 as a rating because of the superior response of the organization.

c) It cannot sell the excess product to the government even if BEPZA's demand falls below the produced amount.

The price of gas may rise due to natural cause. If that happens, it would be a threat for the company. So far the natural causes cannot be prevented by man but precautions can be taken. So, we put a weight of .08 to this threat and a rating of 1.

2.9 External Factor Evaluation Matrix

The total weighted score of 2.48 is just a little below the average of 2.5. So, UPGDCL is doing pretty well, taking advantage of the external opportunities and avoiding the threats facing the firm. There is definitely room for improvement, though, because the highest total weighted score would be 4.0.

Key external factors	Weight	Rating	Weighted Score
Opportunities			
1. The demand for electricity is rising day by day.	0.1	4	0.4
2. The Renewable Energy market for power is growing up these days.	0.08	3	0.24
3. Has Long-Term Agreements with BEPZA, REB and PDB.	0.1	4	0.4
4. Private power generating companies get incentives by law.	0.09	2	0.18
5. Being the first commercial private power generation company, it has more exploration and expansion opportunity.	0.07	2	0.14
6. Shows significant financial performance.	0.1	1	0.1
7. Investors get more opportunities by law for investing in private power companies.	0.1	4	0.4
	<u>0.64</u>		<u>1.4</u>
Threats			
1. Raw material price gets affected by government rules and regulations.	0.12	3	0.36
2. Due to natural Causes, fuel price can be vulnerable.	0.08	1	0.08
3. It cannot sell the excess product to the government even if BEPZA's demand falls below the produced amount.	0.16	4	0.64
	<u>0.36</u>		<u>1.08</u>
	(0.64+0.36) = <u>1.00</u>		(1.4+1.08) = <u>2.48</u>

3. Internal Analysis

In this part of our case study we have conducted internal analysis on United Power Generation & Distribution Company (UPGD). In order to conduct internal analysis we have assessed the impact of internal factors that are within the control of UPGD.

3.1 Market position Analysis

UPGDCL is finishing its tenth year in activity. The voyage began in December 2008 through the business activity (COD) of 4 (four) Units of 8.73 MW of each at DEPZ. Following year, 5 (five) Units of 8.73 MW each went in to activity at the CEPZ in August 2009. At present, organization's complete age limit remains at 160 MW joining both the areas – DEPZ 86MW and CEPZ72MW individually. Organization stayed focused on its command to guarantee continuous and quality power to DEPZ and CEPZ basically and further more to other private clients in EPZ territories. What's more, through its effective and continuous power stock pile activity, trade execution of the two EPZs experienced solid and predictable development.

3.2 Identifying key strengths and weaknesses

Strengths

a) *UPGDCL is a debt free company.*

United Power Generation & Distribution Company is a fully debt-free company. This is the biggest strength of this company. It is strength for the company and so we have put a weight of .10 to this strength and a rating of 4.

b) *Power companies get tax and VAT exemption from government.*

Company's revenue and shareholders' dividends are exempted from tax and VAT. This exemption is a great strength for the company and the company shows superior response to this strength. Therefore, we put a weight of .08 and a rating of 3 to this strength.

c) *The price of the raw material is lower.*

UPGDCL is a natural gas based power plant which has a low price. This strength is a vulnerable one for the company and so we put a weight of .06 to this and a rating of 2.

d) *United Power Generation & Distribution Company is an Eco-friendly company.*

UPGDCL has got the Investment Promotion & Financing Facility (IPFF) loan twice for both DEPZ and CEPZ from World Bank through Bangladesh Bank. If a company does not have environment compliance, it cannot get the IPFF loan. Hence it is one of the greatest strength of UPGDCL of being an environmentally clean company. So, we have given it a weight of .09 and a rating of 3.

e) *Located in the Export Processing Zone (EPZ).*

UPGDCL is located in economic zone and therefore it would not get affected in any case

like strike and other. This location is a very good strength for the company and so we have given a weight of .08 and a rating of 2.

f) Has in-house O&M and in-house EPC team.

UPGDCL has its own in-house Operation & Maintenance (O&M) and in-house Engineering, Procurement & Construction (EPC) teams which is a powerful strength to it. Based on the importance of this factor, we have given it a weight of .06 and a rating of 1.

g) Has got fixed clients.

UPGDCL has a fixed clientele base. It is a great strength for the company and therefore I have given it a weight of .10 and as the company shows a superior response to this factor and so we put it a rating of 4.

h) It is a listed company in Dhaka stock Exchange (DSE).

UPGDCL is a listed company is DSE and thus it can be more profitable by selling the shares. It is very tempting for the investors and so I have put it a weight of .07 and as per the importance is concerned, we have given it a rating of 2.

i) UPGDCL has shown great operational performance over the years.

UPGDCL's performance is the impression of joined tasks of two creation Units situated at DEPZ and CEPZ individually. Net Sales (kWh) during it was 922,131,589 kWh in all out which is hardly (1%) above LY level. This is to make reference to that because of growth of the gas stream there was certain reflection on the age of power especially in DEPZ in the subsequent half. Furthermore, plants experienced major upgrading during the period. In general limit usage during the year was 74.45%. During the year, major upgrading of motors was done adhering to the standard upkeep plan which brought about 11.50% acceleration of Cost of Sales. Be that as it may, Gross Profit for the year was BDT 4,218.72 million demonstrating a development of 4.63% in the by and large. Considering the importance of this factor, we have placed a weight of .09 and a rating of 2.

Weaknesses

a) The pricing of gas is unpredictable.

The Company's raw material is natural gas and the uncertain pricing nature of gas can be detrimental to UPGDCL. Due to its uncertainty, we gave it a weight of .09 and a rating of 3.

b) Being private commercial power plant is a weakness for the company.

Since the company is a commercial private power plant and also, it is under contract with BEPZA. So, if the demand of BEPZA decreases, it cannot provide its product to the government. Based on the importance of this factor, we have given it a weight of .10 and a

rating of 4.

c) *Over the years, UPGDCL has not expanded much.*

UPGDCL's operation is concentrated in DEPZ and CEPZ. This should spread out. Less expansion is therefore a weakness to the company and so we put a weight of .08 and a rating of 2 to this factor.

3.3 Internal Factor Evaluation Matrix

Key internal factors	Weight	Rating	Weighted Score
Strengths			
1. UPGDCL is a debt free company.	0.1	4	0.4
2. Power companies get tax and exemption from the government.	0.08	3	0.24
3. Raw material price is low.	0.06	2	0.12
4. UPGDCL is an Eco-friendly company.	0.09	3	0.27
5. Located in Export Processing Zone (EPZ).	0.08	2	0.16
6. Has in-house O&M and in-house EPC team.	0.06	1	0.06
7. Has fixed clients.	0.1	4	0.4
8. It is a listed company in Dhaka Stock Exchange (DSE).	0.07	2	0.14
9. Has shown great operational performance over the years.	0.09	2	0.18
	<u>0.73</u>		<u>1.97</u>
Weaknesses			
1. Pricing of gas is unpredictable.	0.09	3	0.27
2. Being a private commercial power plant is the weakness for the company.	0.1	4	0.4
3. Has not expanded much.	0.08	2	0.16
	<u>0.27</u>		<u>0.83</u>
	(0.73+0.27) = <u>1.00</u>		(1.97+0.83)= <u>2.8</u>

The total weighted score of 2.8 is well above the average of 2.5, so UPGDCL has a strong internal position. There is definitely room for improvement, though, because the highest total weighted score would be 4.0.

4. Strategy formulation

The main objective of this part is to formulate strategies based on External and Internal factor analysis factors from part two and three. At first we will formulate the strategy then recommend for United Power Generation & Distribution Company to take in their strategy selection process. After that we will prepare an IE matrix to check whether the SWOT matrix gives us appropriate strategies or not.

4.1 SWOT Analysis

SWOT analysis indicates the capability of the company. The elements of SWOT are already discussed in the previous two parts. In this part we have actually formulated the strategy and recommend some strategies to implement based on the arguments. In the matching stage we formulate following strategies for UPGDCL-

SO Strategies (matching strengths with opportunities):

a. Try to increase the presence in the renewable energy market.

In the external factor analysis, I have shown that the renewable energy market is growing these days. And from the internal factor analysis, it is shown that UPGDCL is a strong eco-friendly company. So we suggest that the company should be trying to involve more in the renewable energy market than before.

b. Should concentrate more in enhancing the operational performance using low priced raw material as per the rising demand.

The external analysis shows the thriving demand for power now as well as in future and from the internal analysis we found out the price of raw material for production is low and the operational performance is also growing over years. So, United Power Generation & Distribution Company should accumulate these factors to flourish the performance more and contribute to the national grid.

c. Offering more opportunities for the investors as the company is a listed company in DSE and located in EPZ.

The opportunities of the study shows that the power companies have investor opportunities as the investors have tax exemption on interest on foreign loans and capital gains from transfer of shares and the strengths show that being a listed company is DSE and due to the location of the company in EPZ, it can influence the investors to invest in it.

WO Strategies (matching weaknesses with opportunities):

a. Should go for expansion of the business and diversify the product portfolio.

In the internal analysis, it is found out that United Power Generation & Distribution Company has less expansion in the market and less diversified product portfolio. However, it has exploration and expansion opportunity as per the external analysis. So, the company should go for further expansion and more diversified products.

ST Strategies (matching strength with threats):

a. Can offer greater operating performance in future by considering the fuel price.

The external analysis shows the threat of regulation in case of rising or falling of fuel price and the internal analysis shows the strength of the operational performance. The vulnerability of the fuel price can affect the operating performance of the company.

A SWOT matrix is formulated on the next page based on these strategies and the internal and external analysis.

4.2 SWOT Matrix

	<u>Strengths</u>	<u>Weaknesses</u>
SWOT matrix	<ol style="list-style-type: none"> 1. UPGDCL is a debt free company. 2. Power companies get tax and VAT exemption from the government. 3. Raw material price is low. 4. UPGDCL is an Eco-friendly company. 5. Located in Export Processing Zone (EPZ). 6. Has in-house O&M and in-house EPC team. 7. Has fixed clients. 8. It is a listed company in Dhaka Stock Exchange (DSE). 9. Has shown great operational performance over the years. 	<ol style="list-style-type: none"> 1. Pricing of gas is unpredictable. 2. Being a private commercial power plant is the weakness for the company. 3. Has not expanded much over the years.

<p><u>Opportunities</u></p> <ol style="list-style-type: none"> 1. The demand for electricity is rising day by day. 2. The Renewable Energy market for power is growing up these days. 3. Has Long-Term Agreements with BEPZA, REB and PDB. 4. Private power generating companies get incentives bylaw. 5. Being the first commercial private power generation company, it has more exploration and expansion opportunity. 6. Shows significant financial performance. 7. Investors get more opportunities by law for investing in private power companies. 	<p><u>SO strategies:</u></p> <ol style="list-style-type: none"> 1. Try to increase the presence in the renewable energy market. [S4,O2] 2. Should concentrate more in enhancing the operational performance using low priced raw material as per the rising demand. [S3, S9,O1] 3. Offering more opportunities for the investors as the company is a listed company in DSE and located in EPZ. [S5,S8,O7] 	<p><u>WO strategies:</u></p> <ol style="list-style-type: none"> 1. Should go for expansion of the business and diversify the product portfolio. [W3, O5]
<p><u>Threats</u></p> <ol style="list-style-type: none"> 1. Raw material price gets affected by government rules and regulations. 2. Due to natural Causes, fuel price can be vulnerable. 3. It can not sell the excess product of the government even if BEPZA's demand falls below the produced amount. 	<p><u>ST strategies:</u></p> <ol style="list-style-type: none"> 1. Can offer greater operating performance by considering the fuel price in future. [S9,T1] 	<p><u>WT strategies:</u></p>

4.3 Internal-External (IE) Matrix

THE IFE TOTAL WEIGHTED AVERAGE SCORES				
THE EFE TOTAL WEIGHTED AVERAGE SCORES		Strong 3.00 to 4.00	Medium 2.00 to 2.99	Weak 1.00 to 1.99
	High 3.00 to 4.00			
	Medium 2.00 to 2.99		IFE 2.8 EFE 2.48	
	Low 1.00 to 1.99			

United Power Generation & Distribution Company’s Internal-External Matrix (IE) shows that the company is in the average box. The IFE is 2.48 which lie in 5th box and EFE is 2.8 which also lie in the same box. This shows that the company is in hold and maintains strategy. Hold and maintain strategies for UPGDCL are as follows:

4.3.1 Market development

United Power Generation & Distribution Company can develop their market by expanding their business in the market as they have expansion opportunity and investor and law incentives too.

4.3.2 Product development

Product development indicates developing the quality of existing product of the company; UPGDCL can improve the power generation and introduce the steam production more as there is an increasing demand for this. This can add diversity to the product portfolio of the company.

4.3.3 Market penetration

United Power Generation & Distribution Company can try increase the market share and make effort to increase the existence in the renewable energy market. Also, UPGDCL should focus in enlarging the operational and financial performance as per the rising demand.

The strategies we recommended from SWOT matrix is nearly same the strategies we found in the Internal External matrix that actually provide assurance of my recommendation.

5. Recommendations and Conclusion

The study on United Power Generation & Distribution Company reveals the capabilities of the company. The company is in a strong position in the power industry. For example, the company is a debt-free company, has strong position in the market and some other unique features. In the analysis we found several opportunities for UPGDCL that can give the company top position in the industry. These strengths and opportunities also address several threats and weaknesses that need to be managed by the increase the presence in the renewable company in better manner.

We recommended three intensive strategies for the company those are namely expand business in market, try to energy market and try to increase the market share through marketing effort. We have recommended a diversification strategy too. Hence, we suggest the company should link with the diversification strategy. So Intensive and diversification strategies can be applied simultaneously. We hope and believe that; proper implementation of these strategies will help the company in future.

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Development of High Quality Recycled Aggregate by Physical Treatment Using Phosphoric Acid (H₃PO₄)

Dr. Mohammed Abdullah Al Mamun

*Assistant Professor
Dept. of Civil and Environmental Engineering
Fareast International University
E-mail: mamum.cee@fiu.edu.bd*

Dipa Sarker

*Lecturer
Dept. of Civil and Environmental Engineering
Fareast International University
E-mail: dipa.cee@fiu.edu.bd*

Mir Kaisar Risvi

*Assistant Engineer,
Local Government Engineering Department (LGED)*

Md. Mazharul Islam

*Assistant Engineer
Local Government Engineering Department (LGED)*

Abstract

Recycled aggregate consists of the original aggregate and cement mortar layer remaining of the old concrete. Physical and mechanical properties of recycled aggregate depend on the properties, as well as on the quantity of remaining mortar. Removing and strengthening the adhered mortar are the two main methods for improvement the properties of recycled aggregate. In this study, how the quality of recycled aggregate can be improved by surface treatment is studied. From the study it is found that after surface treatment, the quality of recycled aggregate enhanced significantly.

Keywords: *Physical treatment, bonded mortar, quality of recycled aggregate.*

1. Introduction

In recent years certain countries have considered the reutilization of construction and demolition waste as a new construction material as being one of the main objectives with respect to sustainable construction activities. From this thinking of uses of alternative materials in concrete technology, particular use of Recycled Concrete Aggregate (RCA) as a

coarse aggregate fraction in nonstructural and structural concrete may be considered. Many researchers have dedicated their work to describe the properties of these kinds of aggregate, the minimum requirements for their utilization in concrete and the properties of concretes made with recycle aggregates. It also presents a review of available literature on physical, mechanical and durability properties of RCA, and mechanical durability and structural properties of RCA concrete. However, minor attention has been paid to the structural behavior recycled aggregate concrete slabs.

The ambition of reducing the use of natural materials in construction and the aim of reducing the environmental impact of the concrete industry has recently driven Europe to adopt a policy that strongly promotes the use of recycled aggregates in concrete production. The European Directive n.98 of 19/11/2008 calls on member states to take “the necessary measures to promote the reuse of products and the preparing measures for re-use activities, particularly by promoting the establishment of economic tools and criteria about tenders, quantitative targets or other measures”. Particularly, it specifies that preparations for re-use, recycling and other types of recovery of material, including construction and demolition waste, shall be increased up to at least 70% (by weight) by 2020 (Pepe, 2014; Filho, 2014; Koenders, 2014; Martinelli, 2014). Recycled Concrete Aggregate (RCA), derived from Concrete & Demolition waste generally consists of natural coarse aggregate and adhered mortar which makes it porous due to high mortar content, inhomogeneous and less dense (Hansen, 1986; Katz, 2003). The volume of the residual mortar in RA varies from 25% to 60% according to the size of aggregate (Corinaldesi, 2010). Some researchers have reported in their studies that around 20% of cement paste is found attached to the surface of RA for particle size range from 20 to 30 mm (Nassar, 2012; Soroushian, 2012; Rahal, 2007). When RA is used to make new concrete, two ITZ act in the concrete matrix. The behavior of these two ITZ significantly influenced by the percentage of adhered mortar. Removing and strengthening the adhered mortar are the two main methods for enhancing the properties of RCA. On this background to improve the quality of brick recycled aggregate, this study is planned.

2. Experimental Method

2.1 Materials

Since the quality of brick recycled aggregate is to be improved, so the brick recycled aggregate was the main ingredients of the study. At first recycled brick aggregate was collected from demolished concrete and then their physical properties were investigated for further comparison. To accomplish the requirement, H_3PO_4 acid was taken for physical treatment of the recycled aggregate.

2.2 Mix proportion of H_3PO_4 solution

To treat the surface of recycled aggregate, in order to remove the bonded mortar, hence to improve the quality of the aggregate, H_3PO_4 acid was used in this study. Detail mix proportion of the acid and aggregate is shown below [Table 1]. For surface treatment recycled aggregate was submerged under H_3PO_4 acid for 24 hours. After separate the recycled aggregate from H_3PO_4 acid, for remove the influence of acid on the surface of aggregate, the

aggregate were kept under distilled water for another 24 hours. After that, the aggregate were prepared for other tests.

Table 1: Mix Proportion

Serial	Name of acid	Quantity of acid (gm)	Quantity of water (gm)	Quantity of recycling aggregate (gm)
1	H_3PO_4	2000	20000	16000



Figure 1: RA submerged in H_3PO_4 acid for removal of adhered mortar.

2.3 Exposure condition

Since temperature and humidity has significant influence on the tests of concrete and aggregate, so all the tests (absorption, unit weight, AIV) in this study were performed in normal room temperature.

2.4 Visual inspection

Visual inspection is the primary tool to judge the quality improvement of recycled aggregate. To ensure the impact of various treatment methods, after every treatment, visual inspection of recycled aggregate was performed (before and after the test).

2.5 Absorption

In this study absorption of RA was considered as one of the key parameter to judge the quality of RA. Absorption of recycled aggregate was performed at different level of the study namely the source aggregate; absorption of recycled aggregate after surface treatment and absorption after mechanical treatment. To determine the absorption of recycled aggregate at different level the following steps were followed as described in the figure below.

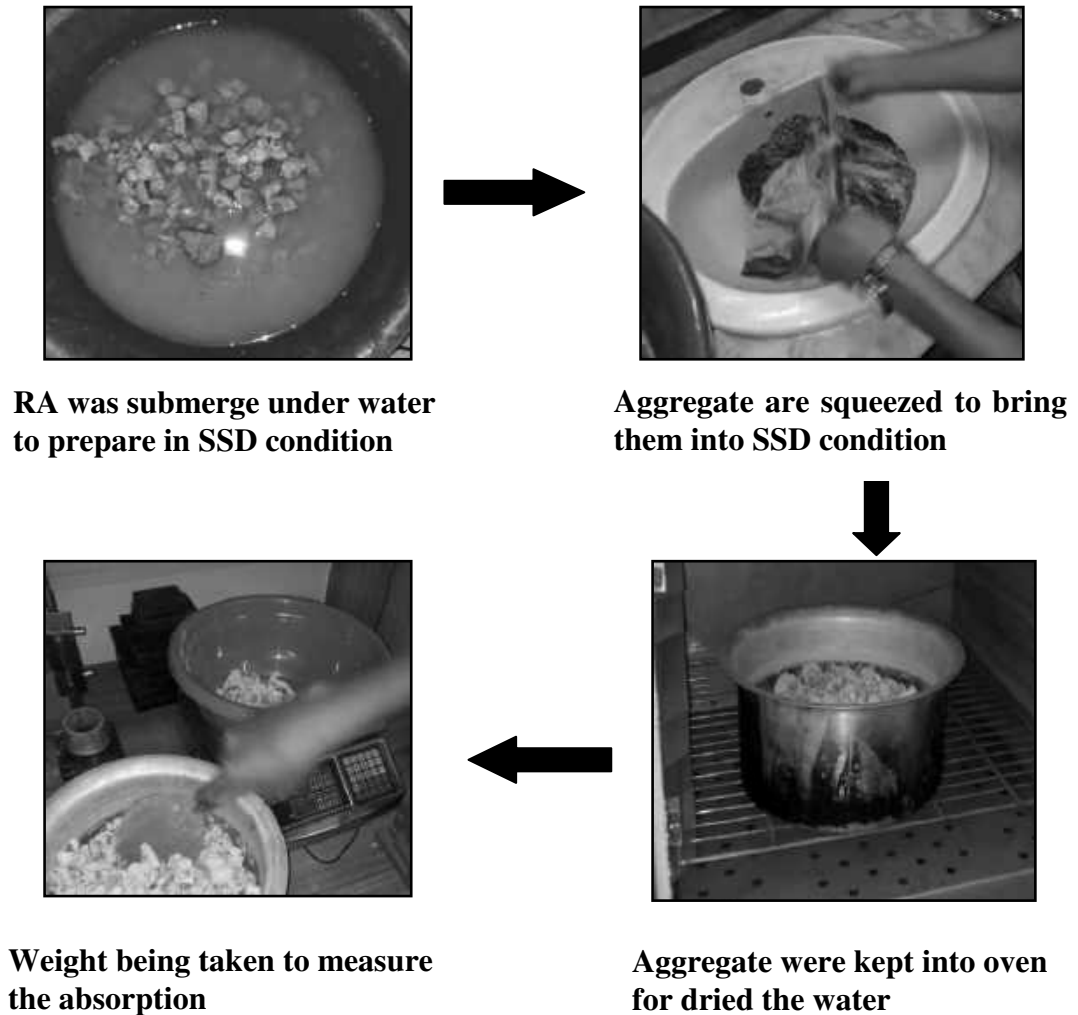


Figure 2: Procedure to determine absorption of RA.

2.6 Unit weight

Unit weight is one of the most important indicators to check the quality of recycled aggregate. In order to evaluate the quality of recycled aggregate at different stag treatment, unit weight of recycled aggregate was measured at three different stag. They are the unit weight of source aggregate, unit weight of recycled aggregate after surface treatment and unit weight of recycled aggregate after mechanical treatment. However, in this study only results of surface treatment are presented.

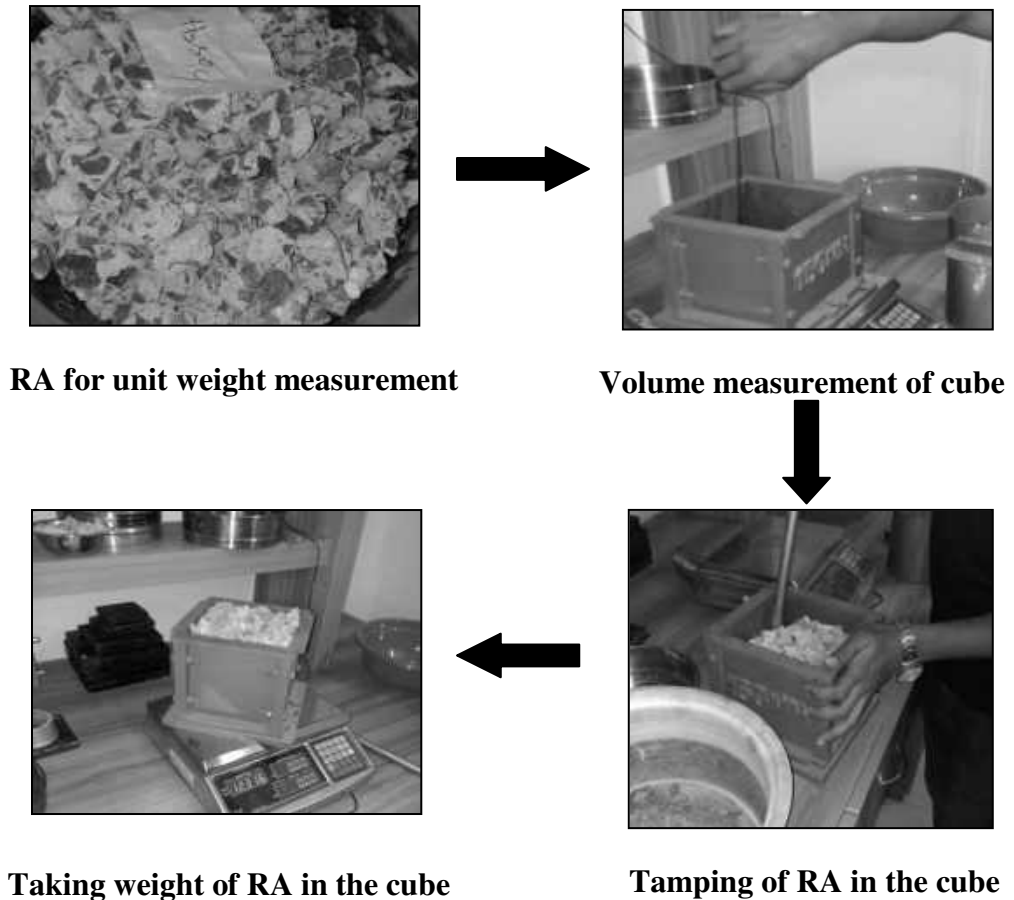


Figure 3: Procedure to determine unit weight of RA.

2.7 Aggregate Impact Value (AIV)

The Aggregate Impact Value is one of the most important indicators to check the quality of recycled aggregate. The Aggregate Impact Value (AIV) gives a relative measure of the resistance of an aggregate to sudden shock or impact, which in some aggregates differs from its resistance to a slowly applied compressive load. Aggregates of Aggregate Impact Value higher than 30 the result may be anomalous. Also, aggregate sizes larger than 14.0 mm is not appropriate to the aggregate impact test. The standard aggregate impact test shall be made on aggregates passing a 14.0 mm test sieve and retained on a 10.0 mm test sieve. In general, the smaller sizes of aggregates will give a lower impact values obtained with different sizes may vary from one aggregate to another. Aggregate Impact Values, (AIV) below 10 are regarded as strong and AIV above 35 would normally be regarded as too weak.

2.8 Compressive Strength of Concrete

To judge the degree of improvement of recycled aggregate, concrete was casted by using recycled aggregate and then compressive strength of RAC was investigated in this study as shown in Figure 4.



Figure 4: Making cylindrical specimen by using RA

3. Results and Discussions

3.1 Visual inspection of recycled aggregate

After each treatment process, recycled aggregate were visually inspected and compare with source recycled aggregate. Form the comparison it was observed that, after each treatment process the removal of bonded mortar was followed an increasing trend. From this trend it is evident that the quality of source recycled aggregate was improving step by step with the treatment process.

3.2 Absorption

From the test result as shown in Figure 5, it is observed that the absorption of source recycled aggregate decrease after physical treatment by 15% (From 17.5 % to 15%).

From the obtained results, it is clarified that the removal of bonded mortar taking place significantly after physical treatment, hence the improvement of quality of source recycled aggregate also taking place. However, several other treatment methods; i.e. In case of physical treatment, the aggregate can be submerged under H_3PO_4 acid for 36 hours, 48 hours or even more to check further improvement.

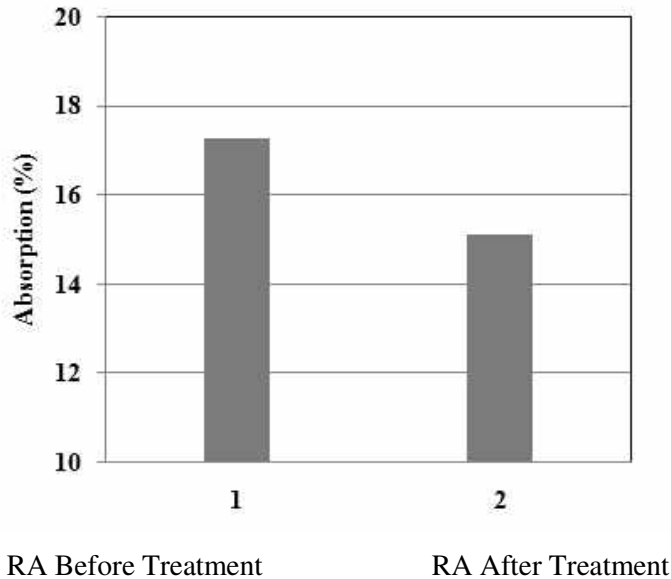


Figure 5: Comparative analysis of absorption rate of RA before and after treatment

3.3 Unit weight

In this study, unit weight was considered another main parameter to judge the quality of recycled aggregate. So for that, unit weight of recycled aggregate was tested at different stages of study. From the test result as shown in Figure 6, it is observed that the unit weight of source recycled aggregate increases after physical treatment by 20% (From 950 kg/m^3 to 1140 kg/m^3).

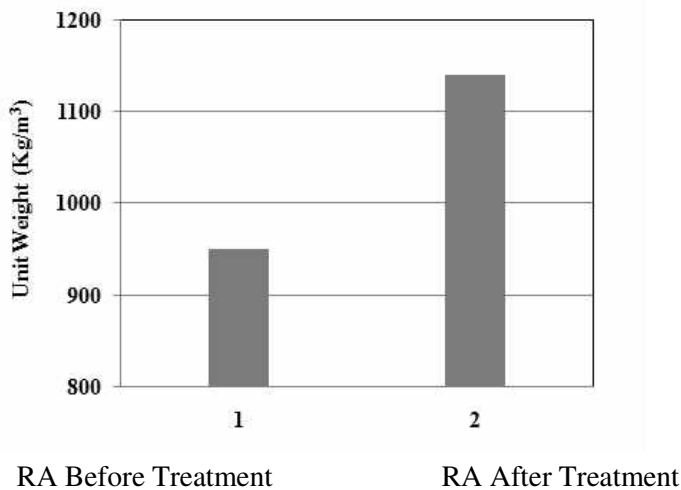


Figure 6: Comparative analysis of unit weight of RA before and after treatment

3.4 Compressive Strength

Concrete was casted by treated RA & untreated RA. Compressive strength of casted concrete was investigated for both treated & untreated RA. From the result it is observed that, compressive strength of treated RAC increased 33% than untreated RAC. From the test result it is clarified that, surface treatment of RA improves the quality of aggregate which influence the compressive strength of RAC.

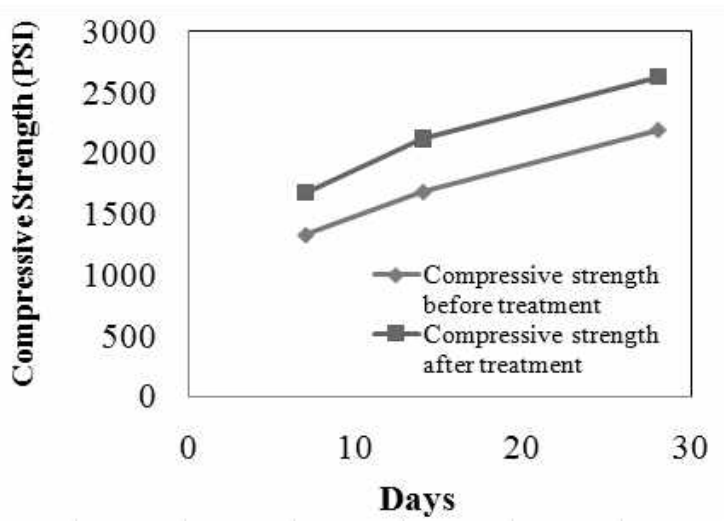


Figure 7: Compressive strength of RA before treatment and after treatment

3.5 Aggregate Impact Value (AIV)

From the test result as shown in Figure 8, it is observed that the AIV of source recycled aggregate decrease after physical treatment by 20% (From 35% to 28%). Because of removal of old weak adhered mortar after physical treatment, the load carrying and shock absorbing capacity increase and hence AIV of source recycle aggregate decreased.

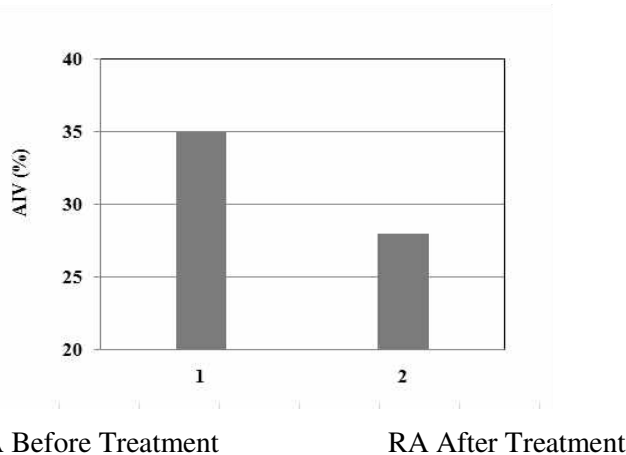


Figure 8: Comparative analysis of AIV of RA before and after treatment

4. Conclusion

In order to develop quality improvement methods and techniques for recycled aggregate various tests have been performed in this study. From the test results and discussions the following conclusions are drawn.

- a) Absorption, Unit weight and Aggregate Impact Value (AIV) are very important parameters to judge the quality improvement of recycled aggregate.
- b) From the study it is clarified that with the progress of treatment methods, absorption of source aggregate follows a decreasing trends. Absorption of source recycled aggregate decrease after physical treatment by 15% . In case of physical treatment the aggregate can be submerged under H_3PO_4 acid for 36 hours, 48 hours or even more to check further improvement.
- c) It is also clarified that with the progress of treatment methods, unit weight of recycled aggregate follows a increasing trends. Unit weight of source recycled aggregate increases after physical treatment by 20% .
- d) AIV of source recycled aggregate decrease after physical treatment by 20%.
- e) Probably Combine treatment methods will shows better quality improvement. However, combine treatment is not always a preferable choice when economic view point is needed to be consider.
- f) Along with physical treatment, mechanical treatment method can also be included to improve the quality of recycle aggregate.
- g) Use of other acids for physical treatment are recommend to find out most appropriate acid.
- h) Further investigation is required to validate the results and to find appropriate method of treatment.

Acknowledgement

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Banking Behavior of Rickshaw Pullers: A Study of Dhaka City in Bangladesh

Md. Mahbobor Rahaman

*Lecturer (MIS)
Department of Business Administration
Leading University
Email: mahbobdumis@gmail.com*

Md. Foyosal Hasan

*Lecturer (MIS)
Bangladesh Institute of Bank Management (BIBM)
Email: tarif.du15@gmail.com*

Abstract

Bangladesh is one of the poor countries in the world map and rickshaw pullers are one of the poorest sections people of this country. Banking is all about a matter among the rich and well educated people. The study will be able to identify the banking behavior of remote and ignored part of people of Bangladesh. The study will also have to investigate the different aspect of banking among the rickshaw puller on Bangladesh. There are many parts and forms of banking provided by the banks but they illiterately ignored the unprivileged and deprived part of the people in Bangladesh. Though, some banks recently have introduced some banking activities for unprivileged people but not up to the mark regarding the numbers of this sort of people. In addition, the study will identify the popular form of banking channel by the rickshaw pullers. The mobile banking and agent banking how engage rickshaw pullers in the banking sector of Bangladesh will also be identified in this study. The study was identified some key factors in baking behaviors of rickshaw pullers of Dhaka city. The data was analyzed by the IBM SPSS and R software.

Key-words: *Banking, Poor, Rickshaw Pullers, Dhaka, Bangladesh.*

1. Introduction

Bangladesh is a poor country having a huge population and most of the people live in the rural areas. In recent time people are moving to the city for earning livelihood because city is a good place to earn. Dhaka is a densely populated due to the flow of population from whole over the country. A good number of people live in the Dhaka city and they earn their livelihood by pulling rickshaw. Rickshaw pullers usually live alone in the city by leaving their family in the village. He earns money and sends the money to his family. The money that he earns by pulling rickshaw in whole day is not a little. Nearly 76 per cent of rickshaw-pullers in the Dhaka city send money to their village home through banking channel specially mobile phone due to its safety and cost efficiency, according to a study.

There is a general thinking in the mind of the people of Bangladesh that the banking is for only rich people. The practice of banking is belonging to the upper tier of the society. But now this thing is going to be changed with rapid way in the arena of banking industry of Bangladesh.

Bangladesh is a small country with huge population and Dhaka is the capital city. The economy of Bangladesh is depending on agriculture (Wakilur Rahman, Luo, Ahmed, & Xiaolin, 2012). Although garments and some other sectors are also contributing a lot from last couple of decades. Literacy rate is 61.5 percent (Wikipedia, 2018), where percentage of male is 64.6 and female is 58.5(Wikipedia, 2018). Agricultural land is decreasing and people are losing their work gradually. Men are shifting to city for finding work but due to lack of education they are not getting any good work. So, they are involving in laborious work like rickshaw pulling, bus helper, building construction labor etc. A good number of rickshaw pullers live in Dhaka. Rickshaw pullers earn on an average taka 450 everyday so their monthly income is near about taka 12,000 to taka 15,000(Income, Introduction, & Bank, 2012). Family members of a rickshaw puller live in the rural area. Rickshaw pullers usually send money to their family members through different Mobile Financial Services (MFS). They are not willing to go to banks. They are afraid of going to banks. Also, banks are not interested to that group of customers. With the growth of Digital Financial Services (DFS) poor unbanked people are coming under the umbrella of financial services. They can easily use any MFS easily and availability of mobile phone, low price of mobile technology, and easy to use facilities attract them to take MFS. Financial inclusion is a must in a developing country like Bangladesh(J. Islam, Mohajan, & Datta, 2012). With the advent of technology, it becomes easier to involve mass people to the financial services.

Dr. Sharif Uddin Ahamed, another Dhaka historian, there were 4,025 rickshaw pullers in the streets of Dhaka in the year 1962 but after the liberation war the scenario of Dhaka city started to change very rapidly which was 14,000 rickshaw pullers in 1974. Dr. Sharif Uddin Ahamed also reported that in the year of 2005 the rickshaw pullers in Dhaka city was more than 2,00,000. There have been ignoring a huge opportunities to engage the remote people in the main economic cycle (Shams, 2009).This vast amount of people may engage in the banking channels or banking services (Mainsah, Heuer, Kalra, & Zhang, 2004).From the data of two city corporations of Dhaka, there are 79,554 licensed rickshaws in the capital. But the actual number is estimated to be around 1.1 million rickshaw pullers in the two Dhaka city corporations (Molla, 2012).There was a huge amount of rickshaw pullers in Dhaka city. If the banking service will reach to this root level people then the economic growth will be increased in a sustainable way (Akhter et al., 2015).

2. Objectives of the Study

Banking is all about a matter among the rich and well educated people. But the study will have to investigate the different aspect of banking among the rickshaw puller on Bangladesh. The major objective of this study is to identify the banking behavior of remote, poor and ignored part of people those who pulling the rickshaw at the capital city of Dhaka in Bangladesh.

Moreover, the other key objectives of this study are

- To analysis the banking behavior of rickshaw pullers in Dhaka city
- To identify the popular form of banking channels by the rickshaw pullers.
- To investigate how rickshaw pullers engaging in the banking sector by mobile phone and agent in Bangladesh and some recommendations regarding this.

3. Description of Methodology

a) *Survey Area:*

This study was conducted in various locations in Dhaka city, the capital of Bangladesh, for collecting the data to analysis banking behavior of rickshaw pullers. Various locations of Dhaka city such as Dhaka University area, Bangladesh University Engineering and Technology campus, Dhaka medical college area, Kamrangirchar, Mohammadpur, Shyamoli, Gabtoli, Mirpur1, New market, Mirpur 2, Mirpur 11, Pallabi, and Khilgaon were used for collecting the related primary data regarding the banking behavior from the rickshaw pullers.

b) *Data Collection procedures:*

The data regarding the banking behavior of rickshaw pullers in Bangladesh was collected from very poor people those who run their life by pulling rickshaw in various location of capital city Dhaka by using the structured questionnaire. As most of the respondents were illiterate so the researchers made an easy conversation with rickshaw pullers with our pre structured questioner that can meet the objectives of this study. The questionnaire includes the following sections

- i. Background characteristics of the respondent's e.g which district they come from, number of children, age, daily income, average monthly income, education level, number of days in a week etc.
- ii. Banking behavior, channel of banking, why they use bank, why they open a mobile bank account, why traditional bank they don't use, what type of problems they face in mobile banking or traditional banking etc.
- iii. In this study the researchers also used some secondary data from the International Labor Organization (ILO), Bangladesh Bureau Statistics (BBS), and Bangladesh Trade Union Kendra etc. to enhance research.

c) *Sample Size and Sampling Design*

The number of rickshaw pullers at about 8, 00,000 in Dhaka city (Molla M. A.-M., 2016). This sample was taken randomly from the 13 major areas/locations from the Dhaka city which were the most rickshaw pullers populated areas. Among the 13 locations of Dhaka city, the researchers were taken 164 rickshaw pullers as a sample randomly. The Simple Random Sampling (SRS) will be used for analyzing the collected data.

d) *Respondents*

The respondents were the rickshaw pullers of Dhaka City.

4. Literature Review:

Banking by the rickshaw pullers this is a new concept in the area of banking related research (Kim, 2014). There are so many research related in banking but there is a few works regarding the remote banking specially the deprived people who have a small amount of income in every month. Banking is the most formal process of financial institutions (Africa & Technologies, 2007). Most of the banks are located on big cities or urban areas where there are many industries or business organizations (M. S. N. Khan, Hassan, & Shahid, 2007). From this perspective the banking is the aristocracy for the poor (Morton, 2010). Banks can only be found in big cities and customers have to travel hundreds of miles to the nearest bank but mobile banking is used as alternative financial service with little or no infrastructure in many of these emerging economies (World Bank, 2013). The aspect of mobile financial service is also popular in countries where most of their population is unbanked (Nandhi, 2011).

Digital banking or digital finance holds an enormous opportunity for greater financial inclusion and expansion of basic services in Bangladesh currently (Sawady & Tescher, 2008). Now around 200 million people own a mobile phone set that can be used as a tool for mobile banking service (Khandker, 1998). That was calculated as a powerful tool to expand access beyond financial services to other sectors, including agriculture (Bangladesh Bank, 2015), transportation, water, health, ("Banking Services for Working and Street," n.d.) education, clean energy (Dynamics, n.d.), green technology and various industries (Mujeri, 2015). The banking services and financial institutions will be easy and accessible by the way of digital technological solutions and new technologies (M. R. Khan, 2016). A huge amount of poor people have been depriving in the benefit of banking service of Bangladesh (Policy, 2010).

There are many studies (Gender, World, Programs, Urban, & Project, 2003; Bank, 2008 ; J. H. Khan & Hassan, 2010; Mullainathan & Shafir, 2009; Esty, 2011; Wahid, 2012; Aportela, 1999) found that it is possible, poor people's savings are low because it is not attractive for them to save given the lack of access to adequate formal savings process (Westhof, de Rooy, Wang, & Musa, 2010; M. S. Islam, 2016; Sarker, 2001). Some studies and several papers documents identified that when suitable financial instruments are accessible to low-income or poor people, they are regular and eager saver their smaller portion of money (Develtere & Huybrechts, 2002 ; Kowalik & Martinez-Miera, 2010).

Low-income people do not save can be refuted, probably; this unfounded belief may be based on the fact (A. A. Islam, 2003). The poor people generally saves their saving in various way such as cash in hand, buying animals, coins in a soil made bank, jewelry or other valuable way. But they don't want to save in the bank their savings ("BRAC Bank SME Loan Poverty Alleviation in Bangladesh and its Challenges," 2015). The banking for the rickshaw puller is a new term for Bangladesh (No et al., 2002). Till now the policy makers have always recognized that access to financial services and credit is only for the rich and established people (Baradaran, 2013).

5. Data Analysis

Among all the respondents from the figure 1 it was shown that rickshaw pullers come from the Dhaka division was 19.5%, Chittagong division was 9.8%, Sylhet & Mymensingh division was 18.3%, Rajshahi division was 24.4%, Rangpur & Barisal division was 28%. That means most of the rickshaw pullers (52.4%) were come from the northern part of Bangladesh. This part of the country is deprived and generally poor people have been living there. From this data it has been concluded that the rickshaw pullers are inherently poor.

Figure 1: Home District

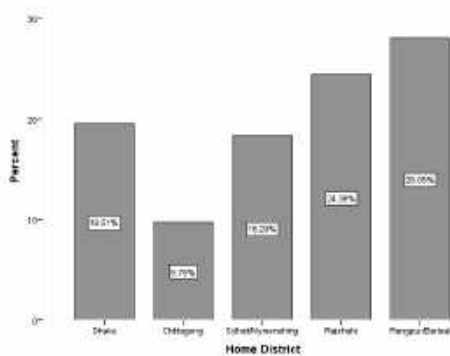
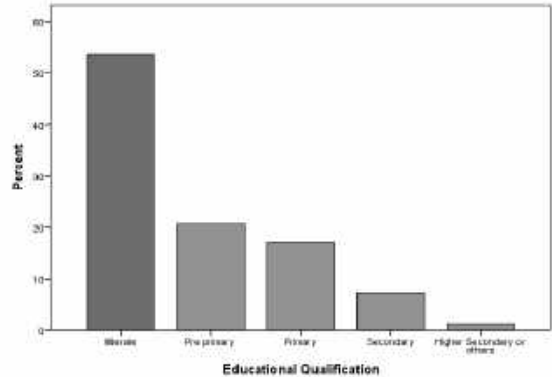


Figure 2 : Educational Qualification



It was shown from the figure 2 that 53.7% were illiterate, 20.7% only know how to write their name and 17.1% able to read and write something. The data was shown that most of the rickshaw pullers are illiterate and don't know the basic things of the education.

The income of rickshaw pullers in Dhaka city is average 5.645 dollars in a day. It sham shown on the figure 3.This figure also shown that 14.6% rickshaw pullers of Dhaka city has more than taka 300 in come in every day. 50% rickshaw pullers income has more taka 400 and 31.7% has more than taka 500.So that 81.7% rickshaw puller's income on an average taka 450.Most of the rickshaw pullers in Dhaka city earns taka 13,500 (168.75 dollar) in every month by pulling rickshaw so that is handsome amount for them. In the figure 4 represented that the 24.4% rickshaw pullers have been working four days in a week and 73.2% have been working more than five days in a week.

Figure 3: Daily Income

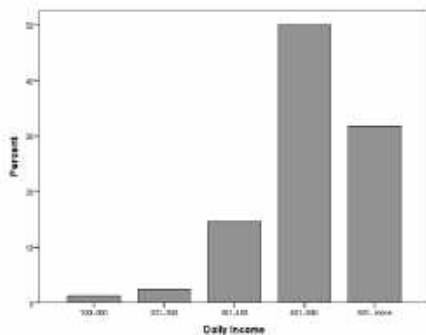
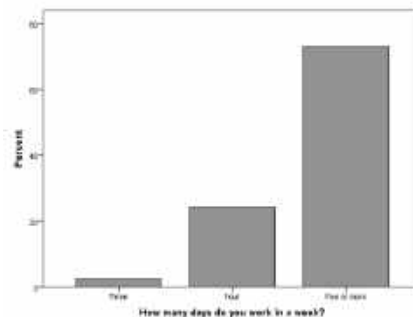


Figure 4: How many days do you work in a week?



Most of the rickshaw pullers were working on an average five days in a week and working without any weekend holiday. That's the great source of economic life cycle if this work force will include in the main work force our country.

Figure 5: Number of family members

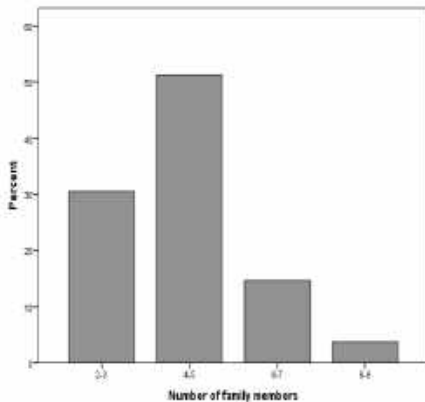


Figure 6: How many children do you have?

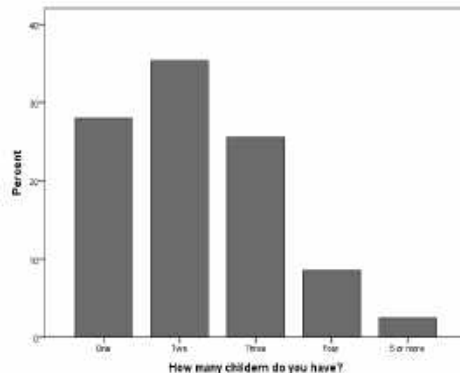


Figure 7: In which channel do you use to send money at your home?

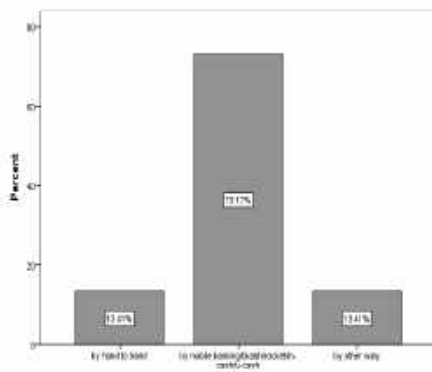
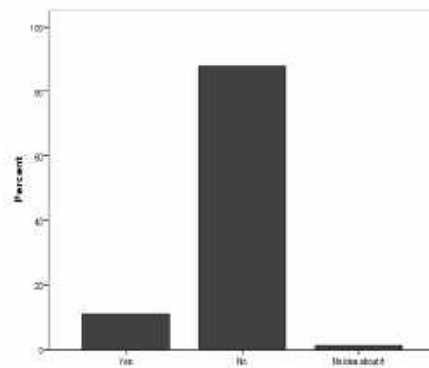


Figure 8: Do you have a bank account?



From the figure 5 it was shown that 30.5% rickshaw pullers in Dhaka city have 2-3 members in their family, 51.2% rickshaw pullers in Dhaka city have 4-5 members in their family, 4.6% rickshaw pullers in Dhaka city have 6-7 members in their family. So it was a good sign that the number of family members of rickshaw pullers was on an average 4 to 5. The rickshaw pullers may be engaged in banking service because the number of family members were not so much.

The research found so vital information in the figure 6 that most of the rickshaw pullers have 3 children. That mean the family size is not too large. The figure 6 identified that 28% rickshaw pullers in Dhaka city has only one child, 35.4% has two children, 25.6% have three children, 8.5% have four children, 2.4% have five or more children. There was a good tendency among the rickshaw pullers regarding the family planning process though they were

not properly educated. This is a vital point to be introduced banking systems among the poor people because they are aware about the savings and expenditures.

From the figure 7 it was shown that 13.4% rickshaw pullers have used to send money to their village receiver by hand to hand,73.2% send money with mobile banking service,13.4% send money by the other ways.

It was shown on the figure 8 that, from 164 rickshaw pullers of Dhaka city 11% of them own a bank account, 87.8% doesn't have an account & 1.2% of them haven't any idea about the bank accounts. From this statistical figure we can come out to the decision, a huge number of rickshaw pullers don't use any bank account.

Figure 9: Do you have a mobile

Figure 10: Which mobile bank account do you have?

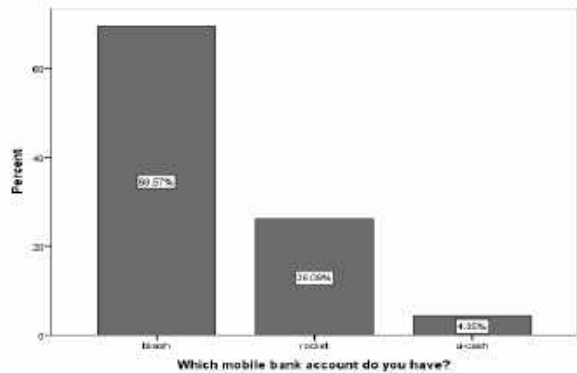
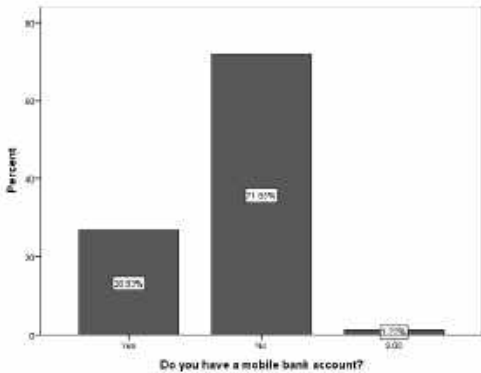


Figure9shown that, 26.8% of rickshaw pullers of Dhaka city have a mobile bank account,72% doesn't have any mobile bank account & 1.2% of them haven't any idea about mobile banking. This data represented that the rickshaw pullers of Dhaka city were much familiar with mobile banking though they don't have mobile bank account.

From the previous figure it was found that only 26.8% rickshaw pullers maintains a mobile bank account, but figure 10 shows how many of them were use mobile banking facility. The research was found that 69.6% were using bkash service, 26.1% were using rocket & u-cash users were only 4.3%.That means the banking behavior of rickshaw pullers have already started but not in a flourished way. The banking platforms for the poor have started in Bangladesh.

Figure 11: Which mobile bank account is more favorable to you?

Figure 12: Who usually receive the money that you send to your village(home)?

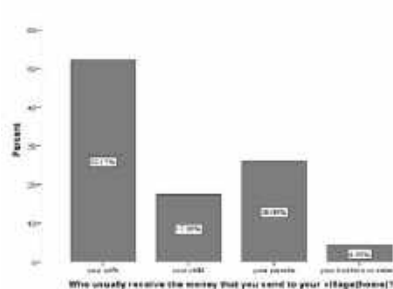
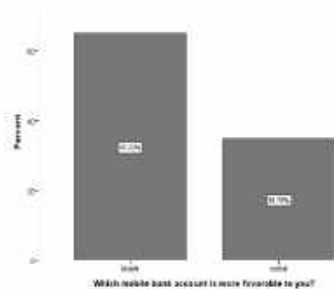


Figure 11 has shown that mobile bank service was more favorable to the Dhaka city's rickshaw pullers for banking transactions. From the data presented in the figure 11, it was identified that 65.2% of them believed bKash was more user-friendly to them, on the other side, 34.8% believed rocket was better for them. That means the small formalities and lowest amount of money transaction was possible in mobile banking service that was the main reasons for attracting the mobile banking for Dhaka city rickshaw pullers.

In figure 12 it was shown that 52.2% of 164 respondents sends money to their wife, 17.4% of them sends money to their child, 26.1% sends money to parents & only 4.3% of them send money to their brother and sisters. So it was concluded that the rickshaw pullers were usually send their money for their family expenditures. The culture of joint family was excluded day by day.

Figure 13: In which account you send your money?

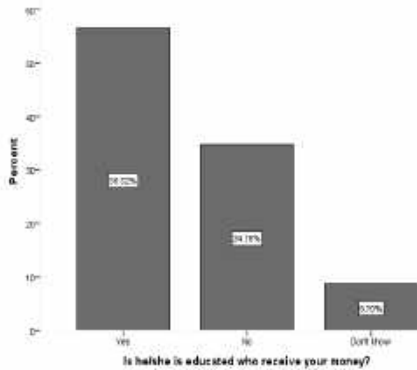
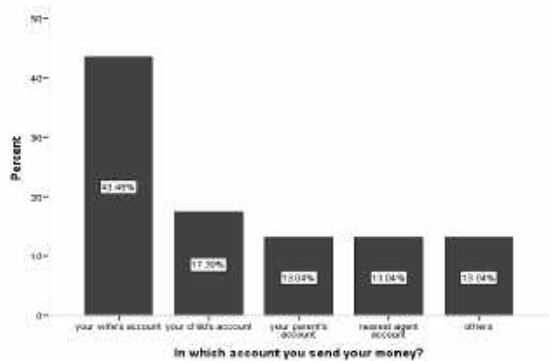


Figure 14: Is he/she is educated who receive your money?



It was shown that from the figure 13, it is found that, 43.5% rickshaw pullers send their money to their wife's account, 17.4% of them sends money to their child's account, 13% sends to parents account, 13% of them sends to nearest agents account, and rest 13% sends money to their other relatives. Once again, it seems like wives are first priority here.

In the figure 14 it was shown that the receiver of the money in native village of Dhaka city rickshaw pullers. This figure provides the information whether money is going to an educated or illiterate people. Though the receiver is educated but they were having only basic education. It was found in the figure 14 that in 56.5% cases the person who receives money is an educated person, 34.8% are not educated, and 8.7% of the receivers educational background is still unknown by the senders.

From this figure15, it was clear that the journey of mobile banking with its users is not that much friendly especially with the Dhaka city's rickshaw pullers. Only 30.4% doesn't have much complain regarding mobile banking system when at the same time a huge number of them 60.9% facing different problems while using mobile bank accounts. And surprisingly 8.7% of them don't know whether they face any problems or not.

In the figure 16 it was shown that 80.5% of the rickshaw pullers using mobile bank services though they aren't using mobile bank accounts, 15.9% totally doesn't use the mobile bank

services, 2.4% don't know about it, and 1.2% of them think it's confidential so they didn't disclose. So it has been figured out, a huge amount of rickshaw pullers in Dhaka city have been engaging with mobile bank services.

15: Do you handle mobile account without any problem?

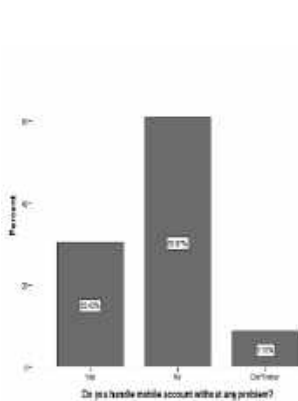
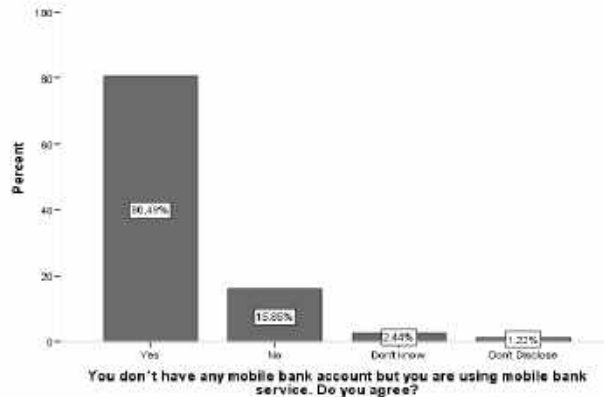


Figure 16: You don't have any mobile bank account but you are using mobile bank service. Do you agree?



The figure 17 data shown that 14.8% of rickshaw pullers use mobile bank services for cash in, 84% of them use it for cash out or send money & 1.2% of them use for utility bill payment. So, it seems sending money to family members is the main purpose to use mobile bank services of Dhaka city rickshaw pullers. The traditional banking channels were failed to full fill the demand of the remote level consumers but the mobile banking and other mobile related banking were successfully launched banking operations.

In the figure 18 it was showed the fact that 81.5% of the rickshaw pullers of Dhaka city believed in mobile banking is easy to use that's the main reasons to engage in mobile banking. 14.6% of them don't want to maintain complex formalities by making transactions in traditional banks, 1.2% doesn't want to spend much time on traditional banks, and 2.4% believed that mobile banking is user friendly. So, maximum rickshaw pullers in Dhaka city believed that traditional banking is not suiffure and avail for them; on the other hand the mobile banking service is much more easy to use.

The main problems in mobile banking service in Bangladesh usually for the rickshaw pullers of Dhaka city were more. But this research was identified some major problems. Among the 164 respondents 77.8% of them thought that mobile banking services have a high transaction charge which they mostly faces, 13.6% of them thought that it has less security issues, while 4.9% found it was difficult for them as there were no Bangla medium in mobile banking services, 1.2% thought that verification process was not strong enough, & rest of them got others difficulties. A majority of them believes transaction charge is high, it should be considered by proper authority.

The figure 20 identified that 72% of the rickshaw pullers in Dhaka city have enough idea about mobile banking, 26.8% does not have proper knowledge, and only 1.2% don't know about mobile baking totally.

Figure 17: Which function of mobile banking service you used more?

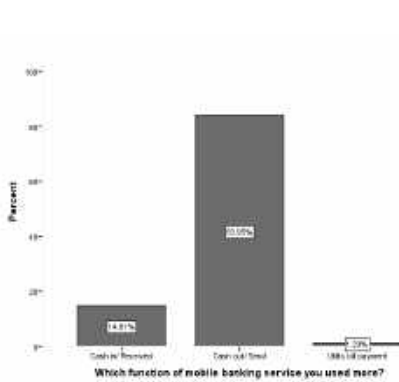


Figure 18: Why you are interested to engage in mobile banking (bkash, rocket, m-cash etc.)?

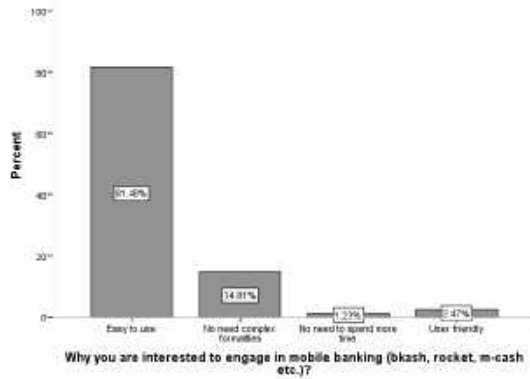


Figure 19: What types of problem you usually face while banking with mobile phone?

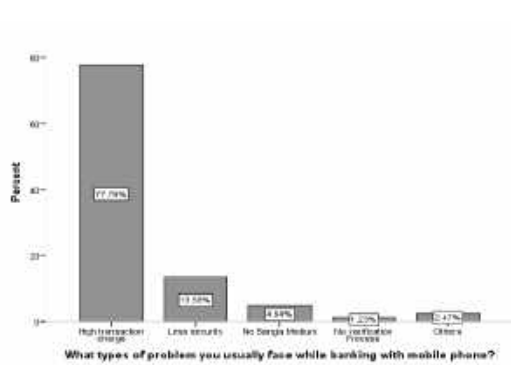


Figure 20: Have you any idea about mobile banking?

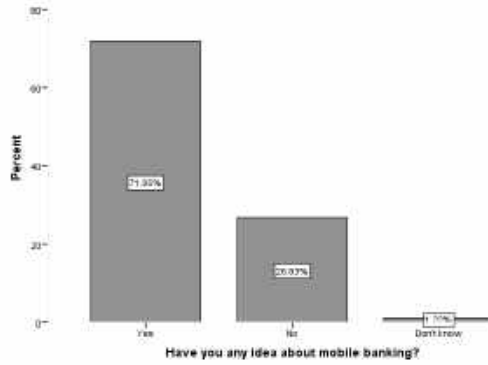


Figure 21: Have you any idea about agent banking?

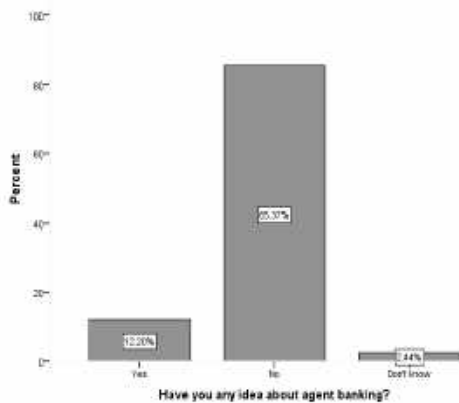
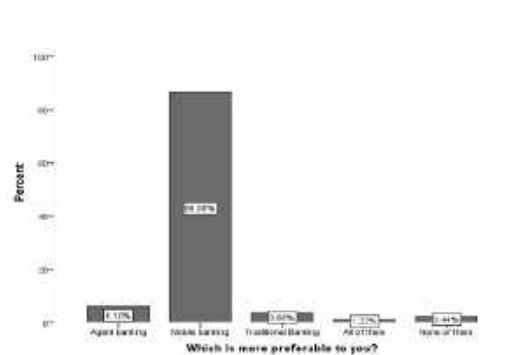


Figure 22: Which is more preferable to you?



In the figure 21, it was shown that 12.2% of those rickshaw puller in Dhaka city have an idea about agent banking services, 85.4% does not know how does the agent banking go on, and

rest of them (2.4%) don't even know about the agent banking service. That means the agent banking services are not till popular in Bangladesh.

From the figure 22, it was shown that only 6.1% prefers agent banking, 86.6% prefers mobile banking, 3.7% prefers traditional banking, 1.2% can cope with all of those banking systems and 2.4% doesn't feel comfort figure with any of those banking systems. The banking service in poor rickshaw pullers in Dhaka city especially mobile banking service is more preferable.

From the figure 23, the research was identified that most of the rickshaw pullers (57.3%) in Dhaka city thought that traditional banking system very complex, 20.7% found so many formalities over there, 2.4% found out it takes more time, 15.9% agreed on the fact that traditional banks can't handle small amounts of money & finally 3.7% of them found all of the previous obstacles in traditional banking were existing in Bangladesh.

Figure 23: Why are you not interested to engage in traditional banking systems?

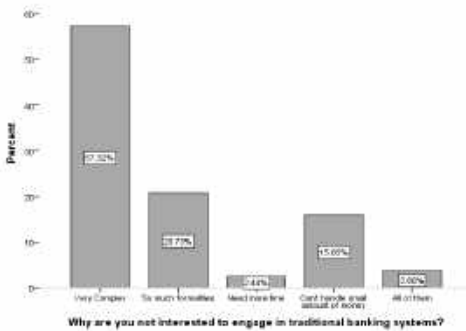
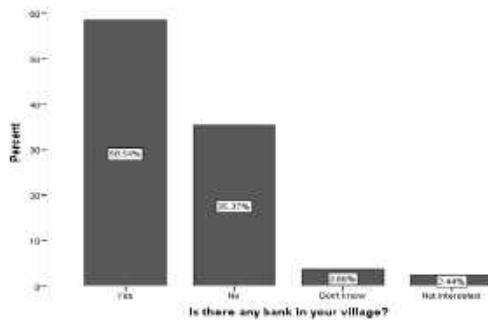


Figure 24: Is there any bank in your village to engage in traditional banking systems?



The figure 24 represented that, 58.8% said there is bank in their village, 35.4% said there is bank in their village, 3.7% didn't know whether there is any bank or not in their village and 2.4% of them weren't interested to answer this question. From the figure 25 it was shown that 11% of rickshaw pullers got banks within 1 km, 32.9% of them got banks within 2km, 12.2% of them living in an area where banks were 3 km away, 13.4% of them got 4 km distance between their home and bank and rest 30.5% got 5km or more distance. Most of the rickshaw pullers in Dhaka city were able to reach bank but they don't open a bank account in the traditional bank.

Figure 25: How far bank is situated from your village home?

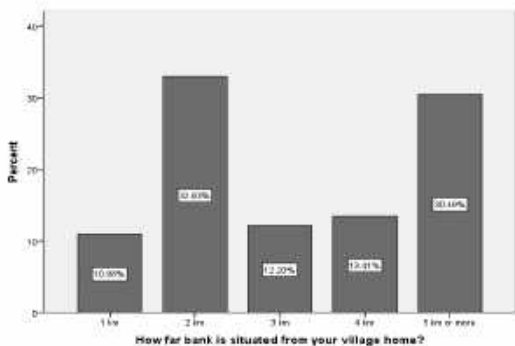
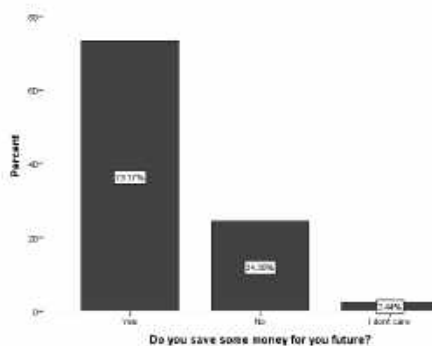


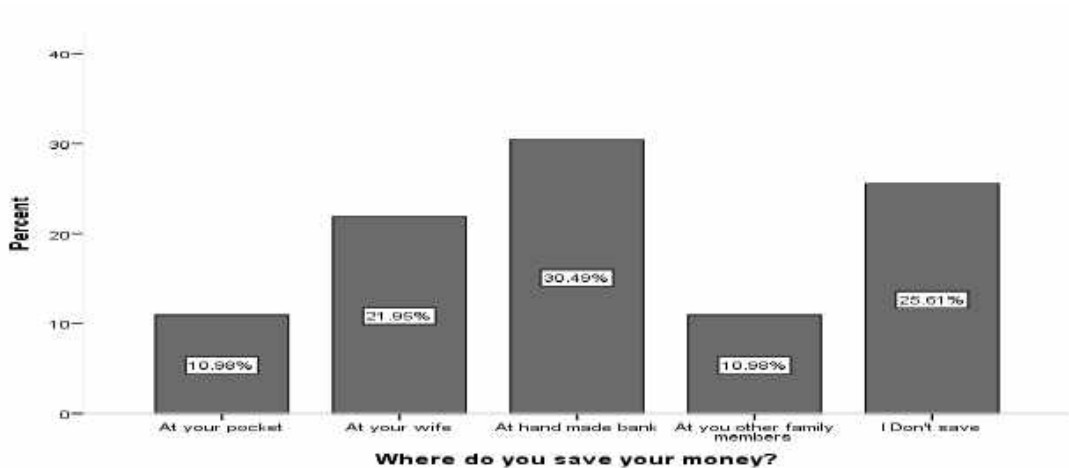
Figure 26: Do you save some money for you future?



In the data figure 26 it was shown that the people of lower level may also want to save money for their future. Out of 164 respondents 73.2% of them save money for their future, 24.4% don't save and 2.4% does not really care about it. So there is a huge scope in the banking sector to engage the poor people in the banking service.

The figure 27 had shown some interested information about saving attitude among the poor people in Bangladesh. Among the 164 respondents, 11% of Dhaka city rickshaw pullers have been saving their money in their own pocket, 22% have been saving their money to their wives, 30.5% have been saving money to a handmade bank, 11% saves money to other family members, and 25.6% does not save money. So 75% of the rickshaw pullers are eagerly waiting to save something in their own way. This was a hidden point for the banking industry in Bangladesh.

Figure 27: Where do you save your money?



This study was identified that the rickshaw pullers of Dhaka city neither have any traditional bank account nor mobile bank account. But most of the rickshaw pullers were using mobile banking services. That means the poor people wish to engage in banking service with their small amount of money. This opportunity can be used by the banks and financial organizations in Bangladesh. Though the transaction will be in a small amount but their effects will be higher than any other banking transactions. From the figure 1, the income of the Dhaka city rickshaw pullers was positively correlated with their educational qualification. Those who were literate can get more income on every day. This educational qualification was positively correlated with number of family members. The rickshaw pullers who were literate they were also aware about the number of family members. The number of family members was also positively correlated with number of children.

Table 1: Correlations among daily income, educational qualification, number of family members and number of children

Control Variables			Daily Income	Educational Qualification	Number of family members	How many children do you have?
How many days do you work in a week? & In which channel do you use to send money at your home?	Daily Income	Correlation	1.000	.103	-.179	-.020
		Significance (2-tailed)	.	.193	.023	.798
		df	0	160	160	160
	Educational Qualification	Correlation	.103	1.000	.076	-.109
		Significance (2-tailed)	.193	.	.334	.168
		df	160	0	160	160
	Number of family members	Correlation	-.179	.076	1.000	.791
		Significance (2-tailed)	.023	.334	.	.000
		df	160	160	0	160
	How many children do you have?	Correlation	-.020	-.109	.791	1.000
		Significance (2-tailed)	.798	.168	.000	.
		df	160	160	160	0

Table 2: The relationship between home district and how many days do they work in a week.

		How many days do you work in a week?			
		Three	Four	Five or more	Total
Home District	Dhaka	0	12	20	32
	Chittagong	0	2	14	16
	Sylhet/Mymensingh	2	4	24	30
	Rajshahi	2	10	28	40
	Rangpur/Barisal	0	12	34	46
Total		4	40	120	164

From the table 2, the study found that among the 164 respondents of Dhaka city rickshaw pullers 120 were working more than five days in a week. On an average most of the rickshaw pullers works seven days in a week. In some festival day the income of the rickshaw puller of Dhaka city increased more than double. So they can save some money in exchange same industry on this day.

Table 3: The relationship between home district and which channel do you use to send money at your home.

		In which channel do you use to send money at your home?			Total
		by hand to hand	by mobile banking/bkash/rocket/m-cash/u-cash	by other way	
Home District	Dhaka	14	18	0	32
	Chittagong	2	14	0	16
	Sylhet/Mymensingh	0	26	4	30
	Rajshahi	4	26	10	40
	Rangpur/Barisal	2	36	8	46
Total		22	120	22	164

From the table 3, it was shown that the division was not a fact from all division's rickshaw pullers send money to their home by using mobile banking services. This service has already a popular medium for the rickshaw pullers. The banking channel was also introduced with them by the mobile banking service.

Table 4: The relationship between home district and popular forms of mobile banking channels.

		Which mobile bank account do you have?			Total
		bkash	rocket	u-cash	
Home District	Dhaka	2	4	0	6
	Chittagong	4	2	0	6
	Sylhet/Mymensingh	8	0	0	8
	Rajshahi	8	0	2	10
	Rangpur/Barisal	10	6	0	16
Total		32	12	2	46

The previous data of this study shown that, the rickshaw pullers of Dhaka city hadn't any mobile account but they have been using mobile banking services. The table 4 presented that the most popular form of banking service was bkash and rocket, most of the rickshaw pullers are using this two mobile banking channels for their banking operations. There is no relationship between home district and banking channel. All kinds of rickshaw pullers from all divisions were using bkash and rocket mobile banking services.

6. Findings & Recommendations

Mobile banking is the most popular form of banking form among the rickshaw pullers of Dhaka city. Maximum rickshaw pullers are using this service frequently. The study was identified this popular form of banking channel by the rickshaw pullers. The study was identified some key factors in banking behaviors of rickshaw pullers of Dhaka city. According to the findings, the study have provided some vital recommendations for the banking and financial institutions for introducing banking services among the rickshaw pullers in Dhaka city. The recommendations are presented as flow as-

- a) Most of the rickshaw pullers come to Dhaka from the northern part of Bangladesh where extreme poverty drives them to involve in pulling rickshaw. So, they live far from the family there is an essence of banking. Digital Financial Services (DFS) can accelerate the opportunity.
- b) Majority of the rickshaw pullers are illiterate and they don't know how to read and write so banking is a difficult job for them in this case mobile banking can be effective for them because mobile banking is easy to operate and don't need educational qualifications.
- c) Monthly income of a rickshaw puller is not too high so traditional banking service is not a good option for them. They can use agent banking and mobile banking services that are less costly and easy to manage.
- d) Family members of rickshaw pullers are few so they can save money for future. Mobile banking is not providing that platform so agent banking can be a good opportunity for saving money for the future.
- e) Though rickshaw pullers send money to their family members, most of them don't have their own mobile bank account. So, Mobile Financial Services (MFS) can work for them to open mobile banking account.
- f) Very few formalities to open mobile banking account stimulates them to open mobile bank account and also the transaction amount is small so they can use mobile banking channel for their banking activities.
- g) Rickshaw pullers are sending their children to school and their kids are good at dealing with mobile phone and can easily manage mobile banking account. Also, most of the villages have banking facilities now family members of rickshaw pullers can open account in the bank and save money for the future.
- h) Usually rickshaw pullers are afraid about banking systems complexity. They think that opening account in the bank is a very complex job so they avoid banks for that. Banks can introduce special Know Your Customer form (KYC) for them and make the process easy and accessible.
- i) Most of the rickshaw pullers have idea about mobile banking but very few have idea about agent banking. Banks having agent banking services can promote agent banking and grab the customer segment.

7. Conclusion

Most of the studies have been done in the various traditional forms of banking in Bangladesh. But they don't give prime concern in this portion of banking. In this study the researchers will introduce a new aspect of banking and economic development in Bangladesh. The study will suggest the critical points that can be implemented by the government and monitoring authority of banks which can help to increase the economic growth as well as sustainable development of banking sectors in Bangladesh. All people contributions of a country can make sustainable and durable GDP. The future researchers can identify the up to date banking service for all classes of people in Bangladesh.

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Supply Chain Management: Materialization of Process Management to Attain Greater Accomplishment in Business Function

Mohammed Sabirul Karim

*PhD Researcher
Department of Marketing
University of Dhaka
E-mail: bappashabujbangla@gmail.com*

Umma Tabachum Tahera

*MBA, Department of Marketing
Jagannath University
E-mail: tabachum.tahera@gmail.com*

Shamima Nasrin

*MBA, Department of Accounting & Information System
University of Dhaka
E-mail: n.shamimanub@gmail.com*

Abstract

Supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, SCM integrates supply and demand management within and across companies. Globalization has become an indisputable part of commerce over the last few decades, as large companies have grown first to source labor and parts from developing regions, and then to start selling in those same areas as they grew in wealth and buying power. Passing through numerous countries to obtain goods most efficiently and cost effectively, SC now growing more complex in order to deliver countless countries for consumption. The dynamics of faster development in production and service areas set new expectation standards and traditional managerial attributes in SCM processes are being revised to improve firm's competitiveness in this changing market environment. Also, companies are now looking to develop new methods in areas such as manufacturing flexibility, transportation and information technologies in order to have a strategic superiority. SC activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities. This study tries to emphasize on SC as well as its impact in process management. Nevertheless, SC maximizes customer value and achieve a sustainable competitive advantage and represents a conscious effort to develop and run business in the most effective & efficient ways possible.

Keywords: *SC - Supply Chain, SCM - Supply Chain Management, ERP - Enterprise Resource Planning, ASP - Application Service Provider*

1. Introduction

Supply chain management is aimed at managing complex and dynamic supply and demand networks. (Wieland, Handfield & Christian, 2016) It is the “systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.” (Mentzer, 2001)

SCM is the combination of art and science that goes into improving the way your company finds the raw components it needs to make a product or service and deliver it to customers. Basically it is the flow of goods and services, involves the movement and storage of raw materials, of work-in-process inventory and finished goods from point of origin to point of consumption. Interconnected networks and channels combine in the provision of products and services required by end customers in a SC. The organizations that make up the SC are “linked” together through physical flows and information flows. Physical flows involve the transformation, movement, and storage of goods and materials. Information flows allow the various SC partners to coordinate their long-term plans, and to control the day-to-day flow of goods and material.

A customer-focused definition is given by Hines (2014): “Supply chain strategies require a total systems view of the links in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the consumer. As a consequence, costs must be lowered throughout the chain by driving out unnecessary expenses, movements, and handling. The main focus is turned to efficiency and added value, or the end user's perception of value. So, the SC system must be responsive to customer requirements. The measurement of performance focuses on total system efficiency and the equitable monetary reward distribution to those within the supply chain.”

1.1 Statement of the Problem

Organizations increasingly discover that they must rely on effective supply chains networks, to compete in the global market and networked economy. In Peter Drucker's (1996) new management paradigms, this concept of business relationships extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies. This study tries to signify the contribution of SC in business process.

1.2 Objective of the Study

To identify the different forms, management and process integration, activities as well as the impact of supply chain in process management.

2. Review of Literature

APICS Dictionary defined SCM as the “design, planning, execution, control, and monitoring of supply-chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally.”

Besides “SCM is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers” (Harland, 1996). SCM spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption (supply chain).”

Regarding the product flow and information flow (Simchi & Kaminsky, 2007) stated “The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements.”

Additionally FAO stated “Increasing numbers of companies are turning to Web sites and Web-based applications as part of the SCM solution. A number of major Web sites offer e-procurement marketplaces where manufacturers can trade and even make auction bids with suppliers.”

But “SC automation is uniquely difficult because its complexity extends beyond a company's walls. Employees will need to change the way they work and so will the people from each supplier that a company adds to its network. Only the largest and most powerful manufacturers or retailers can force such radical changes down suppliers' and partners' throats. Most companies have to sell outsiders on the system” said Hines (2014)

3. Methodology and Data Collection

Basically, this is a descriptive type of research. Secondary data are absorbed from related books, reports, journals, websites etc.

4. Limitations of the Study

The major constraints are unavailability and inconsistency of appropriate data alongside the lack of time & resources.

5. Historical Developments in Supply Chain Management

5.1 Origin of the Term

In 1982, Keith Oliver, a consultant at Booz Allen Hamilton introduced the term “supply chain management” to the public domain in an interview for the Financial Times (Halldorsson, Kotzab, Mikkola & Skjoett, 2007). More than a decade later, the term gained currency when a flurry of articles and books came out on the subject. SCM were originally defined as encompassing all activities associated with the flow and transformation of goods from raw materials through to the end user, as well as the associated information flows. It was then further defined as the integration of SC activities through improved SC relationships to achieve a competitive advantage. In the late 1990s, SCM rose to prominence, and operations managers

began to use it regularly. Six major movements can be observed in the evolution of SCM studies:

5.1.1 Creation Era

The term, SCM was first coined by a U.S. industry consultant. However, the concept was of great importance long before, in the early 20th century, especially with the creation of the assembly line. The characteristics of this era include the need for large-scale changes, re-engineering, downsizing driven by cost reduction programs, and widespread attention to the Japanese practice of management.

5.1.2 Integration Era

This era highlighted with the development of Electronic Data Interchange systems in the 1960s and developed through the 1990s by the introduction of ERP systems. This era has continued to develop into the 21st century with the expansion of internet-based collaborative systems and characterized by both increasing value-adding and cost reductions through integration. In fact a SC can be classified as Stage 1, 2 or 3 networks. In stage 1, various systems such as Make, Storage, Distribution, Material-control etc. are not linked and are independent of each other. In a stage 2, these are integrated under one plan and are ERP enabled. Stage 3 instigated vertical integration with the suppliers in upstream direction and customers in downstream direction.

5.1.3 Globalization Era

The third movement of SCM development can be characterized by the attention given to global systems of supplier relationships and the expansion of SC over national boundaries and into other continents. This era is characterized by the globalization of SCM in organizations with the goal of increasing their competitive advantage, value-adding, and reducing costs through global sourcing.

5.1.4 Specialization Era (Phase - I): Outsourced Manufacturing and Distribution

In the 1990s, industries began to focus on “core competencies” and adopted a specialization model. Companies abandoned vertical integration, sold off non-core operations, and outsourced those functions to other companies. This changed management requirements by extending the SC well beyond company walls and distributing management across specialized SC partnerships. The specialization model creates manufacturing and distribution networks composed of multiple, individual supply chains specific to products, suppliers, and customers, who work together to design, manufacture, distribute, market, sell, and service a product.

5.1.5 Specialization Era (Phase - II): Supply Chain Management as a Service

Specialization within the SC began in the 1980s with the inception of transportation brokerages, warehouse management, and non-asset-based carriers and has matured beyond transportation and logistics into aspects of supply planning, collaboration, execution and performance management. Outsourced technology hosting for SC solutions debuted in the late 1990s and has taken root primarily in transportation and collaboration categories. This

has progressed from the ASP model to the Software as a Service model currently in focus today.

Case Study 1: Procter & Gamble and Walmart

Two giants built a software system that hooked P&G up to Wal-Mart's distribution centers. When P&G's products run low at the distribution centers, the system sends an automatic alert to P&G to ship more. Within the last couple of years, the relationship has expanded to include radio-frequency identification technologies to gain even more insight into ridding inefficiencies in the supply chain.

With this minute-to-minute information, P&G knows when to make; ship and display more products at the Wal-Mart. Invoicing and payments happen automatically too. The system saves P&G so much in time, reduced inventory and lower order-processing costs that it can afford to give Wal-Mart "low, everyday prices".

5.1.6 Supply Chain Management 2.0 (SCM 2.0)

Building on globalization and specialization, the term SCM 2.0 has been coined to describe both the changes within the SC itself as well as the evolution of the processes, methods and tools that manage it in this new 'era'. The growing popularity of collaborative platforms is highlighted by the rise of Trade Card's supply-chain-collaboration platform, which connects multiple buyers and suppliers with financial institutions, enabling them to conduct automated SC finance transactions.

This era is defined as a trend in the use of the World Wide Web that is meant to increase creativity, information sharing and collaboration among users. At its core, the common attribute is to help navigate the vast amount of information available on the Web in order to find what is being sought Figure – 1 demonstrates the SC of next generation and its significance.

By applying Supply Chain 4.0 levers, huge potential can be unlocked in all supply chain categories



SOURCE: McKinsey

Figure – 1: The Next Generation Digital Supply Chain

Source: Knut, Jürgen & Andreas (2016)

6. Components of Supply Chain Management Integration

The following are five basic components of SCM.

➤ **Plan** - Companies need a strategy for managing all the resources that goes to meet customer demand for their product or service. A big piece of SCM planning is developing a set of metrics to monitor the SC so that it is efficient, costs less and delivers high quality and value to customers.

➤ **Source** - Companies must choose suppliers to deliver the goods and services they need to create their product. Therefore, supply chain managers must develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships.

➤ **Make** - SC managers schedule the activities necessary for production, testing, packaging and preparation for delivery. This is the most metric-intensive portion of the SC where companies are able to measure quality levels, production output and worker productivity.

➤ **Deliver** - Companies coordinate the order-receipts from customers, develop warehouse-networks, pick carriers to get products to customers and set up an invoicing-system to receive payments.

➤ **Return** - SC creates a responsive and flexible network for receiving defective and excess products back from customers and support them who have problems with delivered products.

6.1 The Management Components of SCM

“The level of integration and management of a business process link is a function of the number and level, ranging from low to high, of components added to the link.” (Ellram & Cooper, 1990) Business process re-engineering, buyer-supplier relationships and SCM suggest various possible components that must receive managerial attention when managing supply relationships. Lambert, Cooper & Pagh (1998) identified the following components:

1) Planning and control, 2) Work structure, 3) Organization structure, 4) Product flow facility structure, 5) Information flow facility structure, 6) Management methods, 7) Power and leadership structure, 8) Risk and reward structure, 9) Culture and attitude.

7. Supply Chain Mission

SCM, techniques with the aim of coordinating all parts of supply chain from supplying raw materials to delivering and/or resumption of products, tries to minimize total costs with respect to existing conflicts among the chain partners. An example of these conflicts is the interrelation between the sale department desiring to have higher inventory levels to fulfill demands and the warehouse for which lower inventories are desired to reduce holding costs.

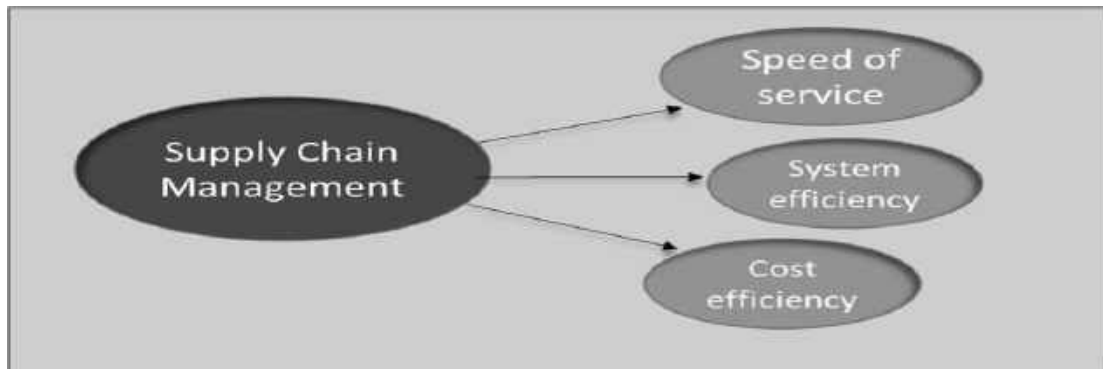


Figure – 2: Supply Chain Mission

Source: Sujatha Perepa (2014)

8. Supply Chain Systems and Value

SC systems configure value for those that organize the networks. Value is the additional revenue over and above the costs of building the network. Co-creating value and sharing the benefits appropriately to encourage effective participation is a key challenge for any SC. “Ultimately it is the customer who pays the price for service delivered that confirms value and not the producer who simply adds cost until that point.” (Hines, 2014) Seven principles of successful SC are given below:

- “Adapt your supply chain based on the needs of customer segments (by product, industry or trade channel).
- Customize logistics network for each of the above segments.
- Align demand planning across the supply chain, so that all partners benefit by not keeping unneeded stock on hand.
- Differentiate products SKUs close to the customer for choice and standardize SKUs to deliver too many different regions while meeting different regulations.
- Outsource strategically while keeping core competencies in-house.
- Develop information technology that supports multi-level decision making and tie it into business processes so you fully understand your deficiencies and needs.
- Adopt both financial and service metrics using ‘Time-Driven Activity-Based Costing’ which determines your customers’ profitability and drives value.” (Anderson, Britt & Favre, 2016)

9. Findings

9.1 Supply Chain Business Process Integration

An integrated SC can be defined as an association of customers and suppliers who, using management techniques, work together to optimize their collective performance in the creation, distribution and support of an end product. It may be helpful to think of the participants as the divisions of a large, vertically integrated corporation, although the independent companies in the chain are bound together only by trust, shared objectives, and contracts entered into on a voluntary basis. Successful SCM requires a change from managing individual functions to integrating activities into key supply chain processes.

Operating an integrated SC requires a continuous information flow. However, in many companies, management has reached the conclusion that optimizing the product flows cannot be accomplished without implementing a process approach to the business. The key SC processes stated by Lambert (2008) is given in figure – 4.

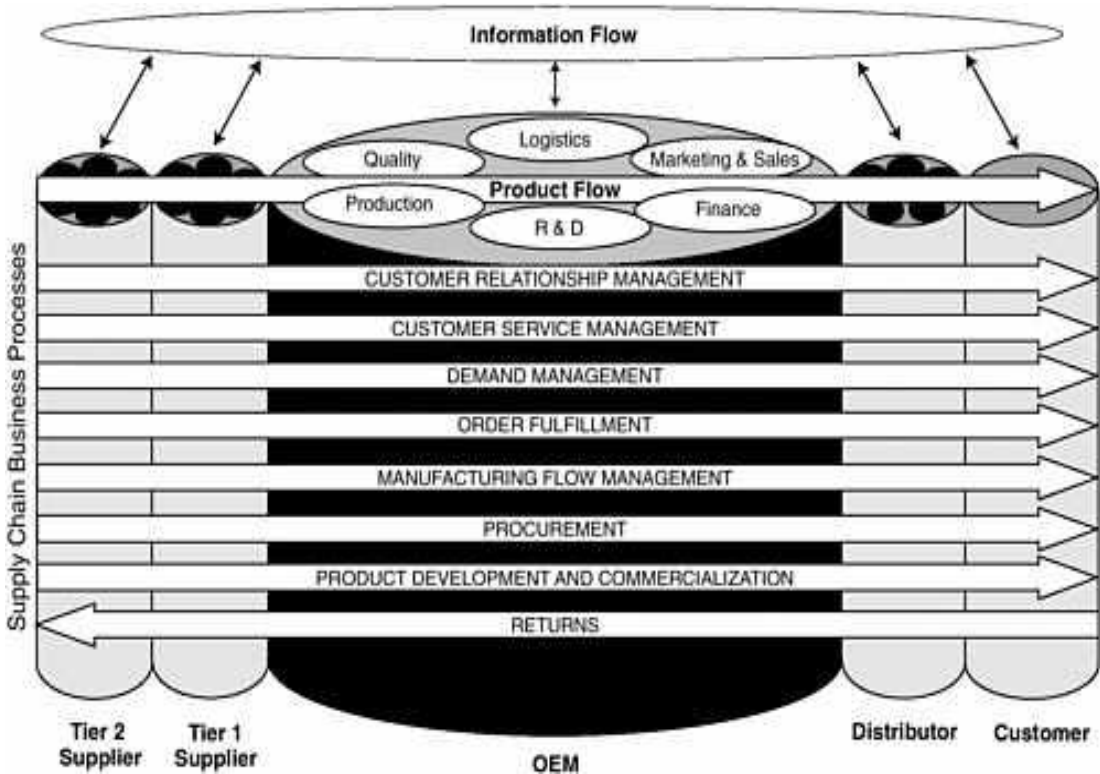


Figure: 4 – Supply Chain Business Process Integration
 Source: Lambert (2008)

a) Customer Service Management Process

Customer Relationship Management concerns the relationship between the organization and its customers. Customer service is the source of customer information. It also provides the customer with real-time information on scheduling and product availability through interfaces with the company's production and distribution operations. Successful organizations use the following steps to build customer relationships:

- Determine mutually satisfying goals for organization and customers,
- Establish and maintain customer rapport ,
- Produce positive feelings in the organization and the customers.

b) Procurement Process

Strategic plans are drawn up with suppliers to support the manufacturing flow management process and the development of new products. In firms where operations extend globally, sourcing should be managed on a global basis. The desired outcome is a win-win

relationship where both parties benefit, and a reduction in time required for the design cycle and product development. Besides, procurement has recently been recognized as a core source of value, driven largely by the increasing trends to outsource products and services, and the changes in the global ecosystem requiring stronger relationships between buyers and sellers.

c) Product Development and Commercialization

Here, customers and suppliers must be integrated into the product development process in order to reduce time to market. As product life cycles shorten, the appropriate products must be developed and successfully launched with ever shorter time-schedules to remain competitive. According to Ketchen & Hult (2006) managers of the product development and commercialization process must:

- Coordinate with customer relationship management to identify customer-articulated needs;
- Select materials and suppliers in conjunction with procurement, and
- Develop production technology in manufacturing flow to manufacture and integrate into the best supply chain flow for the product/market combination.

d) Manufacturing Flow Management Process

The manufacturing process produces and supplies products to the distribution channels based on past forecasts. Manufacturing processes must be flexible to respond to market changes and must accommodate mass customization. Orders are processes operating on a just-in-time basis in minimum lot sizes. Also, changes in the manufacturing flow process lead to shorter cycle times, meaning improved responsiveness and efficiency in meeting customer demand.

e) Physical Distribution

This concerns movement of a finished product/service to customers. In physical distribution, the customer is the final destination of a marketing channel, and the availability of the product/service is a vital part of each channel participant's marketing effort. Through the physical distribution process, the time and space of customer service become an integral part of marketing.

f) Outsourcing/Partnerships

This is not just outsourcing the procurement of materials and components, but also outsourcing of services that traditionally have been provided in-house. The logic of this trend is that the company will increasingly focus on those activities in the value chain where it has a distinctive advantage, and outsource everything else. This movement has been particularly evident in logistics where the provision of transport, warehousing and inventory control is increasingly subcontracted to specialists or logistics partners. Also, managing and controlling this network of partners and suppliers requires a blend of both central and local involvement.

g) Performance Measurement

Experts (Todo, Matous & Inoue, 2016) found a strong relationship from the largest arcs of supplier and customer integration to market share and profitability. Taking advantage of supplier capabilities and emphasizing a long-term SC perspective in customer relationships can

both be correlated with firm performance. As logistics competency becomes a more critical factor in creating and maintaining competitive advantage, logistics measurement becomes increasingly important because the difference between profitable and unprofitable operations becomes narrower.

h) Warehousing Management

To reduce the company cost & expenses, warehousing management is carrying the valuable role against operations. In case of perfect storing & office with all convenient facilities in company level, reducing manpower cost, dispatching authority with on time delivery, loading & unloading facilities with proper area, area for service station, stock management system etc. Components of SCM are as follows: 1) Standardization, 2) Postponement & 3) Customization.

i) Workflow Management

Integrating suppliers and customers tightly into a workflow (or business process) and thereby achieving an efficient and effective SC is a key goal of workflow management.

9.2 Supply Chain Centroids

The concept of centroids has become an important economic consideration. A centroid is a place that has a high proportion of a country's population and a high proportion of its manufacturing, generally within 805 km. In the U.S., two major SC centroids are Dayton, Ohio and Riverside, California.

Case Study 2: Walmart

Wal-Mart strategic sourcing approaches direct sourcing from suppliers in 2010. Initially It bought only 20% of its stock directly but the rests 80% were bought through the intermediaries. The company came to realize that the presence of many intermediaries in sourcing was actually increasing the costs in SC. To cut these costs, Eduardo Castro the vice president of Wal-Mart set an ambitious goal of buying 80% goods directly from the suppliers. Walmart started purchasing fruits, vegetables cloth and home electronics appliances directly and eliminated the importing agents on a global scale. Advantage, supplier and the purchaser collaborate in finding goods of the highest quality that would appeal to the consumers.

Moreover, Wal-Mart can easily direct the suppliers on how to manufacture certain products so that they can be acceptable to the consumers. Thus, they get the exact product quality consistency as it expects. Using agents, in most cases lead to inconsistency in the quality since the agent's source the products from different manufacturers. Another attempt is Creation of Procurement Centers. The company instructed all the suppliers to be bringing their products to these central points that are located in different markets. The procurement team assesses the quality and buys the goods and distributes them to various regional markets.

9.3 Functions Executed by SCM

Supply chain execution means managing and coordinating the movement of materials, information and funds across the supply chain. The flow is bi-directional. SCM leverages proven solutions designed to rapidly deliver results with the agility to quickly manage future change for continuous flexibility, value and success. This is delivered through

competency networks composed of best-of-breed supply chain domain expertise to understand which elements, both operationally and organizationally, that delivers the results as well as through intimate understanding of how to manage these elements to achieve desired results.

9.3.1 Strategic Level

- Strategic network optimization, including the number, location, and size of warehousing, distribution centers, and facilities.
- Strategic partnerships with suppliers, distributors, and customers, creating communication channels for critical information and operational improvements.
- Product life cycle management, so that new and existing products can be optimally integrated into the supply chain and capacity management activities.
- Information technology chain operations.
- Where-to-make and make-buy decisions.
- Aligning overall organizational strategy with supply strategy.
- It is for long term and needs resource commitment.

9.3.2 Tactical Level

- Sourcing contracts and other purchasing decisions.
- Production decisions, including contracting, scheduling, and planning process definition.
- Inventory decisions, including quantity, location, and quality of inventory.
- Transportation strategy, including frequency, routes, and contracting.
- Benchmarking of all operations against competitors and implementation of best practices throughout the enterprise.
- Milestone payments.
- Focus on customer demand and Habits.

9.3.3 Operational Level

- Daily production and distribution planning, including all nodes in the supply chain.
- Production scheduling for each manufacturing facility in the SC (minute by minute).
- Demand planning and forecasting, coordinating the demand forecast of all customers and sharing the forecast with all suppliers.
- Source planning (current inventory and forecast demand) in collaboration with all suppliers.
- Inbound operations, including transportation from suppliers and receiving inventory.
- Production operations, including the consumption of materials and flow of finished goods.
- Outbound operations; all fulfillment activities, warehousing and transportation to customers.
- Order promising, accounting for all constraints in the supply chain, including all suppliers, manufacturing facilities, distribution centers, and other customers.
- From production level to supply level accounting all transit damage cases & arrange to settlement at customer level by maintaining company loss through insurance company.
- Managing non-moving, short-dated inventory and avoiding more products to go short-dated.

9.4 Problems Addressed by Supply Chain Management

Supply chain management must address the following problems (Blanchard, 2010):

- **Distribution Network Configuration:** number, location and network missions of suppliers, production facilities, distribution centers, warehouses, cross-docks and customers.
- **Distribution Strategy:**
 - Questions of operating control (centralized, decentralized or shared);
 - Delivery scheme, e.g., direct shipment, pool point shipping, direct store delivery;
 - Mode of transportation, e.g., motor carrier, including truckload, parcel; railroad; Intermodal transport, including Trailer on Flat Car and Container on Flat Car;
 - Ocean freight and airfreight;
 - Replenishment strategy (e.g., pull, push or hybrid); and
 - Transportation control (e.g., owner-operated by private/ common/ contract carrier.)
- **Trade-Offs in Logistical Activities:** The above activities must be well coordinated in order to achieve the lowest total logistics cost.
- **Information:** Integration of processes through the SC to share valuable information, including demand signals, forecasts, inventory, transportation, potential collaboration, etc.
- **Inventory Management:** Quantity and location of inventory, including raw materials, work-in-process and finished goods.
- **Cash-Flow:** Arranging the payment terms and methodologies for exchanging funds across entities within the SC.

9.5 Importance of Supply Chain Management

It is well known that supply chain management is an integral part of most businesses and is essential to company success and customer satisfaction.

9.5.1 Boost Customer Service

- Customers expect the correct product assortment and quantity to be delivered.
- Customers expect products to be available at the right location. (i.e., customer satisfaction diminishes if an auto repair shop does not have the necessary parts in stock and can't fix your car for an extra day or two).
- **Right Delivery Time** – Customers expect products to be delivered on time (i.e., customer satisfaction diminishes if pizza delivery is two hours late).
- **Right After Sale Support** – Customers expect products to be serviced quickly. (i.e., customer satisfaction diminishes when a home furnace stops operating in the winter and repairs can't be made for days).

9.5.2 Reduce Operating Costs

- **Decreases Purchasing Cost** – Retailers depend on SC to quickly deliver expensive products to avoid holding costly inventories in stores any longer than necessary.

- **Decreases Production Cost** – Manufacturers depend on supply chains to reliably deliver materials to assembly plants to avoid material shortages that would shutdown production.
- **Decreases Total SC Cost** – Effective SC network design that meet customer service goals at the least total cost. For example, by shipping the computer directly to the customer, Dell was able to avoid having large computer inventories.

Case Study 3: Dell Computer

Dell Computer Corporation's success in the past few years made daily headlines throughout the 1990s. Based on the premise that bypassing resellers, building products to order, and reducing inventories would result in a lower cost, more responsive business, Dell has grown into one of the largest forces in the industry.

The heart of Dell's success is its integrated supply chain, which has enabled rapid product design, fabrication, and assembly, as well as direct shipment to customers. Inventories have been dramatically reduced through extensive sharing of information, a prudent choice given the risk of technological obsolescence and reductions in the cost of materials that can exceed 50% a month. Even with reduced inventories, Dell's strategic use of information has made possible a dramatic reduction in the elapsed time from order to delivery, giving Dell a significant competitive advantage.

9.5.3 Improve Financial Position

- **Increases Profit Leverage** – SC managers helps to control and reduce SC costs. This can result in dramatic increases in firm profits. For instance, U.S. consumers eat 2.7 billion packages of cereal annually, so decreasing SC costs just 1% cereal box would result in \$13 million saved.
- **Increases Cash Flow** – Supply chain speed up product flows to customers. For example, under an efficient SC a firm can make and deliver a product to a customer in 10 days rather than 70 days.

9.5.4 Societal Roles of SCM

9.5.4.1 Ensure Human Survival

- **Sustains Human Life** – Humans depend on SC to deliver basic necessities such as food and water. Any breakdown of these delivery pipelines quickly threatens human life. Ex. in 2005, Hurricane Katrina flooded New Orleans, the residents without a way to get food or clean water. Within a week 'Rescue-Effort' delivered 1.9 million meals and 6.7 million liters of water.
- **Improves Human Healthcare** – Humans depend on supply chains to deliver medicines and healthcare. During a medical emergency, supply chain performance can be the difference between life and death. For example, the medicines and equipment necessary for treatment will be available at the hospital as a result of excellent supply chain execution.
- **Protects Humans from Climate Extremes** – Humans depend on an energy SC for light, heat, refrigeration and air conditioning. Logistical failure (a power blackout) can quickly result in a threat to human life. For example, during a massive East Coast

ice storm in January 1998, 80,000 miles of electrical power lines fell in Montreal and Quebec. Due to extreme cold, 30 died and 25% of all Quebec residents left home to seek heated shelter.

9.5.5 Improve Quality of Life

- **Economic Growth along with Improves Standard of Living** - Societies with a highly developed supply chain infrastructure are able to exchange many goods between businesses and consumers quickly and at low cost. Consumers can afford to buy more products with their income thereby raising the standard of living. As a result the economy expands.
- **Job Creation** – SC professionals design, operate and manage transportation, warehousing, inventory-management, packaging and logistics information. As a result, there are many jobs in the SC field. E.g., in the U.S., logistics activities represent 9.9% (10,000,000) jobs.
- **Opportunity to Decrease Pollution** – SC activities require packaging and product transportation. Some unwanted environmental pollutants such as cardboard waste and carbon dioxide fuel emissions are generated. Ex - only 50% of the 84 million tons of paper and paperboard waste were recycled. SC professionals already developed more sustainable processes and methods of waste management.
- **Opportunity to Decrease Energy Use** – SC activities involve both human and product transportation. Ex - currently transportation accounts for 30% of world energy use and 95% of global oil consumption. SC professionals developed energy-efficient SC that uses fewer resources.

9.5.6 Protect Cultural Freedom and Development

- **Defending Human Freedom** – Citizens of a country depend on military logistics to defend their way of life from those who seek to end it. Military logisticians strategically locate aircraft, ships, tanks, missiles and other weapons in positions that provide maximum security to soldiers and other citizens.
- **Protects Delivery of Necessities** – Citizens of a country depend on SC to design and operate food, medicine and water supply chains that protect products from tampering. Sophisticated packaging techniques, state of the art surveillance cameras, global positioning systems and RFID inventory tracking are examples.

9.6 Supply Chain Sustainability

SC sustainability is a business issue affecting an organization's supply chain or logistics network and is frequently quantified by comparison with SECH ratings. SECH ratings are defined as *social, ethical, cultural and health* footprints. Consumers have become more aware of the environmental impact of their purchases and setting the agenda for transitions to organically-grown foods. For example, in July, 2009 the U.S. based Wal-Mart corporation announced its intentions to create a global sustainability index that would rate products according to the environmental and social impact made while the products were manufactured and distributed.

It has been reported that companies are increasingly taking environmental performance into account when selecting suppliers. The 'Carbon Trust Survey' (2011) found that 50% of multinationals expect to select their suppliers based upon carbon performance in the future and 29% of suppliers could lose their places on 'green supply chains' if they do not have adequate performance records on carbon.

More recently, the "Consumer Protection Act" signed into law by President Obama in July 2010, contained a supply chain sustainability provision in the form of the Conflict Minerals law. Incidents like the 2013 Savar building collapse with more than 1,100 victims have led to widespread discussions about corporate social responsibility across global supply chains.

Wieland & Handfield (2013) suggest that companies need to audit products and suppliers and that supplier auditing needs to go beyond direct relationships with first-tier suppliers. They also demonstrate that electronic technologies play a key role to improve visibility. Finally, they highlight that collaboration with local partners is crucial to successfully managing social responsibility in SC.

10. Recommendations

Maha Muzumdar (2017) vice president of Suite & Industry, Cloud Business Group at Oracle, suggested six strategies for better SCM in the current economy:

Strategy 1: Adopt a demand-driven planning and business operating model based on real-time demand insights and demand shaping. The right prediction and contingency planning tools will ensure a complete view and an effective response to risks such as suppliers going out of business, political upheaval, and natural calamities affecting manufacturing.

Strategy 2: Build an adaptive and agile supply chain with rapid planning and integrated execution. Companies must deploy dynamic planning capabilities and continually fine-tune operations to ensure responsive agility to meet changing demand.

Strategy 3: Optimize product designs and management for supply, manufacturing and sustainability to accelerate profitable innovation. Innovation is crucial for being one step ahead of the competition. To be successful, products must be manufactured at the right cost, place and time.

Strategy 4: Align your SC with business goals by integrating sales and operations planning with corporate business planning. Although sales and operations planning processes provide coordination among sales, manufacturing and distribution, there still are disconnects and gaps among finance, strategy and operations in many companies. One way to bridge these gaps is with integrated business planning that involves people, process and technology.

Strategy 5: Embed sustainability into supply chain operations. The triple bottom line of people profit and planet has never been more important than it is today. Studies show, companies striving for social and environmental sustainability achieve major competitive advantages.

Strategy 6: Ensure a reliable and predictable supply. Without reliable supply to customer-facing stakeholders to meet agreed-upon service levels, a manufacturer will tend to hold inventory buffers to ensure meeting customer service levels. This costs the business and even worse, may mean the wrong products are at the wrong place at the wrong time, resulting in supply shortfalls.

11. Conclusion

SC specialization enables companies to improve their overall competencies in the same way that outsourced manufacturing and distribution has done; it allows them to focus on their core competencies and assemble networks of specific, best-in-class partners to contribute to the overall value chain itself, thereby increasing overall performance and efficiency. The ability to quickly obtain and deploy this domain specific supply chain expertise without developing and maintaining an entirely unique and complex competency in house is the leading reason why SC specialization is gaining popularity.

SCM is the supervision of materials, information and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. It involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective SCM system is to reduce inventory (with the assumption that products are available when needed). So far, SCM is a cross-function approach including managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and the movement of finished goods out of the organization and toward the end-consumer.

As organizations strive to focus on core competencies and becoming more flexible, they reduce their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other entities that can perform the activities better or more cost effectively. The effect is to increase the number of organizations involved in satisfying customer demand, while reducing management control of daily logistics operations. The purpose of SCM is to improve trust and collaboration among SC partners, thus improving inventory visibility and the velocity of inventory movement.

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