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E-Catalogue Approach

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Consequences of Ethics Absence

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# Can Indirect Goods Sourcing Be Supported Electronically? An e-Catalogue Approach to the Issue

By Dr. Eulalio Gomes Campelo Filho

*Federal University of Piauí*

**Abstract** - The introduction of the information technology and the use of innovative communication meanings have made companies rethink the way they deal with their suppliers, especially in the direct goods field. However, in the area of indirect goods and services, although the relative early start of these IT solutions, companies still not applying the information technology to manage their sourcing processes. Therefore, this article proposes the expansion of the well-known e-catalogue functionalities to support not only the transaction procedures as it has been done for years, but also the sourcing process, improving so from one side, the business transactions efficiency and from the other side completing the procurement cycle within an unique system.

**Keywords:** *e-Commerce, e-Sourcing, e-Catalogue.*

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# Can Indirect Goods Sourcing Be Supported Electronically? An e-Catalogue Approach to the Issue

Dr. Eulalio Gomes Campelo Filho

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## I. INTRODUCTION

Most organizations seek to manage their purchasing activities in the most efficient way, with the goal of reducing their materials costs and intra business processes, while ensuring the quality of their services and products.

With buying processes generally involving a large amount of information and communication procedures, purchasing is well suited for information technology support and automation (Gebauer et. al. 1998).

Hence, inter-organizational information systems have become an important enabler of this strategy and the application of the internet to do business a crucial factor in modern business relationships.

In order to support the great variety of product and services purchasing processes, supplier relationship management systems (SRM) have been developed to coordinate the process concerned with the supplier integration and communication.

Supplier relationship management describes the business structures and processes required by companies to communicate and execute commercial transactions with their suppliers, while providing methods, processes and tools to support the different phases of a supplier relationship (Eyholzer et. al. 2002).

In this paper, the focus of the analysis is on the sourcing aspect of the supplier relationship

management field. The main goal of an e-sourcing system is to support buyers to find the most appropriate supplier for a good, and the foreground is the negotiation phase of the purchasing process.

Nowadays, a new generation of sourcing systems based on business intelligence technology allows the negotiation of multi-attribute criteria during the online negotiation.

However, this reality still not true in the field of indirect goods procurement, in which most negotiation processes still be done manually without any information technology support. Being, only the transaction phase of the supplier relationship procedure supported electronically, often by the implementation of an e-catalogue system.

The e-catalogue combines and extends many functionalities of traditional channels, such as the rich content of print catalogues, the convenience and intimacy of on-line shopping, and the sophisticated searching capability of CD-ROM catalogues. They also let suppliers customize content and views to different buyers, and allow all parties to immediate track orders electronically (Macduffie , 1997; Perlman, 1990).

Nonetheless, this application of this technology in the way that is done nowadays in companies are leading to the loss of process efficiency, a lower return on investment and poor decisions the indirect goods procurement practices.

Due to this fact, this article is concerned with the following research question: How could be the actual e-catalogue technology expanded in order to cover not only the transaction procedures, but also the negotiation and supplier evaluation processes electronically?

Therefore, the study has performed a vast literature analysis to establish the state-of-the-art of SRM systems in the indirect goods and services area with the goal of creating the technical basis needed to develop a concept applying an e-catalogue platform as the key tool to realize the complete purchasing cycle from the source to order process.

The article describes first the electronic catalogue sourcing tool designed, which is further detailed throughout the description of the e-sourcing processes and the systems functions, ending the paper

with the portray of the ETL tool designed especially to support this new approach.

## II. E-CATALOGUE SOURCING TOOL

In order to support the indirect goods and services sourcing process in companies, the work introduces the application of the e-catalogue platform combined with the spend analysis tool, q.v. (Campelo Filho, 2008).

This approach extends the existing functionalities of the two modules to offer an environment in which alongside spend analysis features, buyers have the possibility to execute their indirect material sourcing process electronically based on reliable data and employing statistical and simulation methods, see figure 1.

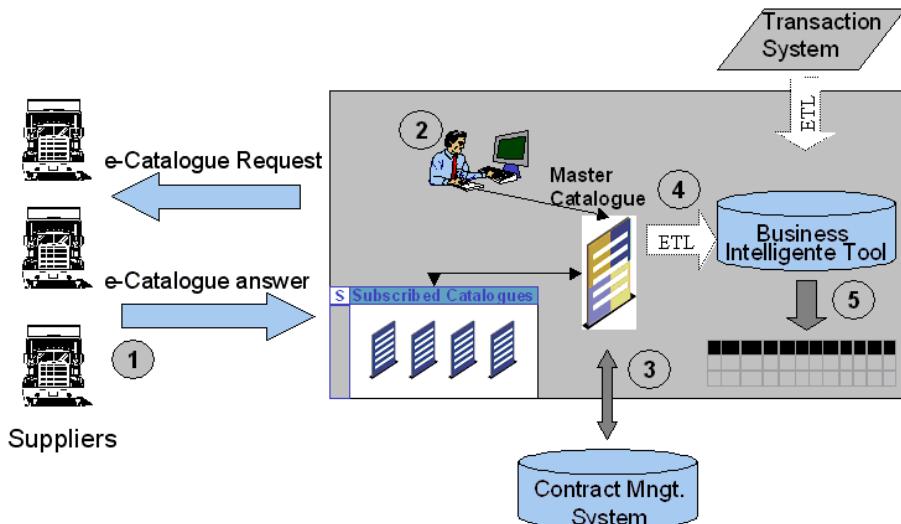


Figure 1 : Solution Concept

The required information to support the negotiation process is extracted mainly from the e-catalogue platform and its respective search engine, though deploying a marginal different ETL process, data storage and data structure methodologies that is presented in section 4.

The purchasing master data, e.g. product ID, product description, is obtained directly from the e-catalogue platform, while the relevant ordering information, e.g. product price, monetary volume, product quantity, etc., is extracted from the search engine. The spend intelligence tool, q.v. Chapter 6, is applied then to collect, normalise, classify and display the information in a user-friendly way.

Based on this information, sourcing relevant analyses, e.g. suppliers' price behaviour, e-catalogue portfolio simulations, customer satisfaction level, etc., as well as electronic request for quotation (e-RFQ) processes, can be carried out to determinate an appropriate source strategy and potential suppliers for a buying organisation.

The e-catalogue sourcing tool has been designed according to current purchase process' practices, which involve the following demands on the overall system concept:

- Support the purchase strategic planning;
- Demand recognition;

- Identification of potential suppliers;
- Negotiation capabilities;
- Spend saving analysis;
- Supplier performance and customer satisfaction measuring;
- Content management.

The approach can be used in a number of different sourcing scenarios, although its main objectives are the reduction of manual tasks and the boost of companies' bargain power via the increase on the process control.

For the purpose of understanding the introduced approach, the next section describes the suggested e-sourcing solution, applying for it, the description of an ideal sourcing process based on the solution functionalities.

## III. E-SOURCING PROCESS AND FUNCTION DESCRIPTION

The lead buyer principle is employed in several large organizations in the area of indirect goods procurement. This method applies the product segmentation into material groups as a pre-requisite for the introduction of a material group management, thus a precise classification of goods and services in classes or groups is crucial to the success of this approach.

This is reflected in all purchase activities, i.e. at the strategic, tactical as well as operational levels, q.v. (Campelo Filho, 2008).

A material group management team is composed of buyers and technicians of various business units, which are managed by a superior lead buyer, who establishes together with the high management the purchasing department objectives and often negotiates with the organisation's key suppliers.

The main objectives of the lead buyer concept are the cost reduction of the products acquired as well as the indirect costs of purchase and supplier management processes, mainly by the application of bundling strategies, process reengineering and the deployment of information technology.

At the beginning of each year, the material group management team establishes the goals of the purchase department, which has often as its main goal the cost reduction of the department in a certain monetary value or in a defined percentage of current material as well as process costs.

After the annual strategic goals are defined, the superior lead buyer has to analyze with his/her team the procedures that have to be carried out, and as the case may be, to decide in which material groups, suppliers, and in which extension the cost reductions will take place to achieve the organization's strategic objectives.

Once the goals of each purchase group have been established, buyers start to seek with their respective suppliers the commercial conditions to attain their personal objectives by means of price reductions and product portfolio bundling.

The concept introduced in this paper assists buyers from the strategic planning process described above to its execution by the application of the e-catalogue platform and the spend analysis module as presented in the following sections.

Nonetheless, before introducing the sourcing process and the respective system functionalities, the entities that are involved in the process are introduced for a better understanding of the described process and their involvement in the framework:

#### *Buying Organization*

The buying organization is the highest element (entity) of the system. It represents an organization and as the case may be its subsidiaries as well as their relationship between each other.

A Buying organization can be considered either as a consolidated group of enterprises, thus having just a general company code, or it may be embodied by a group of individual companies, each having its company code and been connected with a higher entity which is the holding company.

#### *Buyer*

The entity buyer embodies the purchase department's employee, who is responsible for the

operative as well as the tactical procurement business processes, it executes most tasks in the introduced framework, including in its duties the systems' administrative assignments as well as the control over other entities activities, e.g. supplier, system user, third part service provider.

#### *Manager (Lead Buyer)*

Under this concept is represented the purchase department employee, who has a key role in the strategic purchase process and assumes the responsibility and control over the purchase department activities and results. In the illustrated sourcing process, it can be also identified as the lead buyer personnel.

#### *Internal system user*

The internal system user is the entity, which performs the purchase requisition from any department of an organization, although the procurement activities are not part of their function. It represents the internal customer of the purchase department and along with the purchase requisition task, it may incorporate also the supplier evaluation function.

#### *Goods receiving department*

In case an organization adopts a central receiving department approach, there is the necessity to include a new entity, i.e. goods receiving department, in the organizational design, which will take over the supplier evaluation task from the internal system user entity.

#### *Third part service provider*

Third part service providers can be deployed to intermediate the business relations between a buying organization and its suppliers, thus they incorporate part of the sourcing process tasks, according to company's purchase strategy.

#### *Supplier*

The entity supplier represents a company's commercial partner, and it requires a link or domain in the e-catalogue sourcing solution to communicate and exchange information with an organization or its third part service provider.

This entity can be divided into two sub-groups, current business partners, which have access also to the e-procurement functions of the e-catalogue platform, and potential suppliers, which have access temporally just to the e-sourcing function of the platform.

#### *a) Strategic Planning*

A crucial task of the strategic planning is the forecast of the future purchase demand of an organization. This forecast should not be done based just on products and services, but instead it should take into account material groups, suppliers as well as the buying organizations.

In order to perform the demand forecast, the material group management team requires actual as



well as historical information to investigate the purchase behaviour of the buying organisation and its suppliers. Only after a detailed analysis of this data they can decide for logical and reachable objectives for its department.

The spend analysis module offers a number of reports to boost this evaluation, which includes diverse OLAP functionalities such as Roll up and Drill down functionalities as well as filter features.

First of all, the management team has to find out the total purchase volume of the previous year and its evolution along the past years to compare them with other relevant business information, e.g. commercial and financial reports, pre-defined company's goals, etc., with the aim of predicting the future demand of the purchase department.

Material Group	2011		2010		2009		2008	
	Spend Volume	Number of Orders	Spend Volume	Number of Orders	Spend Volume	Number of Orders	Spend Volume	Number of Orders
<b>Office Products</b>	\$ 40.000,00	950	\$ 38.000,00	870	\$ 35.000,00	810	\$ 32.600,00	740
Tool	\$ 37.000,00	1350	\$ 36.000,00	1150	\$ 33.654,00	1005	\$ 31.000,00	870
Electric Engineering	\$ 32.000,00	750	\$ 30.000,00	700	\$ 28.200,00	608	\$ 27.150,00	532
Marketing	\$ 25.000,00	650	\$ 23.500,00	600	\$ 21.250,00	459	\$ 20.864,00	389
Home Technology	\$ 21.000,00	100	\$ 19.300,00	86	\$ 17.250,00	71	\$ 16.532,00	62
...	\$ 38.750,00	1800	\$ 36.700,00	1560	\$ 33.963,00	1420	\$ 32.000,00	1294
<b>Total</b>	<b>\$ 193.750,00</b>	<b>5600</b>	<b>\$183.500,00</b>	<b>4966</b>	<b>\$ 169.317,00</b>	<b>4373</b>	<b>\$ 160.146,00</b>	<b>3887</b>

Table 1 : Top X Ranking Report

The material spending, classified in rankings and/or using the ABC-curve, can be illustrated with graphical representations in different colours, e.g. A-material groups in green, B-material groups in yellow and C-material groups with no colour. In addition, chart functionalities are available to transform the table figures in visual friendly diagrams.

In this report, the columns Spend Volume, Volume Evolution, Number of Orders and their impact on the total purchase volume can be determinate and sorted as required. Thus buyers can learn at a glance which material groups have the largest/lowest impact on

This analysis is based on business objects, e.g. product group, supplier, buying organization, etc., which can be dispersed in a flexible time approach. The aggregation and disaggregation of the business objects can provide a data portray in different consolidation levels, which enables the design of diverse reports to support the forecast process.

A large number of forecasts can be performed on a high aggregation level, e.g. material group, and for a long period of time, e.g. a year. Hence, a Top X ranking report has been designed to support this analysis and it can be customized to generate ABC-curves of favoured material groups, as shown in the example from table 1.

Suppliers	2011		2010		2009		2008	
	Spend Volume	Number of Orders						
<b>Office Products</b>								
<b>Office Depot</b>	\$ 16.500,00	41%	\$ 14.050,00	37%	\$ 11.423,00	33%	\$ 10.560,00	32%
Corporate Express	\$ 8.050,00	20%	\$ 6.500,00	17%	\$ 5.600,00	16%	\$ 4.800,00	15%
MRO	\$ 7.600,00	19%	\$ 5.900,00	16%	\$ 4.950,00	14%	\$ 4.100,00	13%
Gilbert	\$ 5.006,00	13%	\$ 3.540,00	9%	\$ 2.980,00	9%	\$ 2.560,00	8%
Karstadt	\$ 1.524,00	4%	\$ 1.230,00	3%	\$ 1.150,00	3%	\$ 1.150,00	4%
...	\$ 1.320,00	3%	\$ 6.780,00	18%	\$ 8.897,00	25%	\$ 9.400,00	29%
<b>Total</b>	<b>\$ 40.000,00</b>	<b>100%</b>	<b>\$ 38.000,00</b>	<b>100%</b>	<b>\$ 35.000,00</b>	<b>100%</b>	<b>\$ 32.570,00</b>	<b>100%</b>

Table 2 : Supplier per Material Group

Of course, if necessary, a deeper view of a vendor can be provided including the supplier's total sales divided by material groups and their evolution. It

has to be noted that the analysis can be executed in various detail levels, as the information available in the data warehouse has been stored at the document level.

The price indicator report shows the product price behaviour based on a time series analysis of the material prices. This evidences the average supplier price comportment, whether it was constant, increasing or declining, thus indicating if a price increase/decrease was long overdue, or if the suppliers of a segment tried to maximize their profits in the last years.

Nonetheless, for a better appreciation of company's spend analysis, it is recommended the integration of key ratios and benchmarks. Hence, a global strategic analysis should not be just oriented by organisation's internal data. A comparison with external indices, e.g. inflation, material groups and market segment price development, etc., may illustrate better the real company's performance and facilitate the decision making process, based on external and independent market trends.

After the overall objectives have been decided and the cost reduction goals in each material group are arranged, the superior lead buyer and his/her team can select and execute the best sourcing strategy for their materials and suppliers:

- Negotiation with current suppliers;
- Initiation of a negotiation process with current or new suppliers;
- Suppliers bundling;
- Etc.

#### *b) Current Supplier's Portfolio Negotiation*

The negotiation price with current suppliers is the most common negotiation process in companies and it is also the simplest process supported by the solution. The standard process is automatically triggered by the nearing of the purchase contract expiration.

The management team decides a timeframe in which the product price negotiation should take place, before the contract ends, e.g. two months before it. Once the defined timeframe is achieved, the system checks both, if the buyer has already started a negotiation process with a supplier, or if there is the necessity to begin this process through the procedure start approval, from the side of the responsible buyer.

In case there is the necessity to carry out this process, the e-catalogue platform sends via its notification system, an e-mail requiring a new e-catalogue version of a supplier, with the prices for the next contract period. This process is repeated until the supplier imports its new e-catalogue version in the platform.

Once the new e-catalogue version is approved by the seller, the catalogue is published and an e-mail is sent to its responsible buyer, who has to perform the new price proposal analysis, before approving or rejecting the new supplier e-catalogue and, as a consequence, its new price conditions.

The evaluation of new price conditions has two main purposes, first to assess the financial impact of

these new price conditions, and second, in case the negotiation took place out of the platform, to control the conformity of the contract's conditions previously negotiated with a supplier.

The framework backs the assessment task in different ways:

- 1) Multiplying the previous order volume of a product (Qa) with its new price (Pan) and adding this result to all the products ordered from the catalogue of this supplier, during the last contract or in a defined period of time.

#### *New purchase volume*

$$(Np) = Qa*Pan + Qb*Pbn + \dots + Qx*Pxn$$

Optionally, it can be configured the possibility to add an index to the previous formula, e.g. the average consumption evolution (Ca) concerning a product group along the years.

#### *New purchase volume*

$$(Np) = Qa*Pan*(1+Ca) + Qb*Pbn*(1+Cb) + \dots + Qx*Pxn*(1+Cx)$$

- 2) In order to demonstrate the total monetary difference between the two periods and in consequence its respective financial impact, the tool calculates the difference of the new purchase volume, based on the new price conditions (Np) and on the former price terms (Nf).

$$Diff = Np - Nf$$

Nevertheless, the single estimation of the financial impact is yet not enough to evaluate the new price conditions. Buyers have also to detect which products are the cost drivers and which of them had high price increases, especially because, the practices show that in the area of indirect goods purchasing, suppliers often have frame contracts with hundreds of products, although less than 20% of these products are effectively ordered by the buying organisation.

Hence, the framework enables, through the use of filters, the selection of just ordered products and their visualisation in different ways to analyze their price comportment and the impact on the supplier product portfolio, see table 3.

Office Depot	Order Volume (PP)	Order Volume (FP)	Total Volume Difference	Proposed Price (PP)	Former Price (FP)	Unitary Difference	Order Quantity
Product A	€ 10.920,00	€ 9.800,00	€ 1.120,00	€ 1.560,00	€ 1.400,00	€ 160,00	7
Product B	€ 11.200,00	€ 10.800,00	€ 400,00	€ 1.400,00	€ 1.350,00	€ 50,00	8
Product C	€ 6.860,00	€ 7.350,00	-€ 490,00	€ 980,00	€ 1.050,00	-€ 70,00	7
Product D	€ 6.000,00	€ 5.800,00	€ 200,00	€ 150,00	€ 145,00	€ 5,00	40
Product E	€ 4.160,00	€ 3.900,00	€ 260,00	€ 160,00	€ 150,00	€ 10,00	26
Product F	€ 2.470,00	€ 2.350,92	€ 119,08	€ 95,00	€ 90,42	€ 4,58	26
<i>Total</i>	€ 41.610,00	€ 40.000,92	€ 1.609,08	-	-	-	

*Table 3:* Products' Purchase Volume Behaviour

In case the supplier's price suggestion is accepted, the e-catalogue is approved and the negotiation process is concluded. Otherwise, the new or the actual e-catalogue version can be applied to perform price simulations to support buyers during their next negotiation round with this or other potential suppliers.

These simulations can be done directly on an Excel sheet, which can be generated exporting the data sets from the system and converting them into a spreadsheet format. The originated table may contain all or just selected products, so buyers can adjust the product price analysis as desired, taking advantage of the known MS Excel features until he/she reaches his/her desired cost reduction.

This information can be either sent to the supplier or used to back the negotiation process. In case an agreement is not met, an alternative supplier has to be selected. The solution assists this search and selection processes, by seeking a supplier in the internet and supporting the appropriate negotiation process.

### c) Supplier Evaluation

The supplier selection process is a complex task that can take place in different ways, e.g. selection of a complete new supplier, selection among current suppliers, division of a supplier portfolio into several suppliers, etc.

At the same time, the criteria to select new suppliers are numerous and depending strongly on company's politics. The most common attribute used to select a supplier in the indirect goods procurement field is price, along with other qualitative information, which in the last years it has become the most appropriate approach to support the supplier's selection process.

In the market, there are few examples of internet application systems, which support both kinds of sourcing analysis processes. Therefore, the framework concept suggests the expansion of the electronic catalogue dashboard functionality to assist a multiattribute e-RFQ process.

The supplier evaluation process is designed to be performed by the e-catalogue platform's end users

and in companies that apply a central receiving department, by the employees of this division.

In this approach, end users have an additional task during their buying process: the assessment of companies' current suppliers, via the application of structured ratings based on scales, which will be available in the e-catalogue search engine.

The decision to apply solely ordinal and cardinal scales was taken to facilitate the normalization, extraction and analysis process of end users' assessments. A free text evaluation approach would increase drastically the complexity of this procedure, thus it would be hardly possible to be effectively deployed in organizations' procurement department routine.

This task must be executed by an end user or a receiving department employee, due to the often deployed decentralized approach, in which buyers are responsible from one side for the supplier selection, but end users execute the order requests and the product receiving process.

Therefore, the concept has incorporated the end users into the evaluation process, including them indirectly in the decision-making process, via the appraisal of company's suppliers performance.

The end users evaluation supports then the decision-making process of company's buyers, concerning either the extension of a frame contract with a supplier, or the development of a supplier into a strategic partner.

The data acquisition is conducted, while either the end user or the receiving department employee gets the material ordered and verifies the criteria established by the purchase department. This employee enters then his/her evaluation in the system, using a cardinal scale to indicate his/her satisfaction level on each criterion, for example:

- Product quality;
- Price;
- Inquiry response;
- Service;
- Delivery time punctuality;
- Supplier assortment.

The collection of numerous users' feedbacks enables buyers to abstract their internal customer approval regarding a supplier, based on their objective judgment of a supplier's performance.

Nonetheless, companies have to decide if the data acquisition is configured to be an obligatory task of the purchasing process, or if it will constitute an optional activity for their internal users.

The data input is done via the utilization of a standard form at the users' interface. Once the data acquisition has occurred, the data sets are stored in a database to be normalised and grouped with the evaluations of other users.

The aggregation process happens in the data warehouse of the spend intelligence tool. The aggregation and normalization route is performed in a way that no user has a higher weight than another, so before the addition process is started, the system has to execute a mean calculation to gather all evaluations of a particular user in a single position.

This procedure increases the appraisal quality related to a supplier performance, providing buyers with an additional subside to carry out their decision making process, while evaluating a seller or comparing its performance with other suppliers that provide the same material group to an organization.

#### *d) Alternative Supplier Search*

The simulation of the purchase cost of an alternative provider and its comparison against competing suppliers is a crucial aspect of the supplier selection process. Companies often have a major supplier of a product group, who is its primary reference source, though a couple of alternative providers of the same product group are generally available in the enterprise's portfolio.

Before companies search for an alternative supplier outside of its current business relations, they should first look for an alternative among their available suppliers. The framework facilitates this job by the search of substitute suppliers in the same material group and their comparison in the spend analysis tool.

The illustration of two or more suppliers who offer products within the same material group can be done without problems. Nonetheless, the exact conciliation between two suppliers at the product level requires a much greater effort, as in their product catalogues the same product may contain several discrepancies in their product attributes, e.g. different short description, different manufacturer, but the same material group, etc.

In the case of a similar product, produced by the same manufacturer, it is possible the adoption of classifications based on a unique and unambiguous identification criterion such as the International Article Number (EAN).

However, in the case of two identical products, but from different manufacturers, the identification has to be carried out using the product descriptions and their technical properties.

This leads to the situation in which the more the complexity of the product the more the matching effort, thus with the purpose of solving this problem, the following alternative supplier searching approach was conceptualized.

The semi-automatic mapping concept aims at the allocation of identical products from both different manufacturers and different suppliers, based on the current catalogue version of those suppliers.

The application tries, on the basis of technical product properties and the deployment of a specific algorithm, to find potential substitutive products in the selected supplier electronic catalogue.

For products for which no corresponding counterpart in the alternative catalogue can be found, the system will deliver a set of products that may fit the product mapping requirements.

At this point, the buyer has to select manually from this set the products that fit the specifications and to delete the ones that could not be allocated to any product of the alternative catalogue.

After the identification and allocation of substitutable products, the expected financial impact when replacing the supplier, in absolute and relative values, can be calculated as well as the price difference of specific products. In addition, a link between *Expected purchase volume (Ep2) =*

individual products and a detailed view of their attributes can be configured.

This analysis may be done based on the order quantity of the reference catalogue (1) or with the addition of the order quantity of both catalogues (2). The formulas below demonstrate both of the evaluation methods:

- 1) Multiplying the order volume of a product ( $Q_r$ ) from the reference catalogue with the product price of the alternative catalogue ( $P_a$ ) and adding this result to all products ordered in the catalogue during the last contract or other defined time period.

#### *Expected purchase volume*

$$(Ep1) = Qr1*Pa1 + Qr2*Pa2 + \dots + Qrx*Pax$$

- 2) Multiplying the sum of the order volume of a product ( $Q_r + Q_a$ ) from both catalogues with the product price of the alternative catalogue ( $P_a$ ) and adding this result to all products ordered during the last contract or a defined time period.

#### *Expected purchase volume (Ep2) =*

$$(Qr1+Qa1)*Pa1 + (Qr2+Qa2)*Pa2 + \dots + (Qrx+Qax)*Pax$$

The total monetary (Mdiff) and percent (Pdiff) difference between the total order volume based on the alternative catalogue price (Na) and the reference price conditions (Nr), can be calculated applying the formulas:

$$Diff = Na - Nr$$

$$diff = Na/Nr$$

It has to be noted that different suppliers may apply different units of measure to market their products. If this is the case, the calculation must be expanded to convert the different unit of measure into an unequivocal value. The computation is done by the conversion of the unit of measure adopted by a supplier in a unique parameter at its basic unit, q.v. conversion into basic units in chapter six.

The introduced alternative supplier searching approach shows whether the alternative supplier would offer more favourable terms compared to the reference supplier or not. Nonetheless, this functionality is not only for the analysis of alternative provider eligible.

It is also recommended checking at any time if similar products or product groups from different

suppliers are available in more favourable condition and indicating them as the "best buying" product to end-users. This would reduce costs and open future possibilities for a bundling program.

However, this concept has some disadvantages:

- The error prone and costly manual intervention;
- The product mapping may not be always sufficiently accurate;
- This method ignores the cost reduction possibility, while bundling the suppliers.

#### e) e-RFQ Function

Having this in mind, another method has been designed to support buyers to define the best approach to select a supplier, whether a new supplier or an alternative supplier from current organization's portfolio.

The framework applies an e-RFQ based on the electronic catalogue technology to compare and select suppliers based on quantitative data. This method solves the problematic regarding the product matching through the application of e-catalogue templates, generated on the e-catalogue platform of the buying organisation, see an example in the table 4.

e-RFQ	Order Volume (Pa)	Order Volume (Pb)	Order Volume (Pc)	Proposed Price (Pa)	Proposed Price (Pb)	Proposed Price (Pc)	Order Quantity
Product A	€ 8.400,00	€ 8.750,00	€ 8.050,00	€ 1.200,00	€ 1.250,00	€ 1.150,00	7
Product B	€ 10.000,00	€ 10.800,00	€ 9.200,00	€ 1.250,00	€ 1.350,00	€ 1.150,00	8
Product C	€ 5.250,00	€ 4.550,00	€ 5.950,00	€ 750,00	€ 650,00	€ 850,00	7
Product D	€ 6.400,00	€ 6.200,00	€ 5.800,00	€ 160,00	€ 155,00	€ 145,00	40
Product E	€ 1.950,00	€ 1.820,00	€ 2.080,00	€ 75,00	€ 70,00	€ 80,00	26
Product F	€ 2.548,00	€ 2.626,00	€ 2.470,00	€ 98,00	€ 101,00	€ 95,00	26
<b>Total</b>	<b>€ 34.548,00</b>	<b>€ 34.746,00</b>	<b>€ 33.550,00</b>	-	-	-	-

Table 4 : e-RFQ Analysis

There are two application scenarios in which this methodology can be used:

- 1) The analysis of alternative suppliers within company's portfolio: In this procedure, buyers need first to identify the suppliers which have a substitutive product portfolio oriented by the material groups, deploying thereof either the method described above or simply the products' material group. After these vendors are identified, the e-RFQ process should be conducted, including those suppliers.
- 2) The e-RFQ is carried out with actual and other potential suppliers; hence the decision about the execution of an open or closed e-RFQ has to be made. By an open e-RFQ, any supplier who has access to the supplier portal can participate; on the other hand, by a closed e-RFQ, just suppliers who were invited can join the process.

On the condition that the necessity to execute an e-RFQ is identified, the catalogue template, including those products for which the RFQ will be done together with their technical proprieties and their brand/model, has to be created.

The e-RFQ data model should provide users the data structure necessary to exchange the required information to support this procedure. Hence, the information regarding the products that are part of the e-RFQ process is a critical issue of the data model concept.

The goal of the e-RFQ data model is to create a product description that from one side, makes possible the unambiguous identification of a product or service, and from the other side, allows the entry of variable data from suppliers.

For this reason, it is necessary the division of the data model into two categories, see tables 5 and 6:

- Fixed attributes, which are product specifications adopted by the buying organization with the aim of describing the products to suppliers. They cannot be edited by the suppliers and generally it includes parameters to characterize the desired product and service;
- Variable attributes, are the product specifications that are going to be edited by the e-RFQ

participants and define their commercial conditions or proposal to the buying organization.

The necessary information is defined by the buying organization, although the effective information regarding the commercial conditions and supplier identification is given by the suppliers.

*Table 5 : e-RFQ Data Model (Fixed Attributes)*

<b>Product Attribute (Fixed)</b>	<b>Data Type</b>	<b>Mandatory</b>	<b>Comment / Example</b>
Product_id	Alphanumeric	Yes	Unambiguous / Unique identifier
Short Description	Text	Yes	Product description with less than 40 characters
Long Description	Text	No	Product description containing between 41 and 200 characters
Standard Classification System	Code	No	<a href="mailto:eCl@ss">eCl@ss</a>
Organization's Classification System	Code	Yes	Proprietary or standard classification system
Currency	Code	Yes	Transaction currency
Organization	Text	Yes	Buying organization
Quantity	Number	Yes	Product contract quantity
Unit of Measure	Code	Yes	Piece, Kilogram
Size	Number	No	Product's size
Weight	Number	No	Product's weight
Other product parameters	Alphanumeric	No	In case, there is other product specifications

*Table 6 : e-RFQ Data Model (Variable Attributes)*

<b>Product Attribute (Variable)</b>	<b>Data Type</b>	<b>Mandatory</b>	<b>Comment / Example</b>
Supplier	Text	Yes	Supplier legal name
Supplier product number	Alphanumeric	No	Product number at the supplier side
Price	Number	Yes	Product price proposal
Delivery time	Number	Yes	Expected delivery time
Payment condition	Reference	Yes	Selection of one of buying organization's payment conditions
Quantity discount	Alphanumeric	No	Possible discount models
Order Unit	Number	Yes	minimum / standard order unit
Image File	Multimedia	No	Picture, film
Manufacture	Text	No	In case product from another producer

The templates containing the product specification is then sent electronically to the supplier portal, at the same time that an automatic e-mail is sent to potential suppliers. The template can be either manually generated by buyers or, in case the products already exist in the e-catalogue platform, a derived catalogue containing just the descriptive attributes can be extracted.

Simultaneously, the system allocates an e-RFQ number for each potential participant, which consists of the e-RFQ number plus the supplier number, to guarantee an unambiguous identifier.

In the case that a supplier is still not a member of the network, the e-mail should contain also a provisory login and password as well as a short tutorial / leaflet about the template editing process.

The suppliers can either participate on the selection process or they can reject it, in this case they should provide a reason to refuse the e-RFQ, which can be given in free text or selecting from a pre-defined list available in the system and standardized by the buying organization, which will use the response for future buying decisions.

Supplies which decide to participate on the bid process, need to identify the products that they have in their portfolio, according to the information disposable in the template, and complete the template on-line or in an excel sheet with the quantitative data requested, e.g. price, deliver time, discount quantity and so forth.

The products that they do not have in their portfolio should be refused and the system represents the lack of the product with an empty field, so that they will not be part of the analysis.

After the supplier has completed the information and approved his/her inputs, the complete catalogue is sent back to the buying organisation along with a communication e-mail.

This procedure closes the supplier processing task and generates in the system respectively the status supplier e-RFQ completed and received, including the respective timing as soon as the buying organization system acknowledge the template receiving.

Once all the participants have sent their fulfilled templates back to the buying organization, purchasers can initiate their analysis process, applying for it the OLAP functionalities and filters, and if the case may be, select the most appropriate provider for those products or start a new selection process.

For tiered prices products, a filter was designed to allow buyers to select between the analysis of these products based either on their first lower bound, the average order volume or the most common order volume of each product.

An on-line tracking functionality has been designed to provide buyers with the possibility to trail their e-RFQ events via the access of the workflow data and its status. In this manner, the e-RFQ can be

controlled from its start until the final supplier analysis and potential selection. And in case it is required, communication mechanisms, e.g. e-mail, can be applied to speed the procedure up.

The tracking functionality has its focus on the collection of data concerning the e-RFQ process and its representation to the responsible buyers, for this purpose the status information is gathered and stored in the data base for on-time checks and future process control and improvement proposals.

Before a buyer approves and publishes a selected e-catalogue in the e-catalogue procurement platform, the contract conditions as well as the contract itself, has to be generated and sent to the supplier to be signed.

Therefore, the e-RFQ data sets can be exported to a database system, e.g. Access from Microsoft or to a customized database in the e-catalogue platform, which contains contract models of different products groups and can be configured in diverse forms, e.g. create new contract, additions, configuration of different paragraphs, deployment of standard contract model.

The generated contract can be sent electronically to the supplier including an electronic signature and once the supplier has agreed with the contract conditions, a template with the complete product information is sent to the supplier for its import, in the e-catalogue procurement platform, following the usual approval process.

On the other side, the e-RFQ data will be once more used to check, at the buyer side, if the contract conditions have been respected during the creation and approval of the new supplier catalogue.

The proposed approach is an effective method to identify and evaluate suppliers of indirect goods with no single or large product offers due to its capacities to appraise electronically the financial implication of multiple products quotation, without the product identification issue, at the same time that it assists buyers with their bundling analysis.

#### IV. THE ETL AND STORAGE PROCESS

The data necessary to perform the e-sourcing process is extracted from the e-catalogue platform, e.g. product, organisation and supplier data, and from the search engine database, e.g. ordering data, as well as from other less relevant external data sources.

Nevertheless, the ETL-process has incurred in some modifications to attend the requirements of the e-sourcing activities. The acquisition of the e-catalogue data, which includes information about products and the e-catalogue itself, is triggered via both the approval of the supplier e-catalogue, as well as the buyer catalogue, see figure 2.

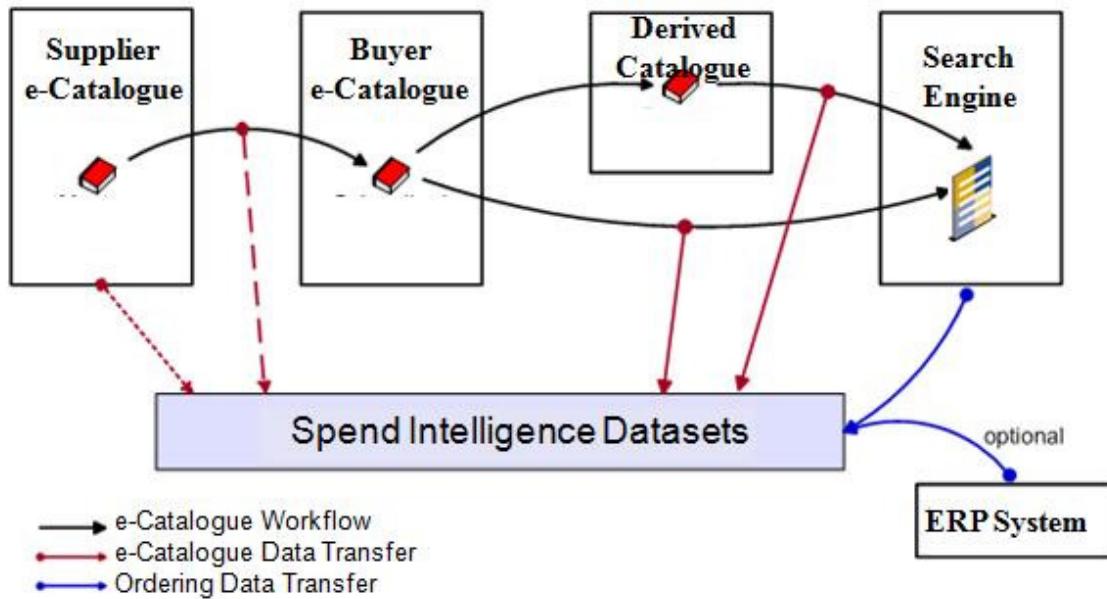


Figure 2 : e-Catalogue Workflow - Sourcing ETL Process

The catalogue data export is integrated directly into the system workflow, and since this is configured independently for each catalogue, the system administrator has the chance to select the appropriate workflow for every catalogue, i.e. include an instant data export to the spend analysis module.

On the other hand, the ordering data acquisition is configured to occur once per day, at night, to not affect end-users daily operational activities, by the deployment of a scheduling program that controls the interval of the data transfer, from the search engine database to the business intelligence solution.

The e-catalogue data extracted from both the supplier catalogue and the e-RFQ catalogue, which are used essentially for the assessment of alternative material sources, are temporary stored in the business intelligence database.

From these two e-catalogue types, just pre-defined assessment relevant attributes are transferred to the temporary storage and used in the product portfolio evaluation process, e.g. price, product description, delivery time, discount quantity, material group, etc., and only when the e-catalogue is approved by the buying organisation, the definitive storage in the database takes place.

In the case of the e-RFQ catalogue, the template has to be first created by a buyer, who can do it either manually or by preparing in the e-catalogue platform a derived catalogue, which may contain a complete catalogue, a subset of a catalogue or a combination of several supplier catalogues.

After the template is generated and sent to the RFQ participants with the descriptive product information, the suppliers can complete the catalogue

information and sent it back to the buying organisation, where the data are extracted and analyzed.

In both scenarios the primary product identification key of the e-catalogue platform data structure is the "product\_id", which does not offer a clear identification of identical products from different suppliers.

Therefore, there was the necessity to create a supplementary secondary key on the ecatalogue platform, to allow the comparison of identical products from different providers through the use of a well-defined and analytical friendly identifier.

The identifier consists of a "product\_id" and the combination of the "supplier\_id" and the "catalogue\_version". This combination creates a unique code that appears just once on the table and gives the system an appropriate identification code to back the sourcing process.

The essential information is temporary stored in the database, in a separate data structure, to increase queries and computation performance. The main advantage of this approach is the reinforced consideration of the functional requirements during the modelling of the two data structures to increase the system capacity and reduce the respective data structure complexity.

The e-catalogue data transfer to the storage area is an independent process, which is specialised on the acquisition of the temporary data and its singularities. The extraction of the permanent data is handled by a second ETL-process.

The temporary data is kept in the database during a pre-defined timeframe. However, it is given to buyers the possibility to recover this information if the

data has been deleted before the necessary business analysis has been carried out.

## V. CONCLUSION

The later developments in the global economy and the increase in market competition caused mainly by the concentration process of companies, the reduction of markets' entry barriers, the increase on customer's demand and the high speed on product innovation, have forced companies to look into their business functions more critically with the purpose of finding new ways to gain and maintain distinctive competitive advantage.

The purchase department due to its high potential to impact company's performance has happened to be one of the main functions to be addressed in order to leverage enterprise's competitiveness, which has changed dramatically their employees' routines and the department status within the modern organization, from a merely administrative division towards a strategic driving function.

In this context, the information system technology has played a key role and has been implemented in companies for the last decades coming a long way, ranging from EDI to connect organizations to their strategic suppliers, ERP systems including dedicated purchasing functions, to extensive and specialised supplier relationship management solutions, which aims to cover the entire purchasing cycle from the demand identification to the order process of direct goods.

However, the indirect goods and services have been left to a second plan, with companies concentrating their investment mainly in direct goods purchasing solutions, although the notorious advantages to implement IT system to support the indirect goods procurement.

Therefore, the research has been concerned about obtaining crucial information in this field with the purpose of creating a concept, which can be employed to expand the capacity of e-catalogue systems to communicate with other solutions and manage a wider scope of activities within company's supply chain.

The e-catalogue sourcing tool introduced in this paper has been designed to improve the current practices of indirect goods' sourcing process due to the fact that most sourcing activities in this areas are done currently manually or with a limited level of information systems application.

The work introduces an ideal process model in which the framework may be applied to support the negotiation process of catalogable products and services. The ideal model is consisted by a step-by-step process description of an e-catalogue based sourcing process.

The process phase is divided into strategic planning, current supplier portfolio negotiation, supplier evaluation, alternative supplier search and the e-RFQ procedure.

Furthermore, the specific ETL process, required to acquire and convert the data in the right format to enable the execution of the e-sourcing activities, has been described.

The solution includes supplier negotiation as well as supplier evaluation functionalities, which together with the other functionalities of the framework, provides companies with an innovative environment in which buying organizations can perform their entire source-to-order process electronically.

It is expected that with the implementation of this new concept companies will improve their indirect goods and services procurement process, increasing the return on investment of the e-catalogue solutions and narrowing the entire purchase process supported by a unique and integrated solution.

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## Behavioral Finance of an Inefficient Market

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**Abstract** - According to the prior studies individual investors do not act according to the traditional finance assumption. Rather they take investment decision under the influence of several psychological and other factors. In this paper individual investors of Dhaka Stock Exchange (DSE) were taken under survey on sample basis who are on the market since 2008 till now. The study was made to identify the most influential factors which affect investment decision of individual investors. For this purpose demographic and social economic variables were asked under different questions. The paper discussed and used relevant theories to select those questions. Investors' response was used apply under PCA. After factors analysis it was found that Psychological factor is the most dominating influence upon investor's decision making process. Micro economic factor and social factor also have influence on selecting investment securities. Though not very much but, little influence also has been observed by macroeconomic factor and. Index and knowledge of financial analysis of stock market is not very significant to the investors in fact most of the investors do not understand the process and exact meaning of index. It is suggest that, the amateur investors should gather more knowledge about the market and take every declaration under consideration. In order to avoid herd behavior, investors can gather past data and control their representative bias if they want to seek target profit.

**Keywords** : Behavioral Finance, General financial economic, Market efficiency, Investment decision, Factor model.

**JEL Classification** : G 02, G 10, G14, G11, C38.



BEHAVIORAL FINANCE OF AN INEFFICIENT MARKET

*Strictly as per the compliance and regulations of:*



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# Behavioral Finance of an Inefficient Market

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**Abstract** - According to the prior studies individual investors do not act according to the traditional finance assumption. Rather they take investment decision under the influence of several psychological and other factors. In this paper individual investors of Dhaka Stock Exchange (DSE) were taken under survey on sample basis who are on the market since 2008 till now. The study was made to identify the most influential factors which affect investment decision of individual investors. For this purpose demographic and social economic variables were asked under different questions. The paper discussed and used relevant theories to select those questions. Investors' response was used apply under PCA. After factors analysis it was found that Psychological factor is the most dominating influence upon investor's decision making process. Micro economic factor and social factor also have influence on selecting investment securities. Though not very much but, little influence also has been observed by macroeconomic factor and. Index and knowledge of financial analysis of stock market is not very significant to the investors in fact most of the investors do not understand the process and exact meaning of index. It is suggest that, the amateur investors should gather more knowledge about the market and take every declaration under consideration. In order to avoid herd behavior, investors can gather past data and control their representative bias if they want to seek target profit.

**Keywords :** Behavioral Finance, General financial economic, Market efficiency, Investment decision, Factor model.

## I. INTRODUCTION

Investment is a rational income generating decision which normally leads by investor's necessity of periodic income. Individual amateur investors want to invest their extra savings on the basis of their demand for income. Jeff Madura (Financial market and Institution, 8<sup>th</sup> Edition, Ch 8) mentioned it as "Matching principle" which is even responsible to affect price of securities. When fixed income earning people invest in the capital market, they will expect to earn something extra on a regular basis, to get compensation for the risk. The acceptance of compensation depends on that person's risk tolerance, financial back up the nearby social factors. Not all the investment is profitable, and not all the investment is loss-bearing. The key to a successful financial plan is to keep apart a larger amount of savings and invest it intelligently (Kabra et al, 2010). There are several parameters to determine which has influence upon investment decision such as return, flexibility, perception towards risk, etc. Investors'

ideology regarding the parameter also depends upon that person's socio- economic and demographic condition, like, age, gender, profession, saving, risk adjustment etc. study of investor's such character will help to portrait investment attitude of any investors. This will be helpful to the stock brokers and portfolio managers so that they can offer better portfolios to their investment. This analysis will show the mentality of an investor and his preferences of investment concisely. On that light this study is taken place to identify the major influential factors which leads the investors to pick their desired stocks.

Many works and research s have been made upon what factors may affect investment decision of investors. It is found that, investment choice may vary from country to country, but, in most of the studies individual investors' choice of investment if taken quite emotionally rather than rationally. Srivastava (2012) surveyed between two different groups of Indian investors on the basis of theories of behavioral finance. According to his identification, people's experience leads them to take more rational decision than the inexperienced one. Individual investors are influenced by several biases. So if they can reduce or control the effect, rational decision is possible to make.

Baghdabab et al (2011) studied the behavior of Malaysian investors. They have identified 13 influential factors by surveying on the basis of literature review. According to their study firm's public information is the most influential factors. Financial ratios, and past information are ignored and not taken as consideration prior to investment by the potential and existing armature investors of the market. The study did not follow any particular theory; however, the basic behavioral theories were used to enlighten the selection of variables.

Kenneth A. Kim and John R. Nofsinger (2003) studied investors' behavior of Japan. It was found that individual investors make comparatively poor choice. They own stocks with high risk, large book-to-market (BM) ratios, high trading volume, and earn low returns.

Different findings are drawn from different case studies by researchers' of different countries. Behavioral finance theories were exploited to identify the factors. In this paper, theories were discussed at first assuming the market is inefficient. Then that basis, variables were used as option of 17 relevant questions. Factors were identified and justified on the basis of both theories and practical. Then some suggestion has been offered which can be applied by the legal enforcement authority to reduce the market information.

*a) Rationality and Objective*

Efficient Market Hypothesis (EMH) is required by all type of stock market for having a steady growth and avoiding the tendency to become a bear market. However, economic condition and weak market regulation often let the market-planner to manipulate with investors common psychology and tendency. As a result the world economy face scammed crash on the stock market.

Market efficiency is a subject of discussion in Dhaka Stock Exchange (DSE). The general market index never has a steady upward trend except 2008-09 (See Appendix 2). After 1996, either the market had a sharp rise, or unpredictable fall. The major reason identified by the researchers is the failure of weak form of efficiency on the market.

Mollik and Bepari (2007) studied the daily trading index and the study found negative normal distribution pattern of return. That is the return has a seasonal rise and pick, however randomness is absent in the pattern. Using autoregressive test, they found that, the DSE return series is influenced heavily by various market anomaly.

Hussain et al (2008) applied technical trading rule upon DSE considering 22 years (1986-2008). The study purpose was to compare the market efficiency before and after the 1996 "market – crash". They have identified that, because of close monitoring system, circuit breaker, credit rating etc, improved the operational efficiency of the market after 1996. However the market cannot perform with efficiency because of lack of flow of quality information o all to all market participant. Proper rules and implication of those rules by the law enforcement authority and participation of new firm were suggested there.

Same line of findings observed by Mobarek et al (2008) which identified market may work inefficiently because of herding behavior of the market participant. Sometimes any firms sudden price rise or any price sensitive information overvalued by them. Over demand make Game planners easily access to the market and get in hand easily accessible money. Chaity and Sharmin (2012) proving the market inefficiency added lack of market supervision and ignorance of the participant increase the inefficiency of the market.

So evidently it can be assumed that DSE does not follow the weak form of efficiency and market participant either increase or crashed the market condition by recklessly and whimsically taking the decision.

The objective of this paper is to identify the factor responsible to mold the investors of stock market in taking investment decision. For this reason, investors' nature and socio – demographic condition has been discussed here. Theoretical behavioral finance and several relevant theories were discussed to identify the

factors. Market condition of DSE is also discussed to prove inefficient market condition.

## II. OVERVIEW OF CONCEPTUAL FRAMEWORK

Behavioral finance is that part of academic finance which studies people's buying and selling behavior of stocks. There are emotion, assistance form people, lack of consciousness and information lacking, expectation of earning and so many anomalies which challenged traditional efficient market hypothesis. Efficient market where assumes investors must be rational, their behavioral finance thrown light on their irrational attitude in selecting stocks. According to the Traditional Expected theory of Economics, rational people always make decision putting weight on their maximum benefit and being rational is a constant assumption. In the over view part, at first, EMH and Behavioral Finance is focused, then on that light relevant theories and prior work on this sector has been reviewed. Along with the literature review, basis for the factors for this paper also has been selected.

*a) Efficient Market hypothesis (EMH)*

Fama (1971) introduced EMH which states that, stock price must reflect all the available information in an efficient market. The three state of efficiency is relevant to discuss here:-

- Weak form of efficiency: past price cannot be used to predict or earn abnormal profit.
- Semi strong form of efficiency: share price reflect all publicly available information diminishing the scope to earn abnormal return.
- Strong efficiency: even insider information is available through stock price.

EMH built on the basic assumption that; Investors will act rationally, the existing irrational investors either will cancel their trade or follow the market and market participant must have a well defined utility functions which will be expected to be maximized. (Fundamental of investment, C. P. Jones, 9<sup>th</sup> edition). Notion of efficient market depends on information availability of price and message of various events. The information discussed from several angel, like, Accounting information (Ball and Brown, 1968), block trades, new issues of securities, stock splits (FFJR, 1969), portfolio performance, sometimes divestitures and merger.

Price availability if adjusted by the rational investors then they can assess their expected earning with adjusted gain. In order to value the expected and unexpected earning Finance Theorist had provided some model such as:

*CAPM model* : Markowitz (1959) assumed rational investors mean variance efficient portfolio. "mean variance-efficient" portfolios, hold assumption

that portfolio will 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance. Sharpe (1964), Linter (1965) and Mossin (1966) developed the very useful CAPM model which considers only systematic risk as risk factors, providing premium for all other.

Expected return = Risk free rate + (Market factor in period t-risk free rate)  $\beta + \epsilon_{it}$

*Expected return model* : Fama suggested the following model unexpected return valuation model due to inefficiency of market.

$$Z_{i,t+1} = r_{i,t+1} - E(r_{i,t+1} / \epsilon_{it}) + \text{Systematic risk}$$

In a efficient market  $Z_{i,t+1} = 0$ . fragine.

*The abnormal performance index*: in order to check the abnormal return from the market Sharpe, Treynor and Jensen introduced abnormal performance index. Sharpe dived the market premium with  $\sigma$  (Standard deviation form return) and Treynor divided with Systematic risk ( $\beta$ ). Ball and Brown (1968) identified the abnormal return as return earn form any event rise per dollar return. 1 will be deducted from there to get par week value.

In presence of the market inefficiently and insider information Fama (1997) found that, long term anomalies are fragile and influenced heavily by the market investors. The basic assumption of this model is the financial market is predictable.

In this paper, it is assumed that, the capital market is inefficient. Several prior studies and current stock market index were postulate for this purpose. (Appendix B)

#### b) Behavioral Finance

In 1936, Keynse state in the famous "The general theory" economy was well synchronized until investors "animal spirit" leads them from optimism to pessimism. In practical world, none of the capital market can be efficient so, above normal profit is possible to earn. However the investing decision is dominated by several econometric and psychological variables. The concept of behavioral finance argue with the rationality concept of traditional finance; and investors will not always be able to value their utility of decision alternatives, cannot estimate and update probability of events and do not diversify properly.

Tversky and Kaheman (1979) tried to develop inter dependency between psychological knowledge and economic decision of investors. Later on financial analysts and economists discussed about fundamental, industrial and technical anomalies (CP Jones, 9<sup>th</sup> edition). Tversky and Kaheman criticized traditional Expected Utility theory and developed the foundation of formal study of behavioral finance "Prospect theory". The theory focuses upon investors' basis evaluation of Cost-benefit analysis. In the revised version (1992), the authors introduced loss aversion and

mental accounting biasness which leads to investors' regression theory. According to the empirical evidence the authors introduced loss aversion theory which asserts, risk aversion for gain and risk seeking for loss, and extremely reluctance to accept mixed prospect.

So, it is necessary to discuss the basis and elaboration of the major theories on several prior works.

##### i. Cognitive Dissonance theory

Most of the studies on investors' behavior emphasized on this major theory which related with investor's psychology. Cognitive dissonance is the state of mind when a person has mental conflict with already taken decision. If the feeling is regret the psychology and rationality conflict and the person claims someone else responsible for the unwanted outcome. However logic does not accept that. The theory (Festinger 1957), states that, in order to eliminate or reduce the impact of cognitive dissonance, people may take contradictory decision and may stand on the losing position just to prove own self right.

Milan Lovric et al (2008) introduced a conceptual model of investors' behavior with a general survey of investors. They have identified several variables through which investors' thinking process move on. The dual-process system starts thanking about the result and end up with the stage of perception-interaction and action. The interaction between investors' socio-cultural variables and investment environment found out as responsible to influence investor's decision.

Traditional finance asserts, investors must act rationally to earn profit. However if they are taking decision out of emotion, that may lead to a regret. Cognitive dissonance thereby is taken as a basis of new paradigm (Lucy F. Ackert et al; 2003).

In order to get out of regret stage investors must try to minimize risk. This elimination can be done by making proper portfolio. Portfolio construction efficiently is managed by professionals. The expected rate of return form a portfolio not only depends upon country's macro variable but also the international economy. For this reason, international portfolio and condition of strongly efficient foreign countries stock market may be considered as influential variable. Such findings were drawn by Ionescu et al (2009) from the stock market of Romania. The study was taken data from the market from August 2007, which was a starting of financial crisis time for USA stock market.

At this stage professional advice is necessary. Harlow and Brown (1990) identified that, people who are adventures or sensation-seeker, are more tending to take financial risk than the others. Though there are different standard of each investors risk -tolerance level, few variables go common for all category of investors. Improved method to assess individual's risk tolerance is suggested to be introduced by the market participants.

Callan and Johnson (2002) suggested some guideline to the professional financial advisors. They have understood that, along with questioning about the investors risk tolerance, some methodical and statistical tools can be used to assess, the psychology and attitude of the investors, which may be a better help to assess investors risk tolerance level.

Sevil et al (2007) asked their case respondents about the expected rate of return what they purchased within a year. 10%-20% were the maximum predicted return. The questioned was addressed to see, whether the investors have regret or whether they are facing any cognitive dissonance or not. The question is associated with a prior question asked whether they sale a s profit yielding or loss yielding stock in a financial slow down. The investors are expecting a negative or low return which is also realization of a past wrong decision.

E. Bennet et al (2011) surveyed upon Indian (Tamil Nadu) investors and self satisfaction of investors to invest in any particular firm, has been identified an influential factors of investment behavior.

Naveed Ahmed et al (2011) studied investors behavior of Lahore stock exchange. Investors' rationality and self confidence were asked with a set of questionnaire. For rationality, institutions contribution was also being asked. Most of the investors (46%) replied that, institutions contribution on their market order will depend on situation. Surprisingly, to test the cognitive dissonance, institutions' responsibility has been questioned. Investors own analysis was found to be more influential factor than professional advice.

On the basis of this prior studies approach and expectation towards the stock were questioned. The DSE investors were asked, in a "price-falling" condition which security they will sale. The option was Profit yielding stock and Loss yielding stock. Dummy variable was used as 0 for no and 1 for yes answer.

55% investors agreed to sale the Profit yielding stock. They thought about the current proceed. However the loss yielding stock holding will not be wiser at all and in long run hiding the profit yielding stock. Suppose to generate higher return. But amateur investors decide on the basis of their mental accounting.

The second relevant question of cognitive dissonance was their expected return within the case time-frame (2010-2011). The investors were asked what rate of return they were expecting from their last years transaction and investment. A 5 class of return range were given and the following result came out. The result was quite interesting as most of the investors (42%) are expecting quite higher rate of return (10%-25%). This is quite similar with Sevil (2007) for Turkish investors (56% of total sample) who are expecting up to 20% rate of return.

Two important variables are expected to be responsible for this trend. *First*, the market is segmented, but information is not sufficiently available,

a clear weak form of market (Dr. Kishore, 2011). The *second* one is, investors' psychology to do whatever they think is well suited for him, rather than entirely depending on professional planners. Cost of service may be another reason behind the reasons.

## Appendix A

*Table 1* : Descriptive Statistics.

Below-10%	-10%-0	0-10%	10%-20%	20% to above
0.28	0.20	0.22	0.42	0.03

*Table 2* : Descriptive Statistics

Which stock will you sale in a price falling situation?	Mean
Stock that yields a profit	0.55
Stock that yields a loss	0.45

*Table 3* : Descriptive Statistics

	Good time to Buy	Patience holdings	Neutral	Get Worried about recent Portfolio	Decide to sell
Mean	.32	.26	.21	.13	.07
Sum	102	82	63	40	22

Among the 312 respondents, few did not answer the question because they are not ready to assess their investment by themselves. On the light of this mental state relevant variable found to ask the investors were, "why they are investing in this particular firm". Investors were asked to rank their preference among seven options on the basis of likert point. Among the other variables, 'Getting quick rich' identified as most influential variables. That is, when investors sensed or got know from the available information that, investment in this stock will return them quite higher capital gain, they invest on that particular stock without assessing so much about the firm's past performance ( $V_{16,17,18,19,20,21}$ ).

The cognitive dissonance refers towards two basic psychological state—Prospect and Heuristics bias.

### ii. Prospect theory

A well documented prior study supports the concept that, investors can make mistake and they have different perception regarding risk. The concept generally termed as Prospect theory. Tversky and Kaheman (1979) introduced the leading prospect theory which identified a person's intention to invest. The intention was segment into two major theme; editing them (how the stock will do) and judgment principle (evaluating loss and gain). The theory is introduced and technically explained by Kahneman and Tversky (1979) which was revised in 1992. The prospect theory was

focused and discussed from different context among which Loss aversion, Regret aversion and Mental accounting Bias are significant (Milan Lovric, Uzay Kaymak and Jaap Spronk; 2008). Other emotional and psychological biasness under prospect theory also rule as influential factors upon investment behavior. However, most of them ultimately ended up to these three biases. So this paper also focuses upon these three biases.

Guven Sevil et al (2007) studied the small investor's behavior in Istanbul. The study questioned roll of brokerage house in guiding the investors. 7.8% of the target sample denied the role of financial institutions. 34.8% respondents accepted the effectiveness of financial institutions to choose the stocks. Shareholders' reaction about share price rise and fall also considered here as they are expected to not to act rationally. The study shows most of the people (72.4%) will sell a profit yielding stock in a price-dropping situation. From this result it can be stated that, may be lack of in depth knowledge lead them to take such decision. These two variables are also tested by Naveed Ahmed et al (2011) for the investors of Lahore Stock Exchange. There were fifty-fifty response for profit yielding and loss yielding securities.

All the prior studies focused upon investors' emotional behavior. Elster (1998) used six features to explain emotion-which are Cognitive antecedents, intentional objects, psychological arousal, Physiological expression, and valence and action tendencies. His study explains why because of having the feeling of joy and regret, with all the sense of right and wrong, investors sometimes cannot take decision. Because of wrong action investors are very commonly regret (Gilovich and Medvec;1995).

In order to judge the influence of investors' psychology, on economic decision, investors' mental assessment about a particular security is another crucial point. Shefrin and Statman (2002) developed Behavioral portfolio theory in two versions to show that, this type of portfolio differ from typical Markwitz CAPM-portfolio theory. They developed BPT in two versions: a single mental account BPT version (BPT-SA) and a multiple mental account version (BPT-MA). Because of the intention to take risk even at a risky project, BOPT model securities are quite similar with real world securities as demonstrated by the authors.

On the basis of expected utility and investors risk-return analysis capability; several studies were organized were on the basis of theories of behavioral finance.

#### a. Loss aversion

Gilovich and Medvec (1995) studied the regret of investors and the reason behind their loss. Form the literature review it has been stated that, "it appears that people experience regret over negative outcomes that

stem from actions taken than from equally negative outcomes that result from actions foregone". Kahneman, Knetsch, and Thaler (1990) stated it as, losing some amount will give double pain than pleasure to gain from double of that amount (Gaining \$ 2= losing \$1).

Barbeir and Huang (2001) studied stock return of portfolio basis and individual stock returns and their impact upon investors. Their evidence suggests that the loss aversion level depends on prior gains and losses: that is, if investors already gained to overcome a loss then that is less painful, than a prior gain less loss. This is a mental set back of the investors.

Khoshnood and Khoshnood (2011) investigate significance of behavioral biasness among investors of Iran. On the basis of theory they studied the practical capital market investors. They defined loss aversion as investors' strong desire to avoid loss than to acquiring gains. Because of this loss averting tendency, amateur investors, most of the time forget about the common rule of stock market that,-buy when the price is lowest and vice versa. Loss aversion is investors avoiding tendency from any sort of possible loss project. They are not that much egger to assess the prospectus gain at the same time if that is not much bigger than the loss.

In order to check the condition of Dhaka stock exchange, in the survey question, it was asked that, in a price falling trend which stock they will sale. The choice was -The stock that yield a profit or the stock that yield a loss. The 55% of the respondents were affirmative to sale the stocks that yield a profit. And 40% were interested to sale the loss yielding stocks. That means the investors are not aware that they are losing the profitable one. They are only thinking about the short term capital gain. This phenomena leads to a basic factor: whether the investors understand the Market analysis or not ( $V_7, V_{10}$ ). The question was do they think market analysis affect their investment behavior or not and Sevil et al (2007) captured the same trend for Istanbul stock exchange investors (74% of sample wants to sale profit yielding stocks).

#### b. Regret Aversion

On the basis ex-post loss, when investors even did not dare to take decision on the basis of correct information ex-ante, because the loss they suffered was regrettable, that mental state is called Regret aversion. Suppose, an investor loose Tk 0.25 million by holding stocks of a particular firm, which he expected to rise at the middle of the year. Because of some technical mistake in analysis, and because of total loss in economy, the firm may not be able to pay cash dividend on that year. As a result stock-price did not rise prior to expected dividend declaration date. Ultimately, it was a loss year so price was fallen sharply and investors was bound to hold the stocks without making any profit rather holding capital loss. On the next time whenever

he has the correct dividend declaration new on any other stocks, he will not take any prompt selling decision, as he will have the Regret of past loss. His other influential variables if give if the same signal, then he will place the market order.

Loomes and Sugden (1982) introduce regret in a theory of rational choice under uncertainty. On the basis of above situation, they have derive Modified Utility function. Which assumes, a person's rejoice and regret both depends on *choice less utility* and the sensation is *what occurred and what might have occurred*. On this assumption the authors hypothesized, if what occurred and what might have occurred can give equal pleasure or regret then, there will be no Regret. In this theory Loomes and Sugden offer a wider range of prediction which investors may consider and which are relevant with practical world. Michenaud and Solnik (2008) applied this model in currency hedging choices to have an optimal solution.

Tehrani and Gharehkolchian (2012) applied the regret aversion theory to test what factors affect disposition effect of investors at Tehran stock exchange. Regret aversion found to have a positive relationship with disposition effect while self control was negatively associated. They also found that a well educated participant has lower disposition rate then low educated participants. The information leads to a conclusion that, education gives confidence to a person which leads to regret less and disposed less even after a loss experience. Mahmood Yahyazadehfar et al (2010) studied the regret aversion condition of investors in Tehran Stock exchange. Their conclusion was investors sorrow or grief after making a wrong investment leads him /her to take such decision.

In order to judge this scenario, investors were asked what will be their reaction if the price rise extremely or fall extremely. 63% of the respondents felt extremely bad with a sudden price fall of stocks (36% were neutral). Whereas 54% of the respondent feel extremely happy with arise of a stock (40% were neutral). Dr. Nick Maheran et al (2009) studied rational behavior of Malaysian investors and speculative decision identified as a major factor which influences the investors.

On the basis of this mental state investors were asked about the market price movement ( $V_4$ ), current economic indicator, ( $V_6$ ) and stock market declaration regarding certain stock ( $V_3$ ). Investors applied affirmatively about the influence.

Sayed Rasol Masomi et al (2011) asked similar type of question to the investors of Tehran stock exchange. They asked respondents whether they avoid to sale the stock which has a fall in price and 14% of the total sample were affirmative.

### c. *Mental accounting biasness*

This mental state leads investors to calculate mentally about the expected profit of the investment.

One major problem is because of lesser experience and knowledge; investors fail to recognize the original value of portfolio. They calculated separately on each stock, however that certainly will not match with total portfolio return.

Chandra et al (2011) tested factors influencing investor's behavior of India. Their study found that most of the respondent investors consider loss on stocks separately. Portfolio calculation did not come in mind when they calculate by themselves.

Nik Meheran (2009) stated comparison of behavioral and traditional finance. According to him, many people are unable to distinguish between good stock and good companies. Common people judge the good advertisement or commercial presence of any company as their standard. Conclusion can be drawn as good status represents good companies leaving others unattractive.

Naveed Ahmed et al (2011) studied investment behavior of Pakistani investors. With the same line of thinking, they used question like, credibility of well known companies are more than small companies.

Sayed Rasol Masomi and Sara Ghayekhloo (2011) studied the behavior of investors in Tehran. They also used these factors like Sevil (2007) for Greece.

This paper treated this situation from different angle. 312 investors were asked their decision when stock price is going down. They have given the following options (1 for response, 0 as dummy on the other options). 32 % investors consider it as good time to buy. That means investors are now a days well known about the basic rule of stock market.

They do *Mental accounting*, like, if return lower price or unexpected downturn of regular income like dividend, investors will regret on the buy or sale decision. Investors should interpret analysts' recommendation and then forecast about their earning as recommended by Bin Ke and Young You (2007). They also recommend investor's should not consider the projected price and earning are as equivalent to the analysts' and to themselves. So projection basis may vary. Relevant variable regarding this metal state for this paper was what mental assessment they do regarding dividend earning ( $V_{11}$ ,  $V_{14}$ ).

Institutions are one of the major intermediaries on the stock market. There is option to trade on margin which is easy to pay off if, there are events to get a uprising or boom market. Gain at stock market if convincing to earn quickly, then margin trade seems to be the most logical source of financing ( $V_{22}$ ). Relevantly, instead of depositing money in a fixed deposit account, a regular stock market investment, suppose to return expected gain, along with regular anomalies. Surplus unit of the economy, think about the expected rate of return in terms of time and cost. A favorable capital market is expected to return higher rate than an FDR account ( $V_{24}$ ). A lower bank rate must mould investors to

invest more in the capital market directly, rather than keeping the money with a saving account. Current FDR rate of Bangladesh is 12 % (2012). Prior to the stock market depression since 2010, it was quite interesting to the potential investors to put their money into the capital market. Even a long term investor also can think about purchasing more stock as the market has a down turn.

### iii. *Heuristics Theory*

This psychological states explains that, people have tendency to take decision or make judgment on the basis of nearest available information, Because the act occurred quickly, there are lots of possibilities to capture the wrong decision. In a capital market, amateur investors act on the bias of their own thinking. Most of them place market order (Buy or sale order) following the others. Four major angel is judged under this theory. (Chandra et al, 2011).

*Investors are may be over confident.* While choosing security or putting any order, they may take decision by themselves. If they gain unexpected profit form one gambling, then that will give them intensive to take more self-assumed decision. Ultimate result may raise the regret according to the cognitive dissonance. However, if they learn to control their temptation and follow the market rule, this may help them to avoid unexpected loss.

Sun and Hsiao (2006) studied the investment nature of Taiwanese investors in a pilot test. According to the Confirmatory factors analysis, where overconfidence occurs when investors do not assess the privately received information and take decision accordingly. This tendency is avoidable by practicing self-confidence and statistical tool.

The heuristics theory leads to the question about Technical consciousness. Investors were asked how much they know about industry and firm analysis. On the basis of three choice investors answered that they understand moderately about the market index. However they are not conscious at all how the analyses do were run ( $V_{27}$ ).

*Representative bias* was identified as another responsible variable. Investors can invest on the basis of their past experience. That investment may not return them their desired result. However this scenario is difficult for them to accept, and it is equally difficult to accept their own assessment fault. Following the past information keenly and take the expert advice can be major tools if the investors want to follow their own past trends.

Chandra and Kumar (2011) studied the representative biasness of investors and found their majority of them invest on "popular stocks" considering past data, however rest of the investors ignored the recent past data while making investment decision.

Merikas et al (2011) analyzed factors affecting Greek investors' behavior. They asked the investors whether they follow the past information of the

companies before making investment decision or not. 30.7% investors are affirmative about following the past information

Li and McDowell (2009) studied the effect of analysts' report on companies upon amateur investors. They researcher found that, investors feel more positive to get good report than to get a bad report. After controlling the cognitive feelings of investors' it will influence their investment decision.

For this study, the following options were asked to investors to rank among factors what they prefer to judge before pecking any stock. From the target sample 63% people responded that they follow the past information (Financial statement). We can draw a conclusion that major investors of DSE are quite conscious and they can control their temptation and overconfidence. Remaining of the investors ignore the past data. On the light of representative bias, investors were asked to rank the source information. Not only the company's annual report, but also the international economic depression also has influence upon the stock market. These variables were also asked to the investors to rank ( $V_7, V_{23}, V_{24}$ ).

*Anchoring Bias* is a mental state, when the investors set a target and judge their future return nearer to that point. The target point is referred by the socio-economist and financial behavior analyst's as "Anchor". Kannadhasan (2010) found that, with new information, investors expect that, their investment will be as same as like the past return trend. Anchoring bias often referred as adjustment bias (Dr. Kishore, 2011). According to the theory, capital market armature investors often set a target and even after the arrival of a new information, investors denied to adjust according to that.

Milan Lovric et al (2008) developed a conceptual model of investor's behavior. On the basis of theories of behavior finance and prior empirical studies the authors summarized several conceptual basis upon which investors attitude can build up. Adjustment and anchoring bias described as a dimension of social bias. According to them insufficient data makes the market value heavily dependable on initial value. Investors target a future value on this basis, however because of absence of numerical data, often subjective probability influences their decision and confidence level lead them to a wrong judgement in a price falling situation.

Chaarlas and Lawrence (2012) studied effect of anchoring biasness upon independent investors of India. Achoring bias is discussed initially as investors' tendency to overestimate any stock price on the basis of not so relevant information. However, later on, the authors identified this biasness as a fundamental feature of successful investment strategy. Successful investors are expected to judge every relevant company's information and not to take decision on a basis of one or two of them.

Hsiao and Sun (2006), observed 290 Taiwanese investors. They focused their discussion on investor's mentality on disposition effect. According to their factors analysis, self -developed measurement scale has a positive but significant relationship on investors' disposition act.

For this paper, several factors were asked to the investors, regarding their selection and judgment about stock. For the selection process, the rational investors are expected to watch and analysis past performance of the firm and the market index. In the questionnaire understanding about market index was questioned with five options from well understanding to negative understanding. Major shareholders of the sample care about market index. However, they understand a moderate level. ( $V_{25}, V_{26}$ ).

**Availability Bias:** Most of the amateur investors heavily rely upon commonly available data. Without questioning and querying too much they place a market order which in return may give poor result. But availability of hot stocks (Chandra and Kumar; 2011) influence them to take such action. Trading brings pride when decisions made are profitable, but it brings regrets when they are not. Investors avoid selling losing stocks and blamed the professional intermediaries for not making a profitable portfolio. Information can be collected through many ways.

Merikas et al (2010) studied the investment behavior of Greek investors and classified the different source of information into 5 major factors. For this reason, all the five factors contain 26 different source of information and social pursuance. Among all, Accounting information explained the maximum variables which contains the Expected earning form the firm (72%). So Dividend related information makes investors attracted to invest. They are also presumed by relatives, friends and institutions to invest in some particular portfolio. (Kabra, 2010; Sevil, 2008; Veeraraghavan, 2011 and so on).

Not only the information provided by the near bays but also the environment and other source provide scenario which represent that an investment will raise the regular income bar. The information may raise the cost of investment (Gilovich and Griffin; 2001). The critiques of heuristics and biases often identified that, Bad News draw more attention than any positive news. So if the media or press is biased about any firm, negatively, that may give a turn to the investment schedule.

Peng and Xiong (200) studied on investors' attention overconfidence and process of learning to peck the necessary information. They have used Bellman equation to build investors optimal portfolio. They have identified that, investors mental accounting based optimal portfolio is different than CAPM based optimal portfolio (Shefrin and Statman, 2000). Availability and use of information is playing a major role here. Use

of correct information is expected to reduce the level of risk associated with portfolio. However they also identified that, several variables found in the financial statement s are not necessary. Those variables do not influence future share price.

This paper is aimed to identify different influential variables for investor's behavior and it was identified that information from the professionals are the most influential variables among the options ( $V_1$ ).

**Gambler's fallacy:** Gambling is the game which depends on target and luck. Not any certain technique is used in playing gamble. Luck and following the others rather quite used term in case of gambling. Luck and following the others rather quite used term in case of gambling. Suppose, you wore a black shirt to seat for a test and got a A+ on that test. If you area person who depends on luck a lot, then you may want to wear that shirt afterwards each exam considering it your lucky shirt. Even though, you did not get good grades in some exams, you will overlook that, thinking the positive effect on your good grades. At maximum time it is not about the cloth, but it is about the confidence it gives to you. A gambler's fallacy, theoretically, identified human nature to develop a reason behind any decision, out of some illogical concept. On the happening of event A is not depending upon event B, however under this heuristics, people think that, it depends.

Amin, Shoukat and Khan (2009), studied the influence of Gambler's fallacy upon the investors of Lahore, Pakistan. At sample investors were asked four question to draw out investors attitude towards the market and the presence of Gambler's fallacy into their nature. A testing question targeting the objective was, investors believe about trend. 75.1 % investors believe that, the current trend occurs because of happening of some series of event. However this was not always right, there are some other consequences as well as.

Masomi and Ghayekhloo (2010) put some light on the behavioral pattern of investors of Tehran. They have asked about their ability to predict the end of a good market or bad market. 78.5% investors were affirmative about their credibility to predict the market. The study supports and identified that gambler's fallacy exist among the investors and this lead them to act over confidently.

This paper asked the investors about their knowledge to understand market index with a five point likert scale about their knowledge and understanding level about market index. 34% investors were agreed about following the index sometimes and get a moderate knowledge how index works. Though only 6% investors showed a negative response about index, the survey response is not clearing the exact picture. The respondents may understand that, index presents the price trend, but suppose not be sound enough to know the index is prepared.

**Table 4 :** Descriptive Statistics : Understanding Level of market index

Very Much	Moderate	Neutral	Little	Negative
.26	.34	.17	.24	.06

In traditional finance, investors must have the capacity to analyze what is right for him and what is wrong. However, the traditional finance did not give the platform to discuss about socio-economic and psychological factor ( $V_2, V_5, V_8, V_9$ ). Lucy Ackert et al (2003) discussed the influence of emotion on the financial market. They discussed mainly on individual investors. A paradigm is suggested by them, that, though investors take decision being biased by their sentiment, however this did not contaminate rationality of the investors. Self-control may work to take effective decision.

This paper will study the behavioral influence of the market by deploying the above literature review. Factor was selected on the basis of discussed theory.

### III. METHODOLOGY

A survey research method was used to collect primary data for this analysis. A total of 17 questions were asked to 400 investors who are not professional investors and mainly who are investing to earn something more than regular. Other than investment preferences variables, all the questions have 5 options to choose. Dummy variables was used as, if responded than 1, if not then 0. However, some options of same were chosen at a times. In order to maintain quality of response, a personal interview method has been used. Five point likert scales has been used in only two questions. A total of 27 variables were tested to check their viability or influence upon investor's decision.

#### a) Data set

The data set contains questions about their socio economic factors, their concept about investment and most importantly, the factors influencing their investment decision. Form the total collected responses, only 312 replies has been sorted out as they are complete. This represents 78% of total data set. The

sample has been selected focusing the investors of urban area, who located inside of South Dhaka permanently and have some other profession. The target sample is not professional and none of the investors has investment ranged above Tk 20 lakh. For the soc after socio economic factors a set question has been served. In order to judge the relevant theories selected variables has been used in the questioners.

### IV. DESCRIPTIVE ANALYSIS OF DEMOGRAPHIC VARIABLES

Jasim Y Al-Ajmi (2008) while studied risk tolerance of individual investors Of Bahrain stock exchange, he listed the socio economic variables to judge the investment attitude of armature investors. Age, gender, education and wealth were his primary variables. Profession is another relevant variable with wealth as used in the study of investors of Tamil Nadu. (E. Bennet, Dr M.Selvam, Eva Ebenezer, V. Karpagam and S. vanitha; 2011).

In the psychological based research investment decision model all the psychological variables are graded in to two section Risk Propensity and Risk perception. (Iqbal Mahmood et al, 2011). Gender has been considered one of the most significant factors to assess investors risk perception.

For the knowledge of prospectus investors of USA, NASD Investor Education Foundation granted and researched on a sample of 911 US households in 2006-2007. In their Demographic and Economic variables, age, education, employment status and occupation are 4 of 11 selected variables.

On the light of discussed literature review and from the perception of amateur stockholders of Dhaka Stock exchange the following three variables were queried to the respondent-Age, Education and Profession.

#### Age

The question has answer of five class intervals. It is found that, among the 312 responded 29% belongs to medium age group that is 36 y - 40 Y.

**Table 5 :** Descriptive Statistics of Age

Age-range	25Y-30Y	31Y-35Y	36Y-40Y	41Y-45Y	46Y-50Y
Mean	.25	.25	.29	.13	.10

This scenario lead us to an explanation that, people who has the maturity and understanding about investment in capital market , are the most significant investor's class. The result of above table also shows, lower the range higher the tendency to take risk in the stock market.

#### Education

People who depend on safe and regular kind of earning and not associated with capital market, may have a wrong perception about Investment in stock market. Many people take such investment as Gambling rather than calculative choice. The knowledge of

business, economics and feelings to put money on a risky venture need some institutional backup. So the observation shows people who has completed their graduation are more tend to invest in capital market than the people who didn't complete their graduation. Post-

graduated class of people is coming to the second in this level. However, the rate of higher education is lower in the country. So, the statics shows only 26% of the observed investors finished their post graduation, which represents the true picture.

*Table 6 : Descriptive Statistics of Education*

Education Level	School	College	Graduation	Post graduation	Above post graduation
Frequency	4	38	175	82	13
Mean	0.012821	0.121795	0.560897	0.262821	0.041667

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Volume XII Issue XIV  
Global Journal of Management and Business Research

The findings matched with investors of Taiwan studied by Yu-Je Lee et al (2010) which also showed college going individual investors are 71.1% of total sample. The gender difference report of American investors, prepared by Taheera Hira and Cazilia Loibl (2006) showed even the higher rate (76%) of educated investors.

#### *Profession*

As stated earlier, the target group of investors has investment not more than Tk 20 Lakh and not less than Tk 5 lakh. In order to get the shape of profession of these investors five class of profession has been selected, the only similarity among the professions were, they have a regular income level.

*Table 7 : Descriptive statistics of Profession*

Profession	Govt Employee	Service holder (B/NBFI)	Service holder (Others)	Small Business Man (Less than Tk 60000)	Others (Specify)
Sum	34	59	52	60	78
Mean	0.109677	0.190323	0.168285	0.193548	0.275618

The above table shows fixed income group people has tendency to join the stock market than the people who have comparatively higher income. If we follow the table it clearly showed that, total number of employed people is 282. Among the rest of the 28 people 7 were students and 21 were housewife. Govt. service holders are the lowest fixed income group of people as their cash benefit is quite lower. Because of lower amount of excess cash in hand, general govt. service holders are holding only 11% of total investment among 310 people. Private Service holders, either at financial or non financial institutions, are comparatively more intense to the market because of their higher earning bracket. The most significant involvement of the group which has people of multiple incomes and has income more than Tk 60000 and saving is not stuck with any Fixed Deposit Account.

Same kind of findings was supported by Jasim Y Al-Ajmi 2008, for Bahrain (55.9% investors belong to Private sector), Kabra et al for India (46.5% investors belong to private sector) and there are many more.

The study captures a significant point, which is not discussed in many of the prior studies. Most of the investors have fixed income job and at the same time they also have a separate business or involvement. That also means double income source boost up potential investors' investment decision. The above study showed people who earned from other than the conventional

middle profession, have more involvement in the stock market (28%). Housewives are come up as a significant class to put their saved money into the capital market. Either they are directly investing or the form may be indirect investment that is loan to the friends and family.

#### *a) Testing Reliability*

With an objective to determine the suitability of data for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and the Bartlett's Test of Sphericity were applied. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by the reduced factors. Kaiser (1974) recommends that a bare minimum of 0.5. The data table showed KMO value 0.883 which represents, the data used in factor analysis are quite satisfactory and the analysis is quite useful. Bartlett's test of Sphericity provides Chi-square value of 6328.243. The significance value showed 0.000 which means the variables are quite significant factors on the test basis.

The Cronbach alpha is the most widely used index for determining internal consistency (Kerlinger 1986). It has been generally accepted that in the early stages of the research on hypothesized measure of construct, reliabilities of 0.50 or higher are needed, while for widely used scales, the reliabilities should not be below 0.6 (Nunnally, 1978). In the current survey, all

subscale alpha coefficients exceed (0.89) with an overall alpha value. The high alpha value in all five subscales confirms the homogeneity of the items comprising them, and indicates acceptable level of reliability.

*b) Factor Analysis*

The factor analysis is a data reduction technique. The following contains the results by the Principal Component Analysis (PCA) under Varimax with Kaiser Normalization method. The PCA technique goes to reveal that there are indeed three significant factors (as revealed by their respective Eigen values which are all greater than 1.0).

27 factors were asked to the sample in order to check their influence upon investor's behavior. On the basis of theory, these factors were selected which are classified as sub question under 16 question. The PCA (Principal Component Analysis) graded the variables under 7 factors as mentioned above. It is evidenced as Psychological factors alone explained 34.433% of total variance. Selection factors explained 17% of total variance. Rest five factors (Investment, Institutional, Economic Index, Technical consciousness) explained the 48% of the total variance.

*Table 8:* Eigen value of Factors.

Component	Total initial Eigen values	% of Variance	Cumulative %
1. Psychological Factor	9.297	34.433	34.433
2. Micro Economic factor	4.824	17.868	52.301
3. Social Factor	1.518	5.622	57.923
4. Institutional Factor	1.37	5.073	62.995
5. Macro Economic Factor	1.208	4.474	67.469
6. Influence of Index	1.148	4.25	71.719
7. Technical consciousness	1.008	3.734	75.453

*Extraction Method: Principal Component Analysis*

Psychology is expected to dominant investment decision of amateur investors. The question asked which person or source influence their investment decision most. Professional advice, that institutional advisors are the most influential factor to advice the investors. They also followed media which states market news, recent price change price sensitive information. Following the friend's and relative's suggestion is another dominating forces. This can be termed as investor's irrational attitude. Investors of DSE agreed that price indicator, market index and their own analysis

help them to decide about the market order. Information is also available at internet which is practiced to be followed by most of the amateur investors.

In order to select a firm several variables are preferred by the investors among which expected dividend is the most influential force. Price performance, financial statement, market value of the firm and affordability to purchase the stock are identified as the other influential variable. All of them are able to explain more than 80% of total influence under this factor.

*Table 9:* Rotated Components Matrix

Variables	Component						
	Psychological Factor	Micro Economic factor	Social Factor	Institutional Factor	Macro Economic Factor	Influence of Index	Technical consciousness
Media's Suggestion	.866						
Professional's advice	.821						
Stock market declaration	.788						
Recent Price Movement	.764						
Friend's Advice	.748						
Current Economic Indicator	.731						
Own analysis	.723						
Index	.722						
Market follower	.707						
Internet basis information	.669						

Expected Dividend		.891					
Past performance		.883					
Financial Statement		.867					
Market value of the firm		.848					
Price Affordability		.810					
Ethics			.859				
Financial Strength			.836				
Product and Service			.770				
Status			.768				
Quick Rich			.740				
Diversification			.483				
Benefit of Margin Trade				.893			
International Depression					.819		
Low deposit rate					.413		
Moderate						.852	
Neutral						.605	
Negative							.869
Initial Eigen Value	9.9297	4.824	1.518	1.370	1.208	1.148	1.008
% of variance	34.433	17.868	5.622	5.073	4.474	4.250	3.734
Cumulative % of variance	34.433	52.3	57.923	62.995	67.469	71.719	75.453

*Extraction Method: Principal Component Analysis.*

*Rotation Method: Varimax with Kaiser normalization*

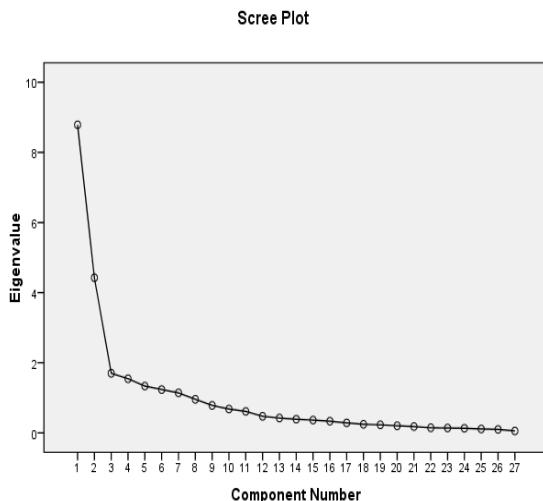
*Rotation converged in 7 iteration*

The scree plot extracted from the PCA output showed it clearly that, the initial factor that is the psychological factor, is dominating the whole result with Eigen value of 9.9297. This factor contains 10 variables. The later factor is selection factor which has Eigen value, and, has the next influential impact upon investor investment decision. In fact after the third factor all the other 4 factors has less or more same extend of influence upon individual's investment behavior. To interpret and to give a title to each behavioral component, the initial variables' definitions were examined carefully along with their respective correlations with the concerned factors. Multiple questions are asked under one factor. Values of variable under 0.4 were deducted by the system. Then, common interpretation for each variable was arrived at for further interpretation.

### c) Discussion about the factors

**Psychological factors :** The PCA loaded 10 variables under this factor and each of the factors is related with investors' emotion and gut-feelings. This factor captures two basic questions asked about their investment with five subsections. One is: who is the most influential one to give suggestion about investment, another one is what variables investor judge and follow prior to make any kind of investment. On the basis of their influence variables are discussed here:

1. *Media's suggestion:* Investors rank Media's suggestion as one of the most influential variables. In Bangladesh none of the brokerage houses provide any advisory service. So people follow both the print and paper media to get to know the condition of the market and then they take decision. The benefit of this condition is, if information hits the market, it will be available to all and the economist may discuss the market's condition through media and people who are aware will collect the necessary data. The problem is the extravagance news, either positive or negative; badly affect the market and investors cannot take decision. Investor's got confused after a certain fall and as the paper or electronic media, even cannot express any motivational information, investors will stop transaction. This happened in DSE market soon



after the declaration of Stock Exchange Commission (SEC) to survive the market from big fall (The Daily Prothom Alo, 30 May 2012).

2. *Professional advice*: the expert of the economy analyzes the stock market condition of any economy. From their analysis investors get some information about what are the goods and bad of the market. The econometric analysis is not to be done by the investors themselves and so they depend on professional advice.
3. *Stock market declaration* : any news coming from the stock exchange and SEC affect immediately to the market. For example, from the beginning of 2011, DSE index started to fall significantly which started to spread rumor. In the prior year, 2009 market index was increasing significantly. According to the Dhaka stock exchange, In August 2010 the general index of DSE stood at 6657.97 which reached in the peak and became 8602.44 at November. After this general index has started to fall down and in February 2011 it reached to 5203.08. Sensing the trend of a bull market to become a bear one, the Security Exchange Commission made request to the stockholders through media, to invest according to proper knowledge and no to pay attention to rumors. The declaration was:

*Investors are requested to consider the following facts at the time of making investment decision in the Capital Market: 1. without acquiring proper knowledge, information and experience regarding different aspects and matters of Capital Market, one should not invest in the Capital Market. 2. the gain or loss, whichever comes from the investment, it belongs to you. So, well-thought of investment decision based on knowledge and fundamentals of the securities may be real assistance to you. 3. Don't pay any heed to rumors at the time of trading shares; it may cause loss to you. Even spreading rumor is legally prohibited. (SEC letter no. SEC/SRMIC/2010/726 dated November 23, 2010).*

The news was published to make the investors aware about the reckless trading, and who paid attention to the note could be able to avoid huge risk.

4. *Recent price movement* : investors themselves follow the market trend. The psychology of the investors lead them to sale the holdings when they found a down turn. When altogether investors will sale their holding, the joint act will make the market bear. However, there is no logic to sale the profit yielding stock at financial downturn instead of keeping them.
5. *Friend's advice* : it is another very common psychological variable which influenced the investors' investment decision. The investors bracket which belongs to fixed income group enters in to the stock market with a hope to asserts additional gain and most of them are inexperienced about the market. This variable covers 74.8% (Mean=0.99, St. Devi=1.308) variance percentage.
6. *Current economic indicator* : this variable mainly understandable by a little bit experienced investor. For understanding Consumer price index (CPI), exchange rate, Interest rate etc has been referred. CPI did not find significant association with stock price fluctuation. However, exchange rate evidenced to be found as influential factor for stock price. The variable (mean =23.7%, St. Dev= 0.02431) quite explanatory as it represents highest among the options. However the PCS identified it as second among the options.
7. *Own analysis and index understanding* : these variables are content under mental accounting and representative bias heuristics. They loaded almost same weight. Investors sometime do not take any selling buying) decision as only s/he has any past regret. So he computed by himself about future profit and loss. In the basis of available information, the investors take decision even though the other suggestion may be reverse of their own. 20.3% of the investors (mean= 0.98, St. Dev= 1.558) invest by analyzing themselves (loaded at 0.723). Investors often do this out of overconfidence (Lin, 2011).
8. Another variable loaded just after this variable is Understanding of Index (0.722). 18.96% investors demand that, they do follow the stock market index either on the daily news paper or on the television.
9. *Market Follower* : 19.5 % investors simply follow the market trend. That is, they do not pay attention to the technical details of the market, just follow that the others are buying and selling. These types of investors are most vulnerable in the market. None of the market declaration or any corrective measure taken by the security exchange commission is properly applicable with large number of such investors. However they play a major role in holding an active market.

10. *Internet* : improvement of information technology makes the investors more interested about the market trend. According to this analysis, almost 18% of total investors simply follow the market trend and DSE webpage for placing market order. The more days will pass, the more investors will learn to follow the information from net.

**Micro economic Factor** : this factor explains 17.862% of variance by itself and 52.3% in cumulative variance along with psychological factor. The factor contains five variables; Expected dividend among them got the highest load of 0.891. Then gradually comes; Past performance (0.883-explains previous market trend), Financial statement (0.8671 - explain the financial report which shows firm's profitability and growth), Market value of the firm (0.848- from this data, a person can set an anchor which he wants to reach) and Price (0.810- the purchase price need to suit with the target budget, otherwise margin trade will rise).

**Social factors** : This factor explains 5.622 % of total variance. The loaded variables are actually explaining social condition of the selecting firms and investors intention to invest in that particular stock. To explain the first content factor loaded is, Ethics (0.859) of particular firm which is indentified by the investors as the most responsible attitude of the firm. Investors also grade financial strength (0.836) as second to see the financial condition of any firm prior to investment along with their vision. Product and service (0.770) loaded quite lower than the prior two and that revels investors do not follow any particular product barrier like, rejecting Tobacco product etc. Status (0.768) of the selecting firm is also considered but as equally as the product and service. That means if a firm is financially strong and is well reputed then investor will buy their stock by preference.

The factor also loaded another two variables which belongs to the question, what is the reason behind investors' investment into the stock market. Suppressing another three variables, investors intention to Get rich quickly (0.740) and Diversification (0.483) loaded as responsible variables. However investors do not peck stock only to think that, the return will make them rich quickly. The stocks intrinsic value matters for them to take decision. Lastly diversification comes with lowest weight which actually goes beyond the thinking of rational investors. Rational investors construct portfolio to diversify their risk. However, the investors are not receiving any professional help, so their portfolio is quite emotion based.

**Institutional and Macroeconomic factor** : both the factor loads one and two variables. They have loaded almost same weight. Institutional factor explained 5.073% variance loading single variable - Benefit of margin trade. This nature comes from there Availability biasness which leads them to brokerage house. Investors' dependency upon institution or

professional expertise also explains the purposive nature of investors. On the other hand Macro economic factors identified that, International money market depression creates a downward pressure upon exchange rate and international trade. These downward seize effect the capital market. The local market trade sometimes gets a negative trend. Similar effect observed upon the depository rate with the bank. The Fixed deposit rate and savings scheme rate is so low at these days (12% on 1 year's FDR: 2012), that conservative surplus unit even got interest to invest in stock market thinking about some extra gain. The factor explained 4.474% of total variance.

**Index and technical consciousness** : Index preparation is a part of technical analysis. All the general investors understand from this is, the graphical representation. And the down ward sloppy trend. It was expected that, most of them will be negative about the understanding, to the surprise, most of them identified that they do understand index (34%). Rather lesser of them expressed neutral reaction about understanding of index (26%) the factor in total expressed 4.250% of total variance. On the other hand technical knowledge and consciousness was expected to be absent among investors and this factor suppressed the other variable as it has weight less than 0.45 explaining 3.734% of the total variance.

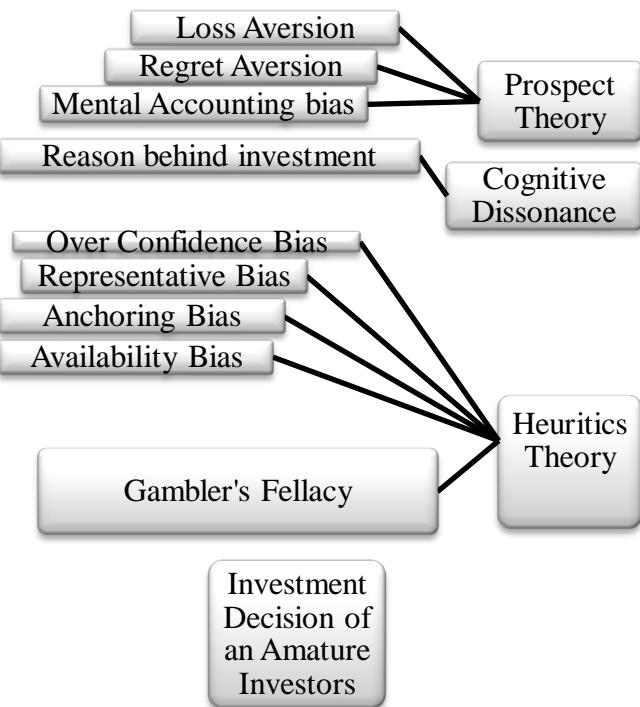
## V. MODEL OF BEHAVIOR

The behavior of amateur investors is discussed on the light of theory of behavioral finance. The general approach towards investment generated through the behavioral and psychological process. If we see the traditional approach we will capture it in the following way as used by many researchers:

According to the analysis of this paper, investors' decision has been influenced by several factors. Those factors are selected on the basis of the theory. (See chart 1-Theoretical varibales)

From the above chart it is clear that, Prospect theory dominates investors' decision to maximum extent. The major dominating factors are picked up on the basis of this theory. Cognitive dissonance is manipulated by the psychological factor. Investors select particular firm and go through the brokerage house for making bigger investment. Past experience give him either over confidence or suppressing the past wrong decision, an anchor to set his target. Because of lack of technical soundness he may take a wrong decision, however on the other hand may be proven lucky enough to have a jack pot return. The win situation will lead him to step for the next investment. If he yields a big loss, investors will want to suppress that, and come out to recover.

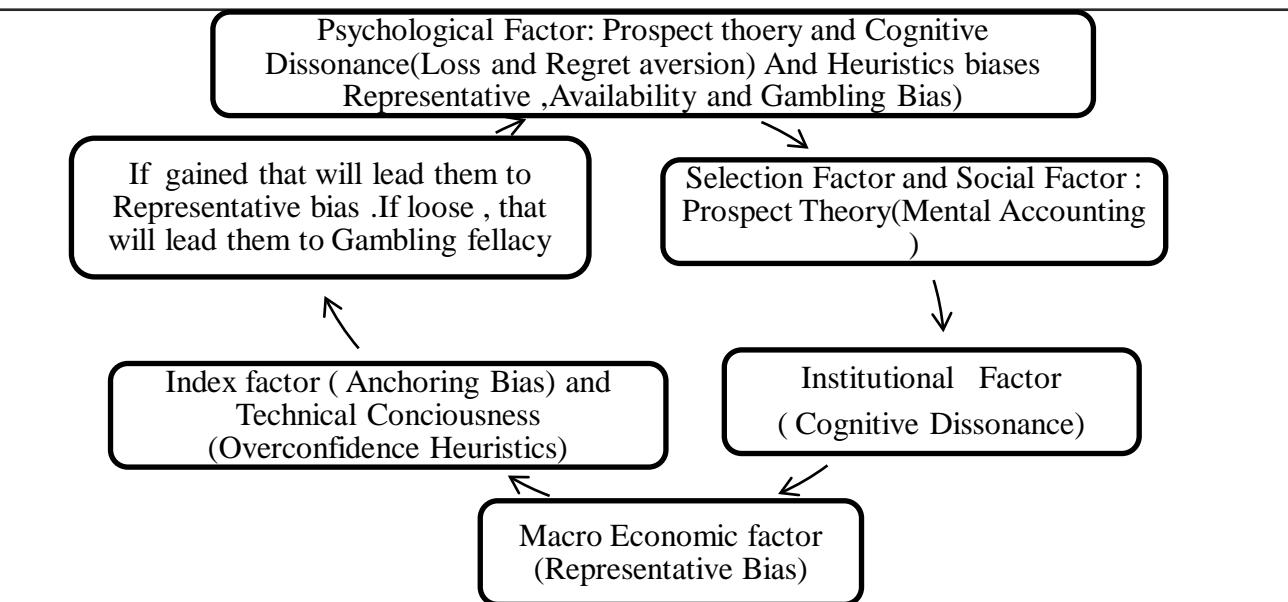
*Chart 1:* Theoretical Behavioral ground from the same market. Or will be completely out of the market.



The other variables on the basis of the two major theories influence investors to select firm and to set up mind about investment. Any gain of investment raises their heuristics behavior. On the basis of overconfidence and representative bias, investors set up an anchor and set their next investment plan. Any loss situation there, lead them to act according to the behavior pattern suggested in prospect theory.

a) *Findings*

Amateur investors of DSE, as per sample are mainly of semi middle aged (36-40y). Most of the investors belong to fixed income group; however non-govt. employees have more tendencies to join the market. Students and housewives are also participating in the market now- a days as the return trend attract the people. Education has vast impact upon capital market investment. A low- educated person is less intense to the market than a graduated person.



*Chart 2:* Continues Cycle of investor's behavior

Principle components analysis carried out to find the influential factors which affect decision making process of the investors. 27 variables were taken under consideration. Suppressing the lowest value 0.4, the rotate components matrix identified and categorized them in to 7 factors.

Among the 7 factors, Psychological factors alone contain 10 variable explaining 34.433% of total variables.

While thinking about selection of any firm, the investors put emphasis upon five major variables graded under selection variable which explains 17.868% of total variance. Dividend income there by found as major motivation for the investors to select any variables (0.891). This matched with the prior demographic finding- fixed income group comes to the market to have some extra earnings. The reason behind coming to the stock market and selecting any particular company

categorized as the third influential factors which contains, Ethics (0.859) for company selection and Quick Rich (0.740) and other four variables. So investors ethically choose to invest into stock market. Institutional factor, Macro Economic factor, Index and Technical consciousness evidenced as other four factors which carry Eigen value more than 1 but less than 1.5, that is have lower rate of influence.

*b) Suggestion*

The demographic analysis and factor analysis both lead us towards the following suggestion:

1. Media (electronic and print) is one of the most influential variables upon investors' behavior. Most of the investors are educated and they are of middle aged that is they are matured enough. So investor's should pay more attention towards what the Security Exchange Commission is advising through the media. There will be negativity, however being matured persons; they must have to take more decision with more sensitivity. Investors at first must remember – stock market is not a gambler's board, it is a rational risk taking sector with desirable return.
2. The law and regulatory authority of stock market in Bangladesh repeatedly advising people not to follow the market randomly by just listening from others. Rumor is followed in every stock market. But the investment trend is quite newer in this country. The highest pick we had at 1996 with a great depression. (Appendix B, Market Crash). This lesson taught us to be careful about so-called bull market. However the market "game planner" also learned to play with investor's psychology and DSE faced another big fall at November 2011. The SEC or DSE/CSE can introduce investor's learning guide like NASD Investors' Education foundation. This is an organization which does research upon several demography, psychology and decision procedure of American investors. Such knowledge based investment surely will increase understanding level to avoid fraudulence.
3. Govt. has taken several corrective measures to stable the stock market. However the market is still having the downward trend. Investors' anchoring biasness along with representative bias is responsible for this. Govt. has offered tax-rebate, exemption of credit on margin etc. however investors are now acting unpredictably as the entire market participant got shock. The dividend payment procedure can be another measure to bring the potential investors back into the market most of the investors invest in order to get quick return. So if it becomes rule for the firm to pay at least a nominal amount of dividend in cash, then it may draw attention of the investors.
4. More information should be declared by the firm.

Whereas checking information about the firm and collecting economic information along with international market should be practiced by the investors.

5. The more the investors will practice to control avoiding overconfidence and will act rationally, the less wrong investment decision they will take. Investors must practice some mechanism to avoid irrational behavior.

## VI. CONCLUSION

This research is an attempt to access the small investor behavior of Dhaka stock exchange with the bound of rationality. Behavioral finance is the basis of this research to find out the variables influencing investor irrational behavior. Assuming the market is imperfect, 312 investors were questioned about their investment behavior. It is found that, the investors of DSE are less rational and more emotional. Factor analysis shown investors' psychology has maximum influence upon the behavior by loading 10 variables. The study result provides suggestion that investors are aware about their behavior and the result. However there is lack of practice of some mechanism which is necessary to control the irrational behavior.

Prospect, cognitive, and heuristics bias theories were discussed to determine options of questionnaire. Market efficiency was pre-assumed on the basis of prior literature review (Rahman et al 2008). Traditional finance expected to be practiced in an efficient market to hold a Markowitz's portfolio. However in a real world it is not possible for the mature investors. Market inefficiency is another anomaly against rational investment. Once the investors will be mature, and the market will be quite stable, then information will minimize the gap between expectation and reality of return.

The future researchers have lots of scope in this field. The survey can be organized on the basis particular brokerage house. Investors can be selected from them who are in the market for last 10 years or more. Research also can be focused upon the reason of using the common theories upon the emerging market. Investors risk absorbing capability and investment range may give me different answer than the present survey. So the concentration of variables can be changed with different set of question.

Table 10. Component Score Coefficient Matrix

	Component						
	1	2	3	4	5	6	7
Diversification	.028	.013	.127	-.107	-.024	-.202	.252
Trade on Margin	-.043	.005	-.017	.049	.015	-.038	.661
Downturned International market	.019	-.011	-.071	.059	.117	.490	-.181
Low deposit rate	-.100	.194	.098	.063	.014	-.040	-.312
Product and Service	-.129	.097	.316	.075	.026	-.014	-.122
Status	-.007	-.012	.228	-.011	-.002	.025	.008
Ethics	-.067	.061	.312	-.083	-.006	.003	-.058
Financial Strength	-.064	.040	.307	-.104	.096	.007	.053
Professional Advice	.133	-.032	-.063	.112	-.009	-.004	.018
Friends' Advice	.208	-.110	-.126	-.156	.010	-.045	.052
Own analysis	.099	-.055	-.026	.223	.008	.066	.044
Media's Suggestion	.200	-.098	-.094	-.049	-.038	.047	-.047
Market follower	.102	.026	-.024	.004	.068	-.010	.047
Marketability	-.074	.205	.013	.125	-.039	-.050	.018
Price Affordability	-.016	.205	.019	-.128	.029	.125	-.104
Past performance	-.028	.219	.021	-.038	.005	-.052	.040
Expected Dividend	-.073	.255	.060	.007	-.065	.020	.009
Market value of the firm	-.048	.224	.055	-.134	.022	.054	.109
Current Economic Indicator	.150	.015	-.071	-.086	.022	-.050	-.231
Press release	.170	-.065	-.078	-.070	-.021	-.094	.087
Index	.111	-.045	.019	.080	-.027	.054	-.062
Internet	.078	.087	.038	-.039	-.043	.038	-.169
Recent Price Movement	.108	-.033	.037	.054	.024	.020	.005
Very Much	.019	.017	-.031	-.296	-.450	-.194	-.004
Moderate	-.009	.002	.037	-.166	.643	-.153	.010
Neutral	-.040	.045	.082	-.122	-.228	.604	.171
Little bit	-.021	-.036	-.052	.589	-.050	-.073	.015

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Component Scores.

## Appendix B

### Condition and Efficiency of Dhaka Stock Exchange

Bangladesh stock market is composed of two stock exchanges Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). DSE established in 28 April, 1954 at then East Pakistan. It started operation soon after two years which resumed at 1971 due to liberation war. During 1976, there were only 9 listed companies. CSE was established at 1995. Security exchange commission (SEC) was established at 1993 with a target to regulate the market under SEC act 1993. Stock trading goes online from 1998, whereas DSE 20 index was in affect at 2001. Market is open in a week since Sunday to Thursday from 10: 30 am- 2:30 pm. Five groups of listed instruments are available on the

market: - Public, Spot, Block, Odd Lot and Auction. In the following table annual advancement of DSE has shown. It showed a sharp growth of trade after 2008.

*Table 11 : Advancement Rate Of DSE*

Year	2007	2008	2009	2010	2011
No. Of issues	350	412	415	445	501
Turnover of listed securities (Tk mn)	322867.07	667964	1475300.88	4009912.67	156091.09
% Of Annual Growth	396.11	106.89	120.87	171.8	-61.07
Total trade (Tk mn)	36222	92350	144907	153000	731906.5

*Source : Assembled from DSE annual report*

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### *Significant market crash at 1996*

During the second half of 1996, the DSE all share index increased by 139 percent. During June to November 1996, the DSE all share price index increased more than three folds from 959 to 3065 or by 220%. In November 1996, the DSE general index collapsed to its post-peak lowest level of 957 in April 1997 by almost 70% from its peak of November 1996. The govt and the regulatory authority introduced online trading and monitoring the market afterwards. As a result a significant change in total market capitalization has been observed.

The raise of trade represents investors' intensity with the market. More investor entered into the market, however there is no prior evidence that the investors are

being matured. So it can be said that most of the investors come to the market whimsically. The impact of rational investors on the market can be viewed as like this:—

*Table 12 : Market Performance From 2010 -2011 :*

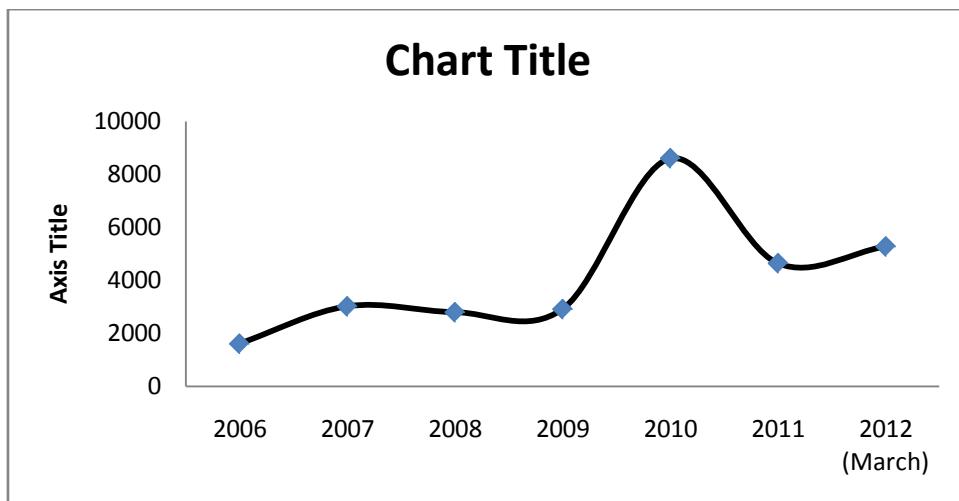
Market Performance	Total Issued Capital (Million Tk)	Market Capitalization (Million Tk)	Turn Over (Tk Million)
2011	239272.51	2719220.22	518981.5
2010	216487.00	3472502.00	4431

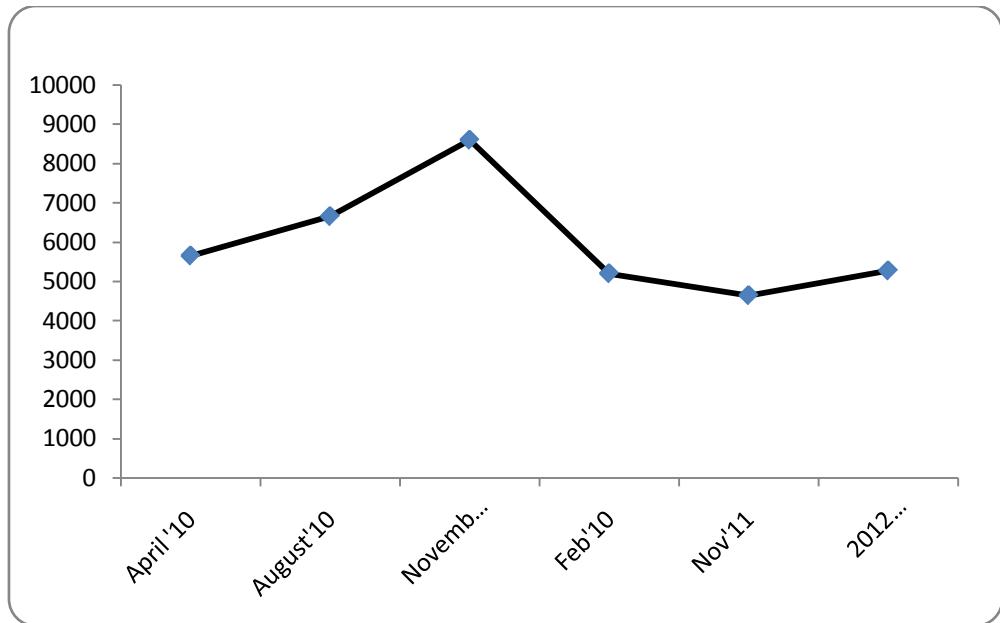
*Source : Assembled from SEC quarterly report*

*Table 13 : General index of Dhaka Stock Exchange*

2006	2007	2008	2009	2010(April-Aug-Nov)	2011(Feb-Nov)	2012 (March)
1609.51	3017.51	2795.34	2914.53	5654.88-6657.97-8602.44	5203-4645	5275.13

*Source : Assembled from SEC quarterly report*

*Graph 1 : General Index of DSE (Annual basis)*



Graph 2 : General index of DSE (Quarter basis)

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## Synchronisation et Déterminants de la Synchronisation : Une approche économétrique

By Knani Ramzi

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**Résumé** - Dans ce travail nous avons étudié les facteurs déterminant la synchronisation entre l'économie tunisienne et les économies française, italienne et allemande (principaux partenaires). Les composantes cycliques sont extraites par le filtre HP. L'approche de Harding et Pagan (2006) a été adoptée pour étudier la synchronisation des cycles. Les résultats montrent une synchronisation moyenne autour de 50%. Pour étudier les déterminants de la synchronisation nous avons étudié les trois facteurs principaux. Le facteur commercial (Les échanges bilatéraux), le facteur financier (les taux d'intérêts), et le facteur commun (le prix du pétrole et l'indice de production des Etats-Unis). L'étude se fait par une approche économétrique basée sur le modèle ADL (Autorégressif à retard échelonné) qui nous permet d'estimer les effets à long terme de ces facteurs sur la synchronisation des activités économiques. Les résultats montrent des effets négatifs à long terme des échanges bilatéraux et des effets positifs des facteurs commun sur la corrélation des fluctuations économiques de la Tunisie et ses principaux partenaires.

**Mots clés** : Cycle économique, Synchronisation, Déterminant, modèle ADL

**GJMBR-B Classification**: FOR Code: 150202 JEL Code: O16,O47



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**Mots clés** : Cycle économique, Synchronisation, Déterminant, modèle ADL.

## I. INTRODUCTION

À vec l'intégration économique à travers la notion de la mondialisation et l'ouverture commerciale, la recherche sur les analyses des fluctuations économiques a été fortement augmentée dans la dernière décennie. L'évidence approuvée par plusieurs chercheurs est la synchronisation des cycles économiques entre les pays (Agénor et al. (2000), Inklaar et al. (2005), Nobert Fiess (2007), artis et Okubo (2009)). Avec cette dépendance, la question qui accentue l'intérêt des chercheurs est la détermination des facteurs responsables de cette synchronisation. Canova et Nicolo (2003) ont résumé l'intérêt de l'identification des sources de corrélation des activités économiques réelles par deux angles différents. Le premier concerne la question de modélisation: identification des variables décrivant la dynamique de la série étudiée. Le deuxième est politique : l'identification des sources permet à l'Etat de spécifier son intervention politique concernant telle ou tel secteur.

La littérature souligne trois principaux facteurs responsables de la corrélation bilatérale des activités

réelles entre les économies, à savoir le canal commercial, le canal financier et le facteur commun. Frankel et Rose (1996) montrent que deux pays se caractérisent par une forte intensité d'échange bilatérale ont tendance à avoir des cycles économiques plus corrélés. Un choc affectant une économie influe directement sur ses investissements et par la suite et d'une manière indirecte il affecte les économies étrangères qui sont en relation commerciale avec cette économie et vice versa.

L'approche économétrique a été diversifiée dans l'analyse de cette synchronisation. Ainsi, Mark (2003) l'a étudiée en utilisant une régression linéaire simple, alors que Selover et Round (1996), Dungey et Pagan (2002) et Lee et al. (2003) ont adopté la modélisation multivariée par le modèle VAR. Baxter et Kouparitsas (2005) ont utilisé l'approche *EBA* (*Extreme-bounds analysis*). Dans ce papier, nous nous intéressons au modèle Autorégressif à retard échelonné (*ADL* : *Autoregressive Distributed Lag*) proposé par Pesaran et Shin (1996) pour étudier les effets de court et de long terme des différentes variables sur la synchronisation des activités réelles entre l'économie tunisienne et ses partenaires à savoir la France, l'Italie et l'Allemagne.

L'activité économique réelle est mesurée principalement par le *PIB* ou par l'Indice de Production. Dans ce papier, vu la disponibilité de la base de donnée, nous nous intéressons à la série mensuelle de l'*IP* pour une période de seize ans (1993-2008) extraite du CD-ROM de l'*IFS* (2009).

Ainsi pour mesurer et identifier les facteurs responsables de la synchronisation entre l'activité économique réelle de la Tunisie et celle de ses principaux partenaires européens à savoir, la France, l'Italie et l'Allemagne, nous adoptons la méthodologie suivante :

1. Filtrer les séries temporelles de l'*IP* en s'intéressant aux composantes cycliques. Plusieurs filtres ont été proposés dans la littérature dont le filtre *HP* développé par Hodrick et Prescott (1980) est le plus populaire. Nous l'avons adopté pour extraire les composantes cycliques de la série chronologique de l'*IP*.
2. Mesurer le degré de synchronisation entre les

cycles de croissance de l'économie tunisienne et ceux de ses partenaires.

### 3. Déterminer les facteurs responsables de la synchronisation.

Ce papier est organisé comme suit : Dans la seconde section nous allons étudier la synchronisation des cycles de croissance. Dans une troisième section on va présenter une explication des facteurs supposés responsables de la synchronisation des cycles économiques. L'approche économétrique adoptée est expliquée dans la quatrième section. Nous finissons par la conclusion qui sera donnée dans la cinquième section.

## II. SYNCHRONISATION

Avec l'intégration économique de la Tunisie avec les économies européennes, il est recommandé de mesurer le degré de synchronisation entre l'économie nationale et ses principaux partenaires (Allemand, Français et Italien) afin d'obtenir une meilleur interprétation des fluctuations macroéconomiques pour des questions politiques.<sup>1</sup> L'intérêt du calcul du coefficient de synchronisation est qu'il nous permet

d'examiner les effets d'une récession, ou même d'une expansion, d'une économie envers une autre. Ainsi, l'étude de la synchronisation permet de vérifier l'interdépendance de l'économie tunisienne par rapport aux économies européennes.

Dans ce contexte, des propositions ont été suggérées par plusieurs chercheurs. Agustin et Holden (2003) ont utilisé le calcul simple des coefficients de corrélation pour mesurer la synchronisation entre les cycles économiques des pays représentant le G7. Dans cette approche, nous nous intéressons à déterminer l'indice de concordance proposé par Harding et Pagan (2002, 2006). Cette méthode se base directement sur la mesure des points de retournements (pic et creux). Une explication cette méthode est donnée en annexe.

Nous nous intéressons dans ce papier aux cycles de croissance. Pour ce faire, nous utilisons le filtre HP de Hodrick et Prescott (1997) afin d'extraire les composantes cycliques de notre base de données. La méthode de Bry et Boschan (1971) a été adoptée pour déterminer les points de retournements des composantes cycliques extraites. La figure 1 présente un premier aperçu sur l'allure des cycles de croissance des économies intéressées.

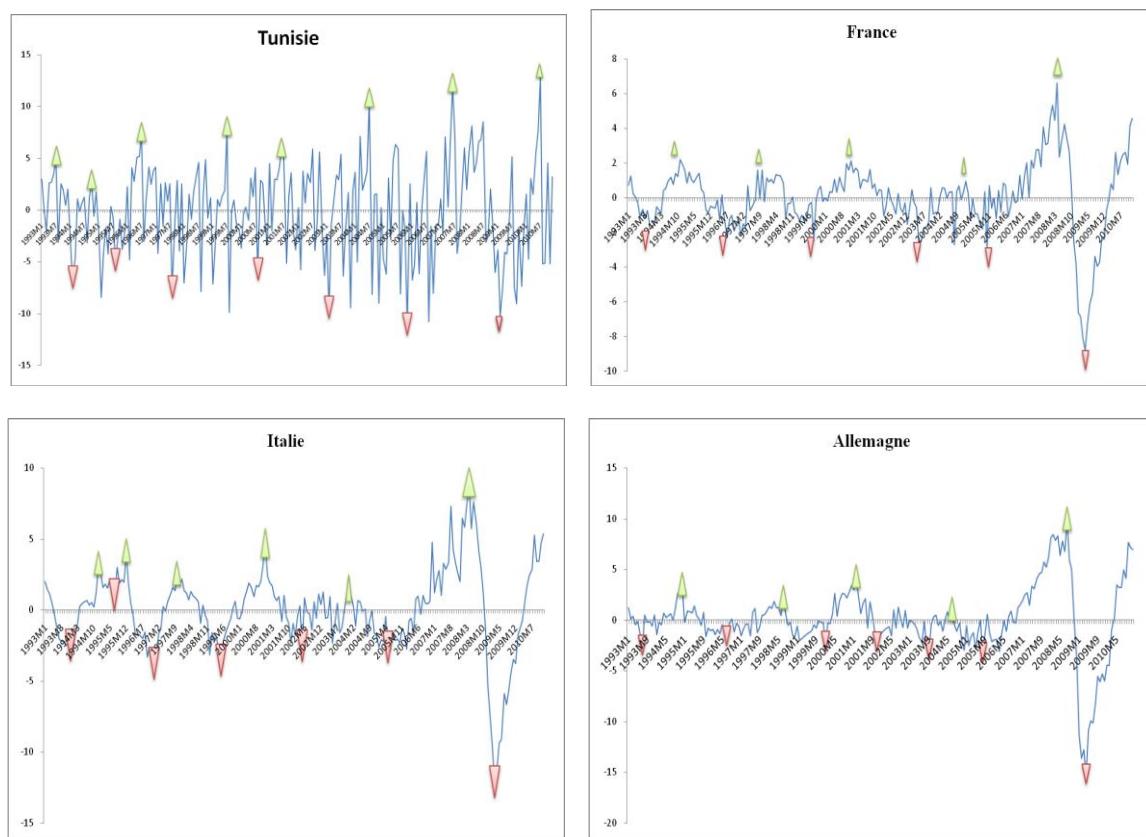


Figure 1 : Profils cycliques de l'IP et datations des points de retournements.

<sup>1</sup> Les principaux partenaires économiques sont déterminés par la mesure du poids des exportations et d'importations c'est-à-dire le terme de l'échange.

La figure ci-dessus trace les composantes cycliques de l'économie tunisienne et ses principaux partenaires filtrées par la méthode HP ainsi que l'identification des points de retournements (pic en flèche verte et creux en flèche rouge). Elle fournit un aperçu sur le profil cyclique de ces pays. Les cycles de l'industrie tunisienne se coincide avec celui de l'Italie et de l'Allemagne en un cycle de récession. Entre la Tunisie et la France, on remarque que les cycles

industriels se coincident en deux cycles de récession. L'allure et l'amplitude des cycles présentés dans la figure 1 montrent que les cycles économiques de la Tunisie exposent une meilleure synchronisation avec ceux de la France.

Ce résultat a été argumenté par le calcul de l'indice de concordance de Harding et Pagan (2006). La mesure du degré de synchronisation entre les économies est donnée par le tableau suivant :

Tableau 1 : Degré de synchronisation des cycles économiques bilatéral entre les différentes économies (%).

	Tunisie	Allemagne	France	Italie
<b>Tunisie</b>	100	52.31	54.63	52.78
<b>Allemagne</b>		100	79.17	68.98
<b>France</b>			100	76.85
<b>Italie</b>				100

Le tableau 1 permet de donner une idée sur la dépendance ou non de l'économie en voie de développement (la Tunisie) des économies développées (l'Allemagne, la France et l'Italie). La valeur de l'indice de concordance le plus élevé est donné entre les cycles de croissance de l'économie tunisienne et française (55%), environ de 53% avec l'Italie et avec l'Allemagne. Par conséquent, l'économie tunisienne montre une quasi-coïncidence avec l'économie française et italienne et une faible concordance avec l'économie allemande durant cette période. La forte synchronisation entre la Tunisie et la France est une conséquence de la plus intense échange bilatéraux entre ces deux économies. En outre, une synchronisation autour de 80% entre les économies européennes a été marquée.

Dans la section suivante nous essayons d'étudier les sources de synchronisations et la transmission des fluctuations de l'activité économique réelle des économies européennes à l'activité réelle de la Tunisie.

### III. LES DÉTERMINANTS DE LA SYNCHRONISATION

Les résultats obtenus dans la section précédente, montrent une synchronisation entre les cycles de croissance de l'activité réelle de l'économie tunisienne avec ceux de ses principaux partenaires européens. La question qui se pose dès lors est celle relative aux déterminants responsables de cette concordance, si partielle soit-elle.

Dès la dernière décennie, les travaux concernant l'explication et la détermination des facteurs responsables de la synchronisation entre les activités économiques ont été accrus d'une manière remarquable. Cet intérêt est dû à la notion de

globalisation des biens, des services, et des marchés des capitaux qui a fourni des canaux de transmission rapides des fluctuations entre différentes économies. A titre d'exemple on cite Agustin et Holden (2003) et Binswanger (2004) qui ont étudié le comportement cyclique des économies du G7.<sup>2</sup> Otto et *al.* (2003) et plus récemment Artis et Okubo (2009) ont augmenté l'échantillon en étudiant la corrélation bilatérale des cycles de croissance économiques de 17 pays de l'OCDE<sup>3</sup>. Ce grand intérêt est dû à l'intensification des intégrations économiques et monétaires par la progression continue des taux d'ouverture commerciaux. D'où l'on s'attend à déduire que cette intégration facilite la transmission des chocs étrangers d'une économie à une autre.

La littérature souligne deux principales explications de la corrélation bilatérale des activités réelles entre les économies. La première explication est définie par la transmission des chocs idiosyncrasiques à travers l'interdépendance entre les économies. La transmission se fait soit par le mécanisme des échanges commerciaux (Frankel et Rose (1996), Grubben et *al.* (2002), Imbs (2004), Baxter et Kouparitsas (2005)), soit par le canal des marchés financiers (Frankel et Rose (1997), Rose et Engel (2002), Lee et *al.* (2003), Imbs (2004), Baxter et Kouparitsas (2005), Inklaar et *al.* (2005)). Une deuxième explication a été donnée par les chocs communs affectant simultanément les différentes économies et plus particulièrement ces économies industrielles. Cette explication peut influencer directement ou indirectement les économies. Les fluctuations économiques peuvent

<sup>2</sup> Les économies du G7 sont : Allemagne, Canada, France, Italie, Japon, R-U, et USA.

<sup>3</sup> OCDE : Organisation de Coopération et de Développement Economique.

être transmises entre deux économies qui ne sont pas directement liées mais à travers un pays tiers. Ainsi, dans notre explication de la corrélation entre les activités réelles de la Tunisie et ses principaux partenaires européens à savoir l'Allemagne, la France et l'Italie, nous allons nous intéresser à trois canaux de transmission définissant quatre variables : le canal commercial (un indicateur expliquant les échanges bilatéraux), le canal financier (le taux d'intérêt réel), et un canal commun (prix du pétrole et l'indice de production des Etats-Unis). Ces trois facteurs sont expliqués dans les sous-sections suivantes successivement.

Le coefficient de corrélation est donné par l'équation suivante :

$$\rho_{ij,\tau} = \text{corr}(C_{i,\tau}, C_{j,\tau}) \quad (1)$$

Soit  $C_{i,\tau}$  et  $C_{j,\tau}$  les composantes cycliques mensuelles des économies  $i$  et  $j$  et  $\tau$  représente la période trimestrielle.

#### a) Facteur Commercial

La théorie montre que le commerce est le mécanisme le plus important de transmission des fluctuations entre les économies. Une expansion de la demande agrégée dans une économie peut être transmise par une augmentation de la demande des biens et service ainsi que la demande de travail d'autre pays d'où l'augmentation de la production. C'est-à-dire un choc positif de la demande d'une économie provoque une croissance au niveau de l'activité réelle de l'autre économie soit en liaison commercial. En d'autres termes, une augmentation au niveau de la production provoque une augmentation de la demande dans d'autres économies à travers des politiques de prix ou de fiscalité. Cette transmission de fluctuation entre les économies se fait par l'intermédiaire de l'échange. Ainsi, le facteur commercial est considéré comme le déterminant principal du co-mouvement des cycles économiques entre les pays.

Plusieurs travaux empiriques ont été focalisés sur l'étude de l'effet de l'intégration commerciale sur la synchronisation des cycles économiques. Frankel et

Rose (1996) et Baxter et Kouparitsas (2005), parmi tant d'autres, ont aperçu qu'une haute intégration commerciale entre les économies augmente la synchronisation des cycles économiques. Une faible corrélation a été trouvée par Calderon et al. (2002). Néanmoins, Shin et Wang (2003) avancent que l'augmentation des commerces n'implique pas nécessairement une forte synchronisation des cycles économiques. On conclu donc qu'il n'y a pas une unanimité concernant l'effet de l'intégration commerciale sur la synchronisation des cycles économiques.

Ainsi, nous essayerons dans cette section de vérifier si le facteur commercial explique la synchronisation des cycles économiques de la Tunisie et ses partenaires européens.

Pour mesurer ce facteur commercial nous nous intéressons à l'indicateur des échanges bilatéraux proposé par Frankel et Rose (1996). Cet indicateur est défini par la mesure d'un ratio du commerce bilatéral sur le commerce total à savoir :

$$EB = \frac{x_{ij} + m_{ij}}{x_i + m_i + x_j + m_j}, \quad (2)$$

Avec,

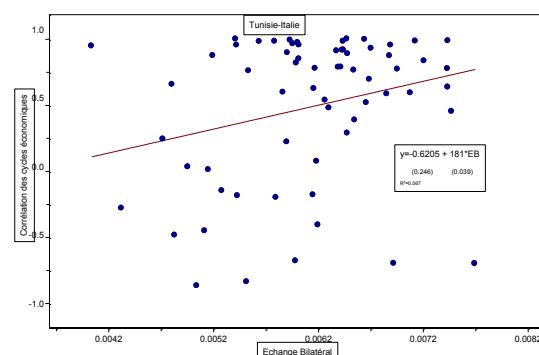
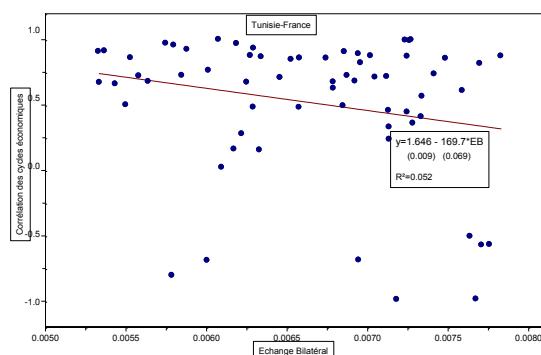
$x_{ij}$  : les exportations du pays  $i$  vers le pays  $j$ ,

$m_{ij}$  : Les importations du pays  $i$  vers le pays  $j$ ,

$x_i$  : Les exportations totales du pays  $i$  et,

$m_i$  : Les importations totales du pays  $i$ .

Une première présentation de la relation entre les échanges bilatéraux et la synchronisation des cycles économiques est présentée par la figure 2. La figure présente la dispersion des échanges bilatéraux, sur l'axe horizontal, et la corrélation des cycles économiques dans l'axe des ordonnées. Les régressions univariées des corrélations des cycles économiques, noté, sur l'échange bilatéral, noté, sont indiquées par le trait. Les résultats de ces régressions sont estimés par la simple méthode *MCO* et ésumés comme suit :



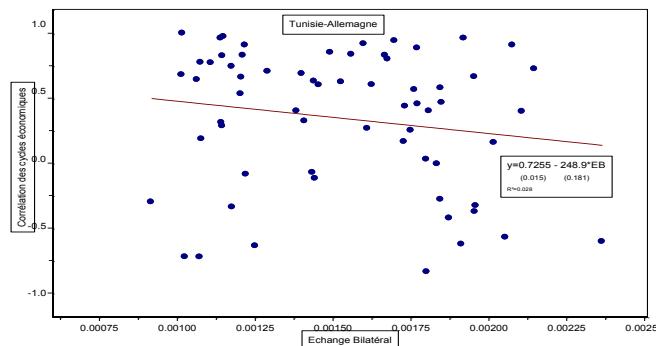


Figure 2 : Echanges Bilatéraux et corrélation des Cycles Economiques.

La figure 2 présente la régression du coefficient de corrélation entre les cycles économiques et les échanges bilatéraux des économies spécifiées. Les droites tracées montrent une relation négative entre les échanges bilatéraux et la synchronisation des cycles économiques d'une part entre la Tunisie et la France et d'autre part, entre la Tunisie et l'Allemagne. En effet, des rapports commerciaux plus intenses pourraient rendre les cycles économiques plus idiosyncrasiques d'où une corrélation inférieure (Frankel et Rose (1998)). Cependant, une relation positive a été vérifiée entre la Tunisie et l'Italie. La significativité des paramètres estimés n'est pas évoqué vue la taille très réduite de l'échantillon. Baxter et Kouparitsas (2005), en utilisant une base de données de taille 5000 observations, ont trouvé des paramètres significatifs avec des disparitions moyennes appartenant à l'intervalle [-0.8, 0.8].<sup>4</sup>

La répartition des nuages des points indique que la relation entre l'échange bilatérale et la corrélation des cycles de croissance entre la Tunisie-France et la Tunisie-Allemagne reste négligeable. Par contre entre la Tunisie-Italie, l'effet est persistant et positif.

Comme première interprétation, on peut dire que l'intégration commerciale de la Tunisie avec la France et avec l'Allemagne n'a pas d'effet sur la synchronisation des cycles entre la Tunisie et ces économies. Alors qu'avec l'Italie, l'intégration commerciale de la Tunisie a un effet positif sur la synchronisation des cycles de croissance entre les économies. Une analyse plus robuste sera décrire lors de la modélisation économétrique des différents facteurs.

L'intégration commerciale entre les économies peut mener à des intégrations monétaires. Inklaar et al. (2005) montrent que la relation commerciale intense entre deux pays a des possibilités plus fortes de proposer des politiques monétaires qui peuvent synchroniser leurs cycles économiques. Outre le facteur commercial, on vérifie si la politique monétaire peut aussi expliquer la corrélation des cycles économiques. Dans la sous-section suivante, nous essayerons de voir, à travers la littérature, si la synchronisation des cycles

économiques entre les économies peut être expliquée par la politique monétaire.

### b) Facteur Financier

A travers une synthèse de littérature, Otto et al. (2001) montrent que les liens dans les marchés financiers s'avèrent être les mécanismes de synchronisation les plus répondus dans la littérature appliquée des cycles réels. Les auteurs notent que les politiques monétaires communes et les comportements des cycles économiques sont une indication d'une structure économique commune. De même, Frankel et Rose (1998) montrent qu'une forte corrélation d'output entre les économies européennes est la conséquence d'une part de la politique monétaire commune.

Ainsi, un deuxième facteur qui pourrait expliquer les corrélations entre les cycles économiques est l'intégration des marchés financiers domestiques et des marchés étrangers. Ceci est dans le cas d'une ouverture du compte capital. Dans le cas où le compte capital n'est pas ouvert, ce canal reste à priori non optimal.

Otto et al. (2001) notent que la transmission des chocs financiers s'effectue à travers les dettes et les marchés des actions. Sous l'hypothèse des mobilités des capitaux, ils ont montré que toute décision d'épargne ou d'investissement dans une économie influe le prix et le marché financier de l'autre économie.

Pour examiner cette transmission, nous considérons l'indice bilatéral du taux d'intérêt. Otto et al. (2001) définissent cet indicateur par les séries logarithmiques de la déviation standard du taux d'intérêt réel déterminé comme suit :

$$rs_{ij,t} = \ln(\sigma(r_{it} - r_{jt})) \quad (3)$$

Où  $\sigma$  est l'écart type et  $r$  est la variable du taux d'intérêt réel calculé par la formule suivante :

$$r_{i,t} = i_{i,t} - 100 * (P_{i,t+1} - P_{i,t}) / P_{i,t} \quad (4)$$

<sup>4</sup> Kehoe (2005) note que c'est tout à fait normal que pour un échantillon de 5000 observations, les paramètres soient significatifs malgré que  $R^2$  soit inférieur à 1%.

Avec  $i_{i,t}$  est le taux d'intérêt nominal et  $P_{i,t}$  est l'indice des prix à la consommation.

Les auteurs montrent que la corrélation du taux d'intérêt renforce la similarité des économies en structure. Nous examinons le rapport entre la politique monétaire et la corrélation des cycles de croissance.

Nous présentons graphiquement les séries de corrélations des cycles économiques contre l'indice bilatéral du taux d'intérêt dans la figure ci-dessous. La droite explique la régression linéaire des coefficients de corrélation par rapport à la volatilité du taux d'intérêt.

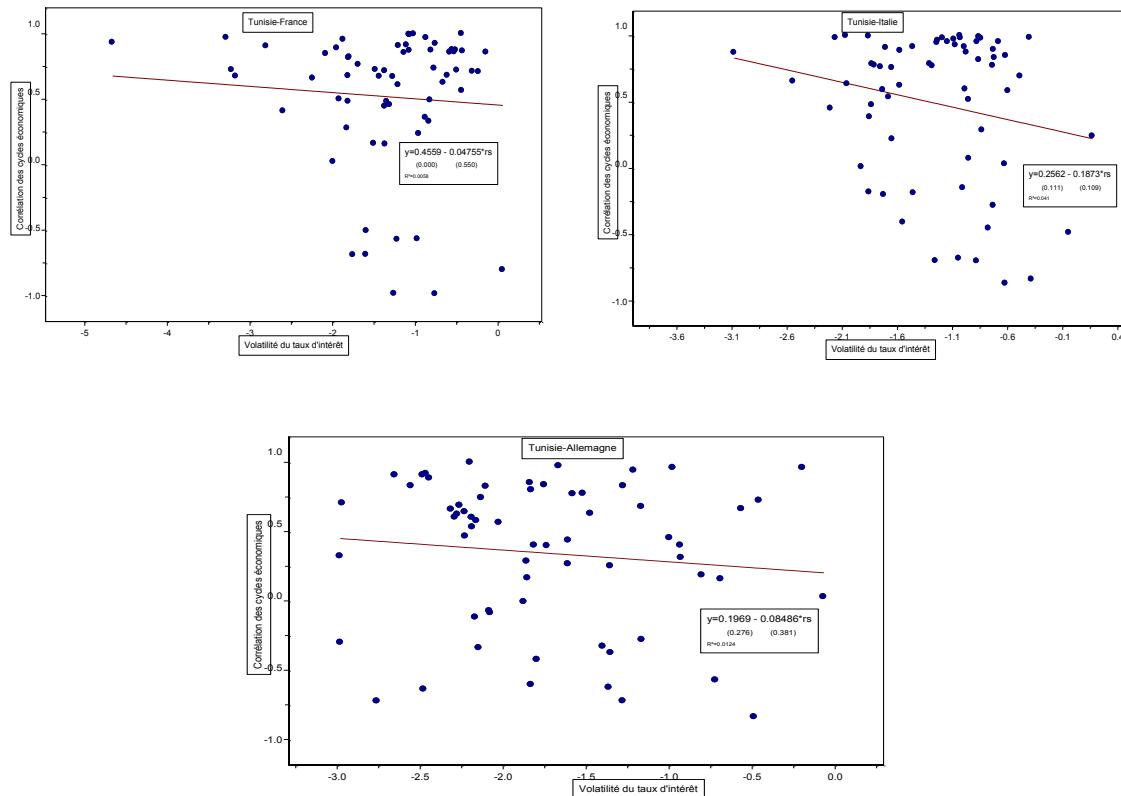


Figure 3 : Taux d'intérêt et Cycles économiques.

La figure 3 présente la dispersion des corrélations des cycles industriels contre la déviation standard du taux d'intérêt. La figure montre qu'une forte corrélation entre les cycles industriels de la Tunisie avec la France et avec l'Italie correspond à des variations du taux d'intérêt les plus volatiles. Cela implique qu'une forte volatilité du taux d'intérêt est associée à une forte corrélation des cycles industriels entre la Tunisie et la France et entre la Tunisie et l'Italie.<sup>5</sup>

Nous notons qu'une absence d'effet de ce facteur sur la corrélation des cycles a été marquée entre la Tunisie et l'Allemagne.

Les deux facteurs commercial et financier sont considérés comme sources des co-mouvements entre les économies à travers la transmission des chocs d'une économie à une autre. Nous essayerons de vérifier la possibilité que la corrélation entre les activités économiques soit expliquée par un choc commun touchant les économies en même temps. Dans la suite nous identifions ce facteur commun.

### c) Facteurs Communs

A travers les nouvelles notions telles que la globalisation ou l'ouverture commerciale ou financière des économies, la transmission des fluctuations économiques par les chocs communs est un mécanisme important. Ce facteur commun est représenté comme source externe pouvant agir sur les économies de la même manière. Plusieurs indicateurs peuvent expliquer ce facteur. L'identification est spécifiée soit par les caractéristiques de l'économie soit par l'interdépendance entre les économies. Par exemple, les économies caractérisées par des marchés de capitaux ouverts dépendent des changements du taux d'intérêt mondial. Cet indicateur est considéré comme source de transmission des fluctuations économiques (Pigott (1994), Gagnon et Unferth (1993) et Bernanke et Blinder (1992)). L'importance de

<sup>5</sup> Le même résultat a été trouvé dans Otto et al.(2001).

l'interdépendance entre les économies dans la corrélation des activités économiques est expliquée comme suit : si on considère le prix du pétrole comme indicateur expliquant le facteur commun, un choc pétrolier peut agir directement sur les fluctuations des économies européennes qui peuvent être transmises à l'économie tunisienne en raison de leur interdépendance commerciale.

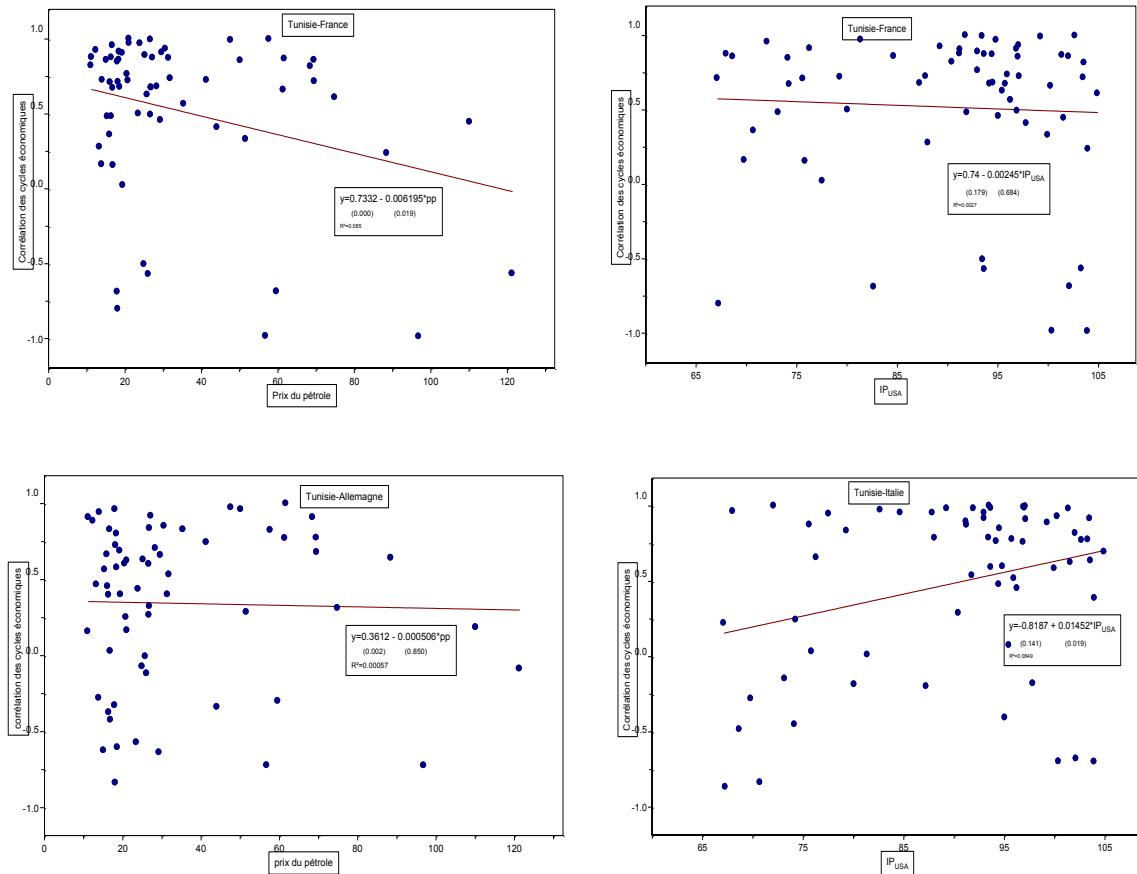
Plusieurs études théoriques et empiriques ont pris en compte ce facteur commun et ses indicateurs à l'instar de Roos et Russel (1996) qui montrent que le changement des politiques monétaires des économies étrangères peut avoir une influence sur l'économie domestique qui adopte les cycles économiques. Canova et De Nicolo (1995) montrent que la prévision de la croissance de PNB Américain aide à prévoir les rendements des marchés financiers Européens qui expliquent la croissance future de l'économie européenne. Ainsi, la dépendance de l'économie européenne avec l'économie américaine permet de déduire la dépendance de l'économie tunisienne avec l'économie américaine, malgré l'absence de liaisons

commerciales, à travers l'économie intermédiaire qui est l'économie européenne.

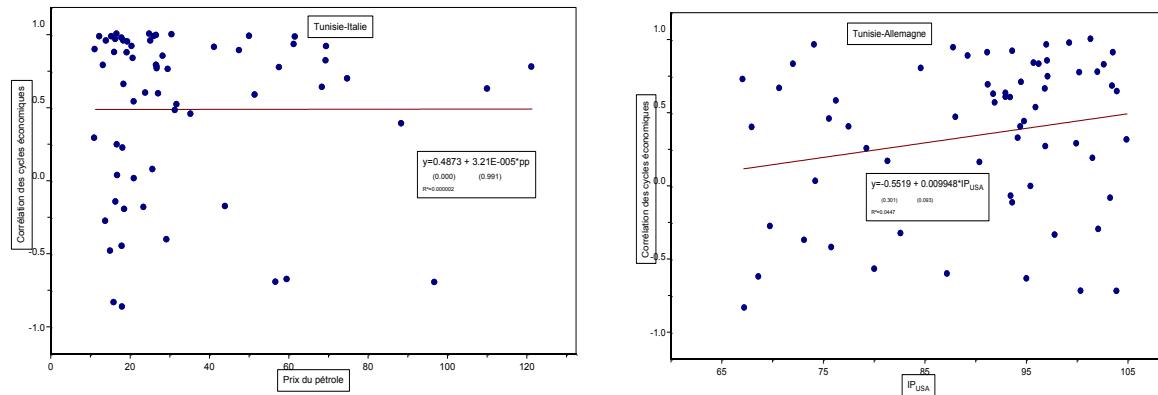
Frankel et Rose (1996) avancent que les chocs des prix du pétrole sont pensés être une source majeure des fluctuations économiques. Duarte et Holden (2003) ont noté que le choc pétrolier des années soixante-dix a créé un fort degré de synchronisation internationale entre 1970 et 1980.<sup>6</sup>

En outre, deux variables ont été considérées pour expliquer le facteur commun : le prix du pétrole, considéré comme un fait commun affectant simultanément différentes économies, et l'Indice de Production des Etats-Unis affectant l'économie tunisienne à travers l'intermédiaire européenne.

Ainsi, nous essayons de vérifier la relation entre la corrélation des cycles de croissance de l'indice de production de la Tunisie avec ces partenaires et le prix du pétrole et l'IP des Etats-Unis. De même, nous avons régressé la série des coefficients de corrélation par rapport à ces deux variables schématisés par la ligne droite dans la figure 3 ci-après.



<sup>6</sup> On ne peut pas cibler les sources de corrélation des activités économiques, mais la seule chose qu'on fait c'est de vérifier l'effet de toutes variables douteuses statistiquement. Pour une étude de recherche dans les déterminants de synchronisation, voir Haan, Inklaar and Jong-A-pin (2005).



La répartition des coefficients de corrélation et de la série du prix du pétrole montrent que ce facteur n'a pas d'effet sur la corrélation des cycles de croissance de l'indice de production de la Tunisie avec ceux de ses partenaires. Mais la concentration des valeurs de corrélation autour de la valeur 1 implique que la basse des prix du pétrole est associée avec une forte corrélation entre la Tunisie et ces partenaires. En revanche, l'indice de production des Etats-Unis présente des résultats opposés. Ce facteur a un effet positif sur la corrélation des cycles de croissance d'une part entre la Tunisie et l'Italie et d'autre part entre la Tunisie et l'Allemagne. Les nuages des points montrent l'effet négligeable de la variation de l'indice de production des Etats-Unis sur la synchronisation des cycles de croissance industriels entre la Tunisie et la France.

#### d) Modèle de régression

Nous vérifions la robustesse de ces trois facteurs dans l'explication de la corrélation bilatérale donnée par l'équation (4.1). Ainsi, dans cette approche empirique, nous développons un modèle de régression où la corrélation bilatérale entre les composantes cycliques est considérée comme une variable expliquée par les trois facteurs.

Le choix des composantes filtrées pour le calcul des coefficients de corrélation est justifié par le fait que la filtration des données autorise la série à être stationnaire. A cet égard, Baxter et Kouparitsas (2005) montrent que l'analyse des Co-mouvements se fait sur des séries stationnaires. Ils imposent que l'ajustement des séries temporelles par la différence première est une méthode inadéquate. Ils proposent de suivre la méthode de filtration telle que la méthode Band-Pass ou

la méthode HP. De même, Frankel et Rose (1996) ont utilisé des séries *détrendées*. Duarte et Holden (2003) ont utilisé le filtre HP pour analyser la corrélation de la croissance des PIB des économies du G7. Dans notre analyse, les composantes cycliques sont extraites par le filtre HP.

Plusieurs travaux empiriques se basent sur l'estimation d'une régression linéaire simple des cycles économiques en fonction des variables explicatives proposées (Mark (2003)). D'autres travaux se basent sur le modèle *VAR* tels que l'ont conçu Selover et Round (1996), Dungey et Pagan (2000), Lee et al. (2003). Alors que Baxter et Kouparitsas (2005) ont utilisé l'approche *EBA* (*Extreme-bounds analysis*).

Dans notre travail nous nous intéressons à la relation dynamique entre les coefficients de corrélation et les trois facteurs expliqués auparavant à travers le modèle Autorégressif à retard échelonné (ADL : *Autoregressive Distributed Lag*). Cette méthode est adoptée par Pesaran et Shin (1996) pour tester l'existence de relation de long terme entre les cycles économiques. Dans ce travail, nous adoptons la même approche pour étudier les effets de court et de long terme des différentes variables sur la synchronisation des cycles économiques. Le choix de ce modèle se base sur le fait qu'il incorpore en même temps des retards des variables expliquées et des variables explicatives pour capter les effets dynamiques. Pour ce faire, nous adoptons la méthodologie de Duarte et Holden (2003).

Pour tester l'existence de long terme entre les corrélations des cycles de croissance et les facteurs de synchronisation, nous considérons le modèle ADL à correction d'erreur suivant :

$$\Delta y_t = \alpha + \beta y_{t-1} + \sum_{i=1}^k \phi_i x_{i,t-1} + \sum_{j=1}^p \varphi_j \Delta y_{t-j} + \sum_{j=1}^p \sum_{i=1}^k \mu_{ji} \Delta x_{i,t-j} + \varepsilon_t \quad (5)$$

Avec  $\Delta y_t$  la série différenciée de la corrélation entre les cycles de croissance de l'IP de la Tunisie avec chacune de ses partenaires.  $x_{i,t}$  ( $EB_t, rs_t, PP_t$ ) représente les facteurs spécifiés et  $k = 3$  est le nombre de ces facteurs. Les paramètres  $(p, q_1, q_2, q_3)$  indiquent l'ordre des retards des variables  $IP_t, EB_t, rs_t$  et respectivement. Nous vérifions l'effet de long terme pour

des retards allant jusqu'aux 5.<sup>7</sup> La procédure est de tester :

l'hypothèse :  $H_0 : \beta = \phi_i = 0$  contre  $H_1 : \beta \neq 0$  ou  $\phi_i \neq 0$  pour  $i = 1, \dots, k$ . Le rejet de l'hypothèse nulle indique

<sup>7</sup> Duarte et Holden (2003) ont vérifié l'effet de long terme pour des retards allant jusqu'à 4.

l'existence de long terme entre les variables. Nous vérifions ce test par la statistique de Fisher. Le résultat est donné dans le tableau suivant :

*Tableau 2* : Statistique de Fisher pour tester l'existence des effets de long terme entre les corrélations des cycles économiques et les facteurs spécifiés.

$(p, q_1, q_2, q_3)$	<b>Tunisie-France</b>	<b>Tunisie-Italie</b>	<b>Tunisie-Allemagne</b>
<b>(2,2,2,2)</b>	10.51	7.979	8.103
<b>(3,3,3,3)</b>	9.902	10.62	10.13
<b>(4,4,4,4)</b>	7.934	8.138	7.566
<b>(5,5,5,5)</b>	7.689	7.235	5.853

*L'intervalle adopté pour vérifier la non-existence de relation de long terme est donnée par 2.476-3.646. Toute statistique de Fisher appartient à cet intervalle implique que ce facteur n'a aucun relation de long terme avec la corrélation des cycles économiques.*

Les bondes de la significativité de la statistique de Fisher sont données dans Pesaran, Shin et Smith (2001).<sup>8</sup> Les résultats montrent une relation à long terme des facteurs déterminants la synchronisation sur les corrélations des cycles de croissance des différentes économies. L'estimation de cette relation de long terme

est vérifiée par la modélisation du processus *ADL*.

Avant de passer à la modélisation, nous vérifions la stationnarité des séries étudiées. Pour ce faire nous appliquons le test ADF de racine unitaire. Les résultats sont donnés dans le tableau suivant :

*Tableau 3* : Test de racine unitaire des séries en niveau et des séries différencierées (ADF).

<b>Série Economie: J</b>	<i>Corr(TUN, J)</i>	<i>EB<sub>TUNJ,t</sub></i>	<i>rs<sub>TUNJ,t</sub></i>	<i>PP<sub>t</sub></i>
<b>France</b>	-8.555 (0.000)	-4.899 (0.000)	-7.913 (0.000)	2.117 (0.999)
	-13.3 (0.000)	-14.3 (0.000)	-11.95 (0.000)	-6.586 (0.000)
<b>Italie</b>	-8.555 (0.000)	-4.527 (0.000)	-7.513 (0.000)	
	-14.07 (0.000)	-11.59 (0.000)	-15.06 (0.000)	
<b>Allemagne</b>	-9.758 (0.000)	-2.251 (0.191)	-5.794 (0.000)	
	-14.98 (0.000)	-15.55 (0.000)	-12.9 (0.000)	

(...) : p-valeur

Le tableau 3 montre que les séries de l'échange bilatéral entre la Tunisie et l'Allemagne et celles du prix du pétrole sont intégrées de premier ordre. La stationnarité est vérifiée pour les séries différencierées.

Ainsi, dans notre travail, nous nous intéressons à la différenciation des séries.

La modélisation des effets de long terme se base sur la modélisation suivante :

$$y_t^{ij} = \alpha_i + \sum_{k=1}^p \beta_k^{ij} y_{t-k}^{ij} + \sum_{l=0}^{q_1} \gamma_l^{ij} EB_{t-l}^{ij} + \sum_{m=0}^{q_2} \theta_m^{ij} rs_{t-m}^{ij} + \sum_{n=1}^{q_3} \lambda_n^{ij} PP_{t-n}^{ij} + \varepsilon_t^{ij} \quad \varepsilon_t^{ij} \sim N(0, \sigma^2) \quad (6)$$

Avec,  $y_t^{ij}$  la série de corrélation bilatérale des composantes cycliques de l'indice de production de l'économie  $i$  avec l'économie  $j$  pour  $t$  trimestres. Les paramètres  $(p, q_1, q_2, q_3)$  représentent les ordres de retards autorégressifs des variables explicatives (*EB, rs, PP*).

L'estimation des paramètres permet d'évaluer les effets de long terme des variables explicatives en utilisant les formules suivantes :

avec la constante,  $\alpha_i^* = \frac{\alpha}{1 - \beta_0 - \beta_1 - \dots - \beta_p}$ ,

avec l'échange bilatéral,  $\gamma_i^* = \frac{\gamma_0 + \gamma_1 + \dots + \gamma_{q_1}}{1 - \beta_0 - \beta_1 - \dots - \beta_p}$ ,

avec le taux d'intérêt,  $\theta_i^* = \frac{\theta_0 + \theta_1 + \dots + \theta_{q_2}}{1 - \beta_0 - \beta_1 - \dots - \beta_p}$ , et

avec le prix du pétrole,  $\lambda_i^* = \frac{\lambda_0 + \lambda_1 + \dots + \lambda_{q_3}}{1 - \beta_0 - \beta_1 - \dots - \beta_p}$ .

<sup>8</sup> Si la statistique de Fisher  $F$  est supérieur à la borne sup de l'intervalle spécifié, on conclut qu'il y a des relations de LT et si elle est inférieure à la borne inférieure donc on a une cointégration entre les variables (voir Nieh et Wang (2005)).

L'identification des paramètres de retards autorégressifs ( $p, q_1, q_2, q_3$ ) est basée sur le critère d'information  $AIC$  donnée par la formule suivante :

$$AIC_m = \log(\hat{\sigma}_m^2) + 2 \frac{k_m}{n},$$

Avec  $\hat{\sigma}_m^2$  est la variance estimée du modèle  $m$  et  $k_m$  est le nombre des coefficients dans le modèle.

Les résultats de la modélisation des corrélations des cycles économiques de la Tunisie-France, Tunisie-Italie et Tunisie-Allemagne suivent des modèles  $ADL$  d'ordre (3.0.0.1), (3.2.2.0), et (3.0.3.1), respectivement.

L'estimation des paramètres du modèle (6) pour les différentes corrélations bilatérales est résumée dans le tableau 4 suivant :

Tableau 4 : Estimation du Modèle  $ADL$  (1993 :1-2008 :4)

Variable	Tunisie-France (3,0,0,1)	Tunisie-Italie (3,1,2,0)	Tunisie-Allemagne (3,0,3,1)
<b>Constante</b>	0.0355 (0.571)	0.0306 (0.583)	0.0534 (0.344)
$\beta_1$	-0.7052* (0.000)	-0.8681* (0.000)	-0.855* (0.000)
$\beta_2$	-0.6981* (0.000)	-0.7571* (0.000)	-0.7276* (0.000)
$\beta_3$	-0.6341* (0.000)	-0.7197* (0.000)	-0.5499* (0.000)
$\gamma_0$	-305.405* (0.000)	-269.0198* (0.006)	-1011.67* (0.000)
$\gamma_1$	...	-101.687 (0.322)	...
$\gamma_2$	...	-202.043* (0.033)	...
$\theta_0$	-0.0055 (0.907)	-0.0781 (0.391)	0.1335 (0.158)
$\theta_1$	...	-0.1677 (0.134)	0.2602* (0.034)
$\theta_2$	...	-0.2858* (0.0002)	0.0291 (0.805)
$\theta_3$	...	...	-0.1626 (0.101)
$\lambda_0$	-0.0072 (0.519)	0.0042 (0.694)	0.0145 (0.171)
$\lambda_1$	-0.0307* (0.011)	...	-0.0517* (0.000)
$R^2$	0.667	0.734	0.762
$F$	17.57 (0.000)	17 (0.000)	19.58 (0.000)
<b>DW</b>	2.126	2.251	2.004
<b>Jarque-Bera</b>	9.271 (0.009)	6.876 (0.032)	0.466 (0.792)
<b>Ljung-Box</b>	20.775 (0.236)	7.93 (0.968)	24.55 (0.105)

(...) : P-value

\*: Significativement différente de zéro à 5%.

Les résultats suivants peuvent être déduits :

Entre la Tunisie et la France :

La significativité de la statistique de Fisher «  $F$  » permet de donner une idée sur la significativité des paramètres du modèle. Le coefficient de régression

ajusté «  $R^2 \approx 0.67$  » est un résultat acceptable pour dire que le modèle est adéquat. Les résultats du test d'autocorrélation des résidus donnés par la statistique (DW) de Durbin-watson et par la statistique Ljung-Box, proposée par Ljung et Box (1987), montrent que les résidus sont non-corrélosés.

On peut conclure que la corrélation entre les cycles économiques de la Tunisie avec ceux de la France est expliquée par ses retards (les trois paramètres sont significatifs), par les échanges bilatéraux et par le prix du pétrole (significativité à long terme). Le signe négatif du coefficient des échanges bilatéraux, indique qu'un niveau élevé des échanges bilatéraux est associé avec une faible corrélation des cycles économiques entre l'économie tunisienne et française. De même, un choc positif du prix de pétrole a un effet contraire sur les fluctuations économiques de la Tunisie et de la France.

#### *Entre la Tunisie et l'Italie :*

La modélisation des corrélations entre les cycles économiques de la Tunisie et ceux de l'Italie est marquée par une légère amélioration au niveau de l'adéquation du modèle marquée par une valeur plus élevée du coefficient d'ajustement «  $\bar{R}^2 \approx 0.74$  ». Les résultats des statistiques DW et Ljungq-Box montrent la non-corrélation des résidus. Les résultats montrent des effets significatifs et négatifs du paramètre de l'échange bilatéral entre les deux économies. Ceci nous permet de déduire que les fluctuations économiques sont expliquées par des chocs idiosyncrasiques. Le facteur financier a un effet négatif sur la corrélation des

fluctuations mais il est non significatif. Le prix du pétrole a un effet positif mais non significatif.

#### *Entre la Tunisie et l'Allemagne :*

Le cas entre la Tunisie et l'Allemagne exhibe une modélisation adéquate ( $\bar{R}^2 \approx 0.76$ ) et une significativité des paramètres estimés de la modélisation. Ainsi, nous pouvons déduire que nous avons un bon ajustement des coefficients de corrélations des cycles économiques par les facteurs spécifiés. Les résultats du tableau 4 montrent des effets négatifs de l'échange bilatéral sur la synchronisation des fluctuations économiques, des effets positifs de la variation du standard du taux d'intérêt et du prix du pétrole. Les résultats montrent une forte et significative dépendance de l'échange bilatéral dans l'explication de la corrélation de la croissance de l'industrie entre ces deux économies.

Les résultats montrent une forte et significative dépendance de l'échange bilatéral dans l'explication de la corrélation de la croissance de l'industrie entre ces deux économies.

Les estimations des effets de long terme sont représentées dans le tableau suivant :

*Tableau 5 : Estimation des coefficients de Long terme.*

Variable	Tunisie-France	Tunisie-Italie	Tunisie-Allemagne
<b>Constante</b>	<i>ADL (3,0,0,1)</i>	<i>ADL(3,2,2,0)</i>	<i>ADL(3,0 3,1)</i>
<b>Echange Bilatéral</b>	0.01167245	0.009134968	0.01705717
<b>Taux d'intérêt</b>	-100.5468	-171.231	-322.9466
<b>Prix du pétrole</b>	-0.00181805	-0.1589318	0.08307281
	-0.01245985	0.00126108	-0.01186911

Le tableau 5 souligne les résultats suivants :

L'Echange Bilatéral a une relation négative de long terme sur toutes les corrélations de l'activité économique de la Tunisie avec ses partenaires. Le facteur financier a une relation positive de long terme sur la corrélation de l'économie tunisienne et allemande. Donc, on peut déduire que ce facteur encourage la relation économique entre ces deux économies. Ce résultat est tout à fait le contraire pour les cas de la Tunisie avec la France et avec l'Italie. Le prix du pétrole, considéré comme facteur commun, a des effets positifs de long terme sur la synchronisation des fluctuations économiques entre la Tunisie et l'Italie. Ainsi, suite à un choc pétrolier positif, on s'attend à avoir la même réponse au niveau des fluctuations économiques de la Tunisie et l'Italie.

## IV. CONCLUSION

Dans ce papier nous avons vérifié, premièrement la synchronisation de l'activité

économique réelle de la Tunisie avec ses principaux partenaires. Deuxièmement nous avons déterminé les facteurs responsables ou explicatifs de cette synchronisation, si partielle soient-elles. On a trouvé une synchronisation moyenne entre les cycles de croissance de la Tunisie avec la France ( $\approx 55\%$ ), la Tunisie avec l'Italie et l'Allemagne ( $\approx 53\%$ ).

Les facteurs spécifiés sont donnés par le facteur commercial (Echange Bilatérale), financier (taux d'intérêt) et commun (Pris du Pétrole et l'Indice de Production des USA). Les résultats montrent que l'échange bilatéral entretient des relations négatives avec la corrélation des cycles économiques entre toutes les économies. Par contre le prix du pétrole et l'indice de production de l'USA favorisent la synchronisation. Le taux d'intérêt a une relation positive sur la synchronisation des cycles économiques de la Tunisie avec la France et des relations négatives avec l'Italie et l'Allemagne.

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# Job Satisfaction of Female Employees in Financial Institutions of Bangladesh: A Study on Selected Private Commercial Banks in Chittagong

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**Abstract** - In any economy, banking sector plays a vital role for overall development of different industries. Bangladesh is in the way of its development and banks as financial institutions have significant contribution in the development process of the country. A number of private and public banks are operating in this country where a mentionable number of female employees are working side by side of male employees and the number is growing day by day. Employers of banks are attracting them by providing competitive and attractive remuneration package and good working environment. But the job satisfaction levels of female employees are yet to be measured. The productivity of service oriented firms depends on the employees - usually treated as main force, which is again affected by their satisfaction or dissatisfaction level. The purpose of the study is to examine their (female employees') job satisfaction forces in banks. The study results reveal 12driven forces relevant job satisfaction and needed to be addressed properly for this banking sector development.

**Keywords :** *Job Satisfaction, Female Employees, Banks.*

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# Job Satisfaction of Female Employees in Financial Institutions of Bangladesh: A Study on Selected Private Commercial Banks in Chittagong

Mohammad Morshedur Rahman<sup>a</sup>, Anupam Das Gupta<sup>σ</sup> & Syed Moudud-Ui-Huq<sup>p</sup>

**Abstract** - In any economy, banking sector plays a vital role for overall development of different industries. Bangladesh is in the way of its development and banks as financial institutions have significant contribution in the development process of the country. A number of private and public banks are operating in this country where a mentionable number of female employees are working side by side of male employees and the number is growing day by day. Employers of banks are attracting them by providing competitive and attractive remuneration package and good working environment. But the job satisfaction levels of female employees are yet to be measured. The productivity of service oriented firms depends on the employees - usually treated as main force, which is again affected by their satisfaction or dissatisfaction level. The purpose of the study is to examine their (female employees') job satisfaction forces in banks. The study results reveal 12driven forces relevant job satisfaction and needed to be addressed properly for this banking sector development.

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## I. INTRODUCTION

A major part of human's life is spent in work which is social reality and social expectation to which people seem to confirm. But only economic motive has never satisfied human. It is always of greater interest to know why people work and at which level and how he/she satisfied with the job. Satisfaction is the mental state of human being. Simply job satisfaction refers the feeling on the performance of specific tasks relevant to jobs and different aspects of their jobs. The extent to which people like to perform these tasks and like other aspects refers satisfaction or dislike to perform or other aspects or both refers dissatisfaction of their jobs. Job satisfaction depends upon the extent to which the job, we hold meets the needs that we feel it should meet.

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The degree of satisfaction is determined by the ratio outcomes against the desire of employees from their respective jobs. By law of nature as we have more, we want more, hence the level of satisfaction remain less. Job satisfaction is dynamic, as it can go as quickly as it comes. It is positive emotional state that occurs when a person's job seems to fulfill important values, provided these values are compatible with one's needs. Job satisfaction is pleasurable or positive emotional state resulting from the appraisal of one's job experience.

In short job satisfaction is a synchronization of what an organization requires of its employees and what the employees are seeking of the organization.

In any economy banking sector plays a vital role for overall development of agriculture, small business and different industries. Bangladesh is in the way of its development. Banks as financial institutions have significant contribution in the development process of the country. In the country job satisfaction measures have been conducted on industrial workers, service organization employees and other sectors. Few attempts have been taken in case of measuring job satisfaction of bank employees. Nowadays female participation is encouraged in workplace, especially in the financial institutions like banks where suitable environment has been perceived. To uphold the increasing part of employees (female employees) with the goal of government (women empowerment) it becomes important to measure the job satisfaction of these employees. This study will not only provide the insights to the practitioners but also will pinpoint the variables important for the female employee's job satisfaction.

## II. REVIEW OF LITERATURE

Job satisfaction has been widely studied over the years. French (1982) and Tziner and Vardi (1984) define work satisfaction as an effective response or reaction to a wide range of conditions or aspects of one's work such as pay, supervision, working conditions, and/or the work itself.



Others define it an affective orientation towards anticipated outcome (Wanous & Lawler, 1972) or a statement to describe the feelings of employees about their work (Arches, 1991). This statement expresses the gap between what individuals feel they should receive from their work and what they derive from the actual situation. A sense of satisfaction or its absence is, thus, an individual's subjective, emotional reaction to his or her work (Abu-Bader, 1998).

McNeely (1984) found that women are intrinsically more satisfied than men. Greenberg and Baron (1993) reported that employed women, in general, seem to be less satisfied with their work than their counterpart men.

Purohit & Belal (1996) found that professional accountants in Bangladesh are moderately satisfied with their job. They are highly satisfied with respect to the nature of work but for other factors, such as pay, promotion opportunities, supervision and colleagues they are found to be moderately satisfied. None of them was found to be dissatisfied with their position.

Uddin et al (2005) identified eight factors based on factor loadings named as better working environment, officer's view, worked efficiently, present work, improving interpersonal relationship, bank treatment, colleagues, and challenging work.

Faruqui & Islam worked on job satisfaction of faculty of private universities. They found that professional relationship with other facilities, colleagues and working environment is suitable, relationship with immediate boss/supervisor, social relationship with other faculties, autonomy and independence of work and freedom of work are few job satisfaction factors/reasons to work for private universities.

Nahar et al (2008) found that the success of any organization greatly depends on its qualified, efficient and dedicated workforce. This is also important to know how much satisfied the employees are in the organization with its current facilities, rules and regulations and other job related factors, as their satisfaction level will definitely affect their job performance. They found that the employees are moderately satisfied with their job. The most prominent factors are compensation and other benefits provided to them.

Afroze (2008) tried to examine the job satisfaction of employees particularly staff working on the store floor level at Nandan Mega Shop. She found that the better the organization is able to meet employee expectations, the better their experiences and thereby leading to a more satisfied employee.

Wong & Heng (2009) identified the factors that measure job satisfaction of faculty members at two selected universities in Malaysia. They found that the major sources of job satisfaction are shown to be policy, administration and salary.

Saner & Eyupoglu (2012) tried to provide empirical evidence to establish whether gender differences exists in relation to the job satisfaction of male and female university teachers in Turkish Universities. They found that female employees have a higher level of job satisfaction.

The survey of the literature suggests that there are various studies attempted to measure the job satisfaction factors on different sectors in various point of view. In Bangladesh job satisfaction of female banker/female employees working in bank has not yet been recognized. Job satisfaction measures can be proven vital in understanding the female employee's attitude towards their job. This study is designed to focus on female employees working in banks mainly to specify the variables related with job satisfaction measures.

### III. OBJECTIVES OF THE STUDY

The objectives of the study are as below:

- i. To identify the most important factors of job satisfaction.
- ii. To identify the level of satisfaction of female banker in Chittagong.
- iii. To evaluate the correlation between job satisfaction & factors of job satisfaction

### IV. METHODOLOGY

#### a) Sample Design

A total number of 10 private banks in Chittagong are selected for this study. A total number of 200 structured questionnaires were delivered. Sample has been selected randomly. Among delivered questionnaire only 120 respondents gave their feedback. The respondents completed the entire questionnaire, no missing values were found so all 120 responses has been selected for analysis. The private banks taken for the study are NCC Bank Ltd., SIBL, BRAC Bank Ltd., MTBL, National bank Ltd., Jamuna Bank Ltd., Mercantile Bank Ltd., Islami Bank Bangladesh Ltd., First Security Bank Ltd., and Dhaka Bank Ltd. The demographic compositions of the respondents are shown in detail in table-01.

*Table 1:* Demographic composition of respondents

Age	Age Group													
	Below 25		25 to 34		35 to 44		45 and above							
20			60		25		15							
Marital Status	Unmarried													
	30													
Work experience	Less than 1 year	1 year to less than 4 years	4 years to less than 7 years	7 years to less than 10 years	10 years to less than 13 years	13 years to less than 16 years	16 years to 19 years	19 years and above						
	15	30	20	10	15	12	10	8						

Monthly Income	Range of salary				
	Less than tk 20,000	Tk 20000 to less than tk 30,000	Tk 30,000 to less than tk 40,000	Tk 40,000 to less than tk 50,000	More than tk 50,000
	10	30	30	40	10

*b) Data Collection Technique*

A structured questionnaire was developed using job satisfaction forces to which the respondents was asked to react using a seven step Bi-polar scale ranging from strongly disagree (1) to strongly agree (7). At the end of the questions, a final question was added "overall I am satisfied about my job". This question was intended to measure the respondent's reaction to the job satisfaction in a scale. All the other questions were derived from the past studies and from general perception of job satisfaction of female employees. Bi-polar scale has been selected because of its widespread appropriateness of measuring attitude.

*c) Data Processing & Analyzing Technique*

SPSS 17.0 and Excel have been used to process and analyze the data. Dependent and independent variables are analyzed by using correlation and linear regression. Different statistical tools like ANOVA, T-test have been used to assess and interpret data. ANOVA has been used to analyze the relationship of job satisfaction factors with overall satisfaction of employees. T-tests have been performed to test the statistical significance of the parameters at 5% level of significance.

## V. ANALYSIS

Statistical tools like mean, standard deviations are included in the analysis to get the exact picture of different factors associated with job satisfaction of female bankers in Chittagong. Descriptive statistics gives the mean, standard deviation, and observation count (N) for each of the independent and dependent variables. The total observation number is 120 and the mean value and standard deviation of these variables are showed in Table-6 (see Appendix). The mean value of all factors is more than 5.0 which is between the neutral and agree in the scale showing the average employees perception about job satisfaction.

The study also attempt to measure whether there are any correlation exists between the variables selected. So 33 variables are entered in Pearson's correlation measures and among them 21 have found significant which have been shown in the Table-7 (see Appendix). In order to measure the significance level among dependent and independent variables the variables are further analyzed with the help of regression model.

*a) Econometric Model*

In this study we have used overall job satisfaction as the dependent variable and adequate remuneration for work, available opportunities for promotion, satisfied with available opportunities, got recognition for good work, Job is meaningful, supervisors care deeply, like job, feel proud of job, enjoy relationship with the colleagues, satisfied with the provision for salary increment, banks arrange training program regularly, can use skill, experience & qualification freely, motivated to do work, flexibility in working hours, satisfied with the space available for lunch, breaks & prayer, satisfied with surrounding environment, satisfied with the incentives & other benefits, salary increases on the basis of performance, colleagues help during huge workload, opportunities for attending family & other programs, job is evaluated by giving rewards are independent variables.

We have run the regression model to determine the significant level of variables for employee's job satisfaction in private commercial banks in Chittagong. The regression model for the study is as follows-

$$OJS = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \beta_{18} X_{18} + \beta_{19} X_{19} + \beta_{20} X_{20} + \beta_{21} X_{21} + \epsilon_t$$

Where,

OJS =Overall Job Satisfaction

$X_1$ = adequate remuneration for work



$X_2$ = available opportunities for promotion  
 $X_3$ = satisfied with available opportunities  
 $X_4$ = got recognition for good work  
 $X_5$ = job is meaningful  
 $X_6$ = supervisors care deeply  
 $X_7$ =like job  
 $X_8$ = feel proud of job  
 $X_9$ = enjoy relationship with the colleagues  
 $X_{10}$ = satisfied with the provision for salary increment  
 $X_{11}$ = banks arrange training program regularly  
 $X_{12}$ = can use skill, experience & qualification freely  
 $X_{13}$ = motivated to do work  
 $X_{14}$ = flexibility in working hours

$X_{15}$ = satisfied with the space available for lunch, breaks & prayer  
 $X_{16}$ = satisfied with surrounding environment  
 $X_{17}$ = satisfied with the incentives & other benefits  
 $X_{18}$ = salary increases on the basis of performance  
 $X_{19}$ = colleagues help during huge workload  
 $X_{20}$ = opportunities for attending family & other programs  
 $X_{21}$ = job is evaluated by giving rewards  
 $\epsilon_t$ = Error Term  
 And  $\alpha$  is a constant and  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}, \beta_{15}, \beta_{16}, \beta_{17}, \beta_{18}, \beta_{19}, \beta_{20}, \beta_{21}$  are coefficient to estimate.

Table 2 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.879 <sup>a</sup>	0.803	0.724	0.42265	0.423	13.789	6	113	0.000

From the Table-02, it is seen that there is a significant correlation between dependent variable and independent variables. At 5% level of significance the correlation is 87.9%. Here, adjusted R square is 0.724

which tells us about 72.4% variation of dependent variable is explained by independent variables included in this model.

Table 3 : Analysis of Variance Analysis (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	39.722	21	6.620	13.783
	Residual	54.278	98	0.480	
	Total	94.000	119		

From Table-03, ANOVA tells us whether the regression equation is explaining a statistically significant portion of the variability in the dependent variable from variability in the independent variables. Therefore we can conclude that it accurately explains that the overall job satisfaction of the female employees of private commercial banks depends on the factors that have entered in the model. Coefficient analysis shows the relationship between dependent and each of the independent variable. Table-04 shows the coefficients between dependent and independent variables. According to significant values (Table-04) of the coefficients for adequate remuneration for work, available opportunities for promotion, job evaluated rewards, got recognition for good work, satisfied provision salary increment, satisfied incentives & benefits, salary increases on performance, motivated to do work, satisfied with available opportunities., training program regularly, satisfied space available lunch, breaks & prayer, satisfied environment are statistically significant. The coefficients for other independent variables are not statistically significant which implies that these factors have some impact on overall job satisfaction but these are not considerable.

- a. Predictors: (Constant), adequate remuneration for work, available opportunities for promotion, satisfied with available opportunities, got recognition for good work, job meaningful, supervisors care, like job, feel proud of job, relationship -colleagues, satisfied provision salary increment, training program regularly, use skill, experience & qualification , motivated to work, flexibility working hours, satisfied space available lunch, breaks & prayer, satisfied environment, satisfied incentives & benefits, salary increases on performance, colleagues help , opportunities attending family programs, job evaluated rewards.
- b. Dependent variable: Overall job satisfaction

Table 4 : Coefficients<sup>b</sup>

Model	Unstandardized Coefficients	Standardised Coefficient	t	Sig.
1	Constant	2.419	0.786	2.154 0.730
	Adequate remuneration for work	0.657	0.121	3.765 0.000
	Available opportunities for promotion.	0.554	0.109	4.890 0.000
	Satisfied with available opportunities	0.456	0.112	3.098 0.012
	Recognition for good work	0.321	0.132	2.342 0.008
	Job meaningful	0.223	0.221	0.467 0.506
	Supervisors care	-0.453	0.119	-0.120 -0.567 0.650
	Like job	-0.342	0.181	-0.132 -1.267 0.540
	Feel proud of job	-0.334	0.210	-0.440 -2.763 0.250
	Relationship -colleagues	-0.323	0.108	-0.435 -3.356 0.089
	Satisfied provision salary increment	0.753	0.120	0.556 4.923 0.000
	Training program regularly	0.456	0.110	0.409 3.253 0.009
	Use skill, experience & qualification	-0.434	0.103	-0.235 -0.989 0.632
	Motivated to work	0.564	0.104	0.465 2.209 0.000
	Flexibility working hours	-0.321	0.130	-0.324 -1.192 0.650
	Satisfied space available lunch, breaks & prayer	0.657	0.110	0.338 3.309 0.002
	Satisfied environment	0.507	0.111	0.320 2.209 0.008
	Satisfied incentives & benefits	0.554	0.112	0.550 0.756 0.001
	Salary increases on performance	0.342	0.113	0.480 2.394 0.006
	Colleagues help	-0.231	0.102	-0.223 -2.203 0.643
	Opportunities attending family programs	-0.342	0.104	-0.430 -1.092 0.635
	Job evaluated rewards	0.543	0.109	0.623 3.392 0.000

Therefore, finally for developing model 12 independent variables (Adequate remuneration for work, Available opportunities for promotion, Job evaluated rewards, Recognition for good work, satisfied provision salary increment, satisfied incentives & benefits, Salary increases on performance, Motivated to work, satisfied available opportunity, Training program regularly, Satisfied space available lunch, breaks & prayer,

Satisfied environment) have been entered due to its significant impact on female employees' overall job satisfaction.

According to significance level the independent variables are arranged (in Table-05) in chronological order from most significance correlation to less for better understanding and decision making for employers.

Table 5 : Rank order of variables

Variables	Value	Rank order on the basis of significance
Adequate remuneration for work	0.730	1
Available opportunity for promotion	0.654	2
Job evaluated rewards	0.623	3
Recognition for good work	0.580	4
Satisfied provision salary increment	0.556	5
Satisfied incentives & benefits	0.550	6
Salary increases on performance	0.480	7
Motivated to work	0.465	8
satisfied available opportunity	0.450	9
Training program regularly	0.409	10
Satisfied space available lunch, breaks & prayer	0.338	11
Satisfied environment	0.320	12

c. Dependent variable: Overall Job Satisfaction

## VI. CONCLUSION

In the conclusion of the analysis it can be concluded that the female employees' overall job satisfaction of private commercial banks in Chittagong is

associated with 12 variables. These variables are the most important among all the 33 variables that have been considered in this study. If these factors are considered carefully, then there will be positive overall satisfaction on female employees of private commercial

banks in Chittagong. From the study this is a message for the employers of private commercial banks that if they want to improve the job satisfaction of female employees in banks then they have to consider the above 12 variables shown in Table-05. Although correlation analysis shows relationship of some other variables with the job satisfaction of female employees, the ANOVA does not imply significance, thus those variables have been excluded from the model development. This study may therefore lacks in revealing complete forces of variables in job satisfaction. This study covers a wide range of independent variables that significantly influence the job satisfaction of female employees working in banks; however, none of the above mentioned studies analyze the job satisfaction of female employees in non bank financial institutions, which creates an opportunity to deal with through an investigation.

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## APPENDIX

Table 6 : Descriptive Statistics

Variables	Mean	Standard Deviation
Got adequate remuneration	4.810	0.892
Opportunities for promotion	5.908	0.763
Supervisor is skilled enough	5.004	0.536
Satisfied with available opportunities	5.376	0.673
Recognition of good work	5.023	0.630
Job is meaningful	5.983	0.657
Supervisor cares deeply	5.765	0.762
Like job more than leisure	5.323	0.567
Evaluation	5.231	0.657
Feel proud of job	5.237	0.786
Work a lot	5.001	0.798
Enjoy relationship with colleagues	6.230	1.029
Angry with job	5.736	0.902
Satisfied with the provision for salary increment	5.513	0.870
Arrange training program regularly	5.290	0.456
Use skills, experience and qualification	5.782	0.998
Job is boring	5.890	0.999
Motivated to work	5.263	0.810
Flexibility in working hours	5.362	0.902
Satisfied with the space available for lunch, breaks and prayer	5.263	0.778
Satisfied with the surrounding environment	5.726	0.897

Satisfied with the layout of the office	5.102	0.632
Satisfied about work location	5.203	0.621
Satisfied with the incentives and other benefits	5.309	1.009
Salary increases on the basis of performance	5.190	0.809
Colleagues help during huge workload	5.120	0.776
Opportunities to attend family and other programs	5.512	0.671
Job is not creative	5.908	0.562
Take leave when necessary	5.657	0.563
Job is meaningless	5.759	0.675
Job is challenging	5.309	0.655
Job is evaluated by giving rewards	5.785	0.782
Overall job satisfaction	5.475	0.786

*Table 7:* Pearson Correlation between dependent and independent variables

Overall job satisfaction	1
Adq. rem. work	0.637**
Avail. opport. prom.	0.478**
Satisfied avail. opport.	0.576**
Recog. good work	0.748**
Job meaningful	0.374**
Supervisors care	0.664**
Like job	0.567**
Feel proud of job	0.755**
Relationship -colleagues	0.378**
Satisfied provision salary increment	0.435**
Training program regularly	0.473**
Use skill, experience & qualification	0.578**
Motivated to work	0.615**
Flexibility working hours	0.501**
Satisfied space available lunch, breaks & prayer	0.639**
Satisfied environment	0.408**
Satisfied incentives & benefits	0.603**
Salary increases on performance	0.423**
Colleagues help	0.467*8
Opportunities attending family programs	0.448**
Job evaluated rewards	0.553**

\*\* Correlation is significant at 1% level of significance



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# Interactive Marketing and Its Impact on Customer Satisfaction - The Study of Mobile Communication Service Providers in Jaffna Srilanka (A Comparative Study of Dialog and Mobitel)

By Mr. T. Dushyenthan

*University of Jaffna, Sri Lanka*

**Abstract** - Purpose: To examine the impact of interactive marketing on customer satisfaction. Design/methodology/approach: A questionnaire derived from previous studies and the relevant Literature was completed by 100 mobile communication service providers' customers in Jaffna district, SriLanka. Single linear regression analysis assessed the impact on customer satisfaction of seven key constructs of interactive marketing such as trust, relationship commitment, quality of employees, quality of atmosphere, complaint handling, personalizing services and familiarity. Correlation analysis was carried out to examine the interrelationship between interactive marketing and customer satisfaction. And also independent sample T-test and independent sample one way ANOVA were utilized to find out the significant mean different in customer satisfaction among personal demographic variable. Findings : interactive marketing contributes significantly to customer satisfaction and predicts 41.6 percent of the variation found. Relationship commitment and trust in the interactive marketing contribute significantly to customer satisfaction. And customer satisfaction is not contributed significantly by personalizing services and complaint handling in the interactive marketing. And also there is a significant mean different in customer satisfaction among prepaid and post paid services. But there is no significant mean different in customer satisfaction among different age groups. Overall association between interactive marketing and customer satisfaction is moderate positively correlated. Research limitations/implications : This research focuses on mobile communication services in one particular district of the country. Therefore further research in other sectors may be necessary before generalization can be made on the entire service industry.Practical implications: Based on the finding of the study, there are a few key points that can be used to conclude this research paper. It is very important that the interactive marketing in the mobile communication service providers in Jaffna peninsula contributes to the customer satisfaction. Mainly relationship commitment, trust and familiarity dimensions in the interactive marketing contribute to the customer satisfaction for becoming loyal one. Originality/value : Reinforces and refines the body of knowledge relating to customer satisfaction in service industries.

**Keywords :** *Interactive Marketing, Customer Satisfaction and mobile communication service providers.*

**GJMBR-A Classification:** GJMBR-A Classification: FOR Code:150501, 150502 JEL Code: D12, L11, M31,



*Strictly as per the compliance and regulations of:*



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### I. INTRODUCTION

There is certainly a growing interest in the subject of interactive marketing. The strong rivalry characterizing today's business environment has resulted to the building of stronger firm-customer relationships which creates mutual rewards to both the firm and the customer, especially an organization can also gain quality sources of marketing intelligence for better planning of marketing strategy (Ndubisi, 2006).

Interactive marketing is one of the most important concepts in contemporary business world to survive in the market place. Because nowadays every marketers are facing lot of challenges due to technological competence, high competition, market fragmentation and market proliferation. So every organization is putting the customer first, anticipating needs and being nice to the customer. In today's fast paced and increasingly competitive market, the bottom line of a firm's marketing strategies and tactics is to make profits and contribute to the growth of the company. In particular personal are instrumental in so doing their needs to "care" for the customer. Customer satisfaction, relationship and retention are global issues that affect all organizations be it large or small, profit or non profit, global or local. Many companies are interested in studying, evaluating and implementing marketing strategies. Those are aimed at improving the interactive marketing relationship and maximizing share of customers in view of the beneficial effects on the financial performance of the firm.

In current business world many organizations adapt the holistic marketing concept and implement the interactive relationship marketing activities for long term survival from competitive advantages. Due to the high

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competition in the service sector, service organizations have to reveal their market performance to their customer as well as target market, in order to attract the new customer and maintain the long term relationship with their current customers.

There are five mobile communication service providers are now in the sri lankan mobile telecommunication market. Among them competition is very high due to the customer switching behavior and different types of the interactive relationship activities. In the market of mobile communication, customers' attitude can be changed period to period due to the selection of service provider. Because of satisfy their needs based on service providers' service offerings. Service organizations can use the Interactive relationship marketing techniques as a tool to manage the competition and to maintain their customer as a loyal to their service offering.

## II. RESEARCH PROBLEM

In northern part of the SriLanka, especially in Jaffna district, after the thirty year ethnic war, mobile communication service providers (i.e. Dialog, Mobitel, Hutch, Etisalat and Airtel. etc) are highly penetrated to the market through the opening of branches in several places of Jaffna peninsula. Meanwhile, they are facing more difficulties such as high competitiveness, high level preliminary expensive etc .they use different formation of strategies to compete in the highly competitive market. Most of the mobile communication service providers prefer the interactive relationship marketing strategy to secure the customer satisfaction. A Study on the interactive marketing and its impact on customer satisfaction in an emerging market like Jaffna peninsula can be a fruitful empirical work, which may likely to differ from a developed market. Furthermore, there is not much widely empirical works on interactive marketing and its impact on customer satisfaction to mobile communication sectors in Jaffna district. Therefore, it is important, to empirically examine the actual impact of interactive marketing on customer satisfaction. Such understanding or finding will help to mobile communication service providers to establish the better management of firm -customer relationship and to achieve the higher level of satisfaction among customers.

**RQ:** What extent the interactive marketing influences on customer satisfaction in mobile communication service providers in Jaffna district, SriLanka.

## III. OBJECTIVES

The main objectives of the study is to find out the impact of interactive marketing on customer satisfaction in mobile communication service providers

in Jaffna district, SriLanka and secondary objectives are:

- To identify the level of interactive marketing in mobile communication services in Jaffna.
- To recognizes the level of customer satisfaction in mobile communication services in Jaffna.
- To find out the relationship between interactive marketing and customer satisfaction.
- To find out the significant difference between personal characteristics on customer Satisfaction.
- To suggest the service providers to keep customer satisfaction.

## IV. REVIEW OF LITERATURE

### a) Interactive marketing

A customer is one who patronizes a business, someone who gives his custom a to store or business. A majority of organizations serve multiple types of customers. Among the major distinctions are internal and external customers. Internal customers are the recipients of products or services within an organization that play a role in creating the overall service experience. External customers are those outside the company to whom products and services are provided on behalf of the company (Beazley, Harden, Boenisch, 2002). We have also found it needful to offer some definitions below although they are not part of our key words.

This is to enable our readership to have a better understanding of the electronic world that is shaping business activities today. Therefore the study of relationship between internal customer and external customer is most important aspect to realize the organizational position.

Interactive marketing theory suggests that successful interactive marketing results from certain aspects of cooperative relationships that characterize successful relational exchanges. Although according to Arnett and Badrinarayanan (2005) studies suggest numerous factors that influence interactive marketing success, three factors consistently identified as important are trust (Dwyer et al., 1987; Morgan and Hunt 1994; Sivadas and Dwyer 2000; Smith and Barclay 1997; Wilson 1995), interactive commitment (Anderson and Weitz 1992; Day 1995; Geysken, et al., 1999; Moorman et al., 1992), and communication (Mohr and Nevin 1996; Mohr et al., 1996). Successful relationship marketing efforts improve customer loyalty and firm performance through stronger relational bonds (e.g., De Wulf, Odekerken-Schröder, and Iacobucci, 2001; Sirdeshmukh, Singh, and Sabol, 2002).

Baron and Harris (2003) summarized the seven key indicators of relationship marketing approach. Such as high level of trust between both parties, high level of relationship commitment between both parties, long time horizon, open communication channels between

both parties with information exchanged between both parties, personalizing services, service quality, having the customer's best interest at heart, a commitment to quality from both parties, an attempt to favorably lock-in or retain the customer. And Ndubisi (2006) proposed the four key virtues that underpin relationship marketing, such as trust, commitment, communication, complaint

handling. In this research, we considered the seven dimensions that underpin interactive marketing, such as **trust, relationship commitment, quality of employees, quality of atmosphere, familiarity, personalizing services and complaint handling** to predict the customer satisfaction in the mobile communication service providers in Jaffna peninsula, Sri Lanka.

*Table 1* : Definitions of relationship marketing dimensions

Concept	Definition	Author
Trust	"A willingness to rely on an exchange partner in whom one has confidence"	Moorman et al (1993).
	"The belief that a partner's word or promise is reliable and a party will fulfill his/her obligations in the relationship"	Schurr and Ozanne (1985).
Commitment	"Decisions or cognitions that fix or bind an individual to a behavioral disposition"	Kiesler (1971).
	"Commitment as an enduring desire to maintain a valued relationship"	Moorman et al (1992).
Communication	"Keeping in touch with valued customers, providing timely and trustworthy information on service and service changes, and communicating proactively if a delivery problem occurs"	Ndubisi (2006).
complaint handling	" It is an opportunity for the company to show its engagement towards its client through its efforts to resolve the complaint and its willingness to openly discuss reasons and possible satisfactory solutions"	Taleghani et al (2011).
	"Complaint handling as a supplier's ability to avoid potential complaints, solve manifest conflicts before they create problems, and discuss solutions openly when problems do arise"	Ndubisi (2006).

### *b) Customer satisfaction*

Kotler (1996) defined customer satisfaction as "the level of a persons felt state resulting from comparing a product's perceived performance or outcome in violation to his/her own expectations". And he modify it ((kotler, 2000, p 36) as, Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to this or her expectations' so, customer satisfaction could be considered a comparative behavior between inputs beforehand and post obtainments. As the study focused on investigating user satisfaction of libraries, customer satisfaction is defined as "the levels of service quality performances that meets users' expectations".

Customer satisfaction is a well known and established concept in several areas like marketing, consumer research, economic psychology, welfare-economics, and economics. Common interpretations obtained from various authors reflect the notion that satisfaction is a feeling which results from a process of evaluating what has been received against what was expected, including the purchase decision itself and the needs and wants associated with the purchase (Armstrong & Kotler, 1996). Thomas.O, Jones and

Sesser (1995) explained customer satisfaction is the individual's perception of the performance of the product or service in relation to customer expectations. As noted the concept of customer satisfaction is a function of customer expectations. A customer whose experience matches expectations will be dissatisfied. Whose experience match expectation will be satisfied? And customer whose expectations are exceeds will be very satisfied or delighted.

Berry.L.L, Parasuram and Zeithaml (1994) argued that customer unreasonable at times; little evidence can be found of extravagant customer expectations. Meeting and exceeding customer expectations may reap several valuable benefits for the firm. Positive word- of- mouth generated from existing customers often translates into more new customers. Satisfied current customers often purchase more products more frequently and are less likely to be lost to competitions than are dissatisfied customers. Peterson and Wilson (1992) explained customer satisfaction surveys also provide several worthwhile benefits. That provides a formal means of customer feedback to the firms which may be identify existing and potential problems. Satisfaction surveys also convey the message to customers that the firm cares about

customer's well being and value customer inputs concerning organization's operations. However, the placement of customer feedback forms by some companies makes customers wonder if they really want the feedback. Other benefits are derived directly from the result of the satisfaction surveys. Satisfaction results are often used in evaluating employee performance for merit and compensation reviews and for sales management purposes. Such as the development of sales training programs. Survey results are also useful for compensation purpose to determine how the firm stacks up against the compensation. When ratings are favorable, many firms use the results in organization corporate advertising.

c) *Interactive marketing and customer Satisfaction in mobile communication service sector.*

The mobile communication service providers are fighting with each other to gain a great slice of the market share with a globalization effect. Therefore, they use the interactive marketing concept as strategy to build loyal with each customer, which leads to improved financial and market performance, and an increased competitive edge (Ravesteyn, 2005). Ndubisi (2006) concluded that if the mobile service organization is trustworthy, committed to service, reliable, efficient in communicating to customers and able to handle complaints well. mobile customers tend to be loyal in Malaysia. And also Ndubisi (2004) suggested that the organization should maintain the good relationship with customers to get the loyalists. Loyal customers are the greatest asset to the organization. Because they can communicate through the favorable word of mouth about the organization or products to which they feel loyal and also attract new customers for the organization which lead to the benefit of its sales, revenue and profit. Useful sources of new product ideas can be also drawn from loyalists. And also, Afsar et al. (2010) concluded that when a customer is committed to a mobile communication service a provider, his/her trust is grown up which automatically leads to the loyalty of the customer. In contrast, Das et al. (2009) found that customer relationship management deployment might not be a profitable strategy for mobile service organization, particularly in an Indian context.

But in most cases in both developed and developing countries the interactive marketing in mobile communication service sector is positively related to the customer satisfaction. In SriLanka, service sector is considered as main recipient in recent economic downturn. Better formation of strategies in service sector is the needed one especially in the recent information technology era. As a result of the continuing movement towards deregulation and the associated increase in competition, Maintaining a long term customer relationship leads to get a moderate or greater share of market and of a corporation's business (Abeysekera et

al., 2010). In an Iran context, Taleghani et al. (2011 a) suggested that mobile communication service providers should be trustworthy and committed to the service ethic, should communicate timely and accurately, and must resolve conflicts in a manner that will eliminate unnecessary loss and inconvenience to customers. However, much of the work and understanding of relationship or relational marketing to date focuses on the Western perspective, and hardly any work has been done in the Asian context (Nguyen, 2006). And also there are possible influences of personal demographical factors on interactive marketing dimensions and customer satisfaction. Studies have suggested that Women tended to be more loyal than Men; older people have more level of loyalty than younger age groups. Moreover, higher – income customers to receive better attention from mobile communication service providers in Malaysia (Ndubisi, 2005). Therefore, it is important, to empirically examine the actual impact of interactive marketing on customer satisfaction. Such understanding or finding will help to mobile communication service providers in Jaffna peninsula, SriLanka, to establish the better management of internal – external customer relationship and to achieve the higher level of satisfaction among customers.

## V. CONCEPTUALIZATION

Based on the research question, the following conceptual model has been constructed. This model of interactive marketing in mobile communication organization introduces new constructs and uniquely combines them in specifying that the customer satisfaction is a function of trust, relationship commitment, quality of employees, quality of atmosphere, personalizing services, familiarity and complaint handling in the interactive marketing. In which, personal demographical factors are used as a moderating variable.

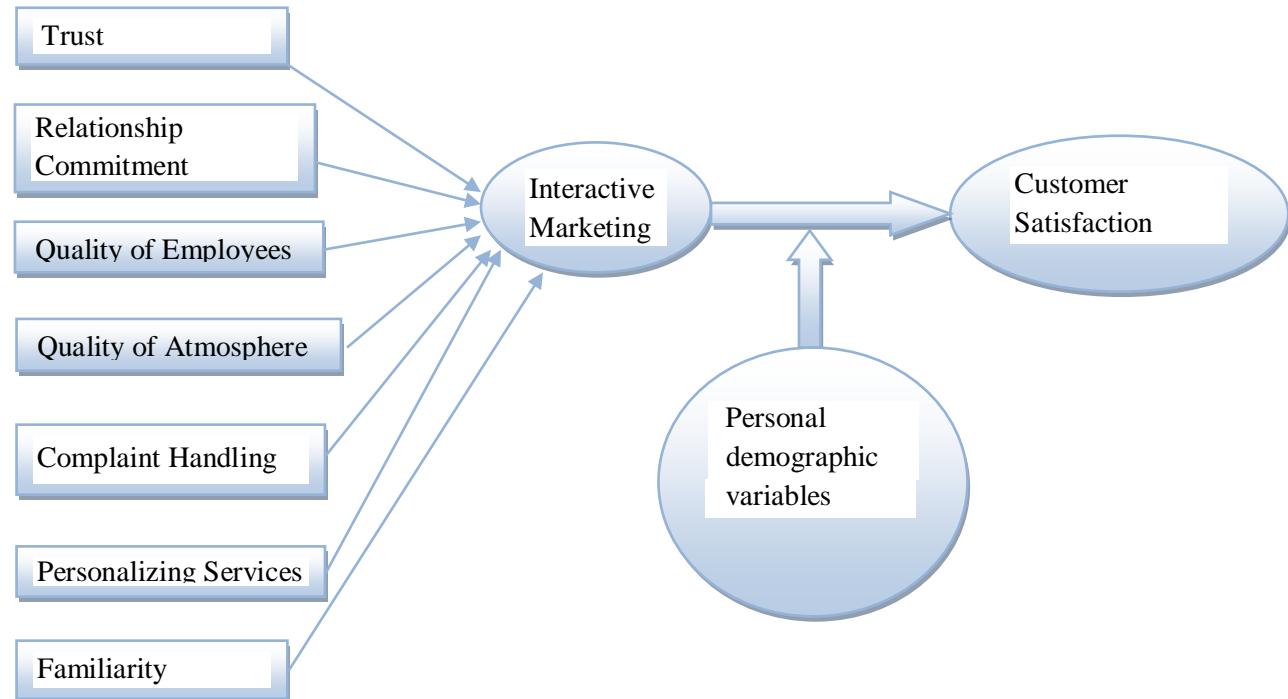


Figure 1 : Conceptualization model.

## VI. HYPOTHESES OF THE STUDY

The following hypotheses are formulated for the study.

H1: There is a positive relationship between interactive marketing and customer satisfaction.

H2: There is an impact of interactive marketing on customer satisfaction.

H3: There is a significant mean difference of customer satisfaction across the prepaid service and Postpaid service

H4: There is a significant mean difference of customer satisfaction across the three levels of Age group.

## VII. METHODOLOGY

### a) Data collection

Primary and secondary data are used for this study. Primary data are collected through the questionnaire, and secondary data are collected from texts, journals and magazines.

### b) Sample

A survey instrument in the form of close-ended questionnaire was developed for the purpose of collecting the main data for the study. This study was conducted in mobile communication service providers in Jaffna peninsula. Factors such as precision, confidence, time and cost constraints were taken into consideration in selecting sample size.

Characteristics		Frequency	Percentage
Age group	18-30	42	42%
	31-45	37	37%
	46-60	21	21%
Gender	Male	50	50%
	Female	50	50%
Occupation	Students	27	27%
	Non government staff	30	30%
	Government staff	43	43%
Service Kind	Pre paid	54	54%
	Post paid	46	46%
Service Organization	Dialog	50	50%
	Mobitel	50	50%

Table 2 : Number Of Respondents By Personal Characteristics

The study is limited to customers of mobile communication service providers in Jaffna peninsula. Convenience sampling method has been adopted to select respondents. Researchers issued one hundred and twenty (120) questionnaires to the selected customers and out of which hundred (100) only returned with their responses. The above table gives details about the distribution of questionnaires.

*c) Instrument development*

The instrument used in this study is composed of 3 parts .The part 1 includes a number of demographic questions such as age, gender, occupation. The second part deals with interactive marketing in the mobile communication service sector. This is measured by seven dimensions from Baron and Harris (2003), namely (1) trust (2) relationship commitment (3) quality of employees (4) quality of atmosphere (5) familiarity (6) personalizing services and (7) complaint handling which comprised eighteen items. Part 3 includes customer satisfaction in mobile communication service. This is measured by using four dimensions from Berry.L.L, Parasuram and Zeithaml namely (1) word of mouth (2) service innovation satisfaction (3) service availability and (4) competitive price which comprised twelve items. All items were measured by responses on a five-point Likert scale of agreement with statements, ranging from 1 = strongly disagree to 5 = strongly agree.

*d) Data analysis method*

Various statistical methods have been employed to compare the data collected from 100 respondents .these methods include (1) descriptive statistics which involves in collecting, summarizing and presenting data .this analysis is given information for the data through the frequency distribution, central tendency, and the dispersion. (2) Inferential statistics which involves in drawing conclusions about a population based only on sample data. It includes single linear regression analysis, independent sample one-way Anova (f-test), independent sample t-test (t-test). Single linear regression analysis is used to find out the significant impact of interactive marketing on customer satisfaction. And t-test and f-test are used to identify the significant mean different between the levels of customer satisfaction across the personal demographic factors.

**VIII. RESULTS AND ANALYSIS***a) Reliability*

The internal consistency of the research instrument should be tested by reliability analysis (Ndubisi, 2006). Nunnally (as cited in Ahsan et al., 2009) suggested that the minimum alpha of 0.6 sufficed for early stage of research. The cronbach's alpha in this study were all much higher than 0.6, the constructs were therefore deemed to have adequate reliability. The descriptive statistics of the variables and reliability estimates are shown in table No 03.

*Table 3: Descriptive statistics and reliability estimates.*

Dimension	Mean	Standard deviation	Cronbach's alpha value
Trust	4.0425	0.41751	0.785
Relationship Commitment	4.0250	0.41056	0.725
Quality of employees	4.2600	0.54346	0.631
Quality of atmosphere	4.1750	0.50440	0.652
Personalizing services	3.9500	0.59671	0.592
Complaint handling	3.8000	0.60720	0.575
Familiarity	4.0200	0.48158	0.681
Customer satisfaction	4.2350	0.47253	0.692

*b) Correlation analysis*

From this analysis we can summarize that, the interactive marketing of Dialog and Mobitel has significant influence on customer satisfaction regarding their services. Because the coefficient of correlation is 0.650 at 0.01 significant level which is nears the strong relationship.

*c) Regression analysis*

The purpose of regression analysis is to find out the significant impact or influence of independent variable on dependent variable (Ndubisi, 2006).In this study, interactive marketing is considered as independent variable or predictor variable, and the customer satisfaction is considered as dependent variable. Table No 04 presents the results of the regression analysis.

*Table 4: Single linear regression analysis.*

Multiple R	R Square	Adjusted R Square	Standard Error	Beta (β)	t	Sig.F
0.650	0.422	0.416	0.24016	0.650	8.464	0.000

*Note: Significant at 0.05 levels.*

The results of the regression analysis summarized in table no 04 show that interactive marketing contributes significantly to customer satisfaction predicts 41.6 percent of the variation found. Therefore every service organizations more concentrate on developing and maintaining better relationship with their customers and any other stake holders.

*d) Independent samples t-test*

In this study, t-test is utilized to find out the significant mean different in customer satisfaction between prepaid and postpaid services. Table no 05 show the results of t-test.

*Table 5* : Results of T-test

Independent sample T - test

	Levene's Test for Equality of Variances		T-test for Equality of Means								
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference			
CUSTOMERS ATISFACTION	Equal variances Assumed		5.606	.020	2.431	98	.017	.14969	.06157	.02751	.27187
	Equal variances Not assumed				2.342	71.738	.022	.14969	.06390	.02229	.27709

Group Statistics

Kind Of Service		N	Mean	Std. Deviation	Std. Error Mean
Customers	Pre Paid	54	3.9830	.22972	.03126
Atisfaction	Post Paid	46	3.8333	.37802	.05574

According to the above group statistics, the mean customer satisfaction score were 3.9830 (SD = 0.22972) for prepaid services and 3.8333 (SD = 0.37802) for postpaid services. The customer satisfaction scores of prepaid and postpaid were compared using an independent sample t-test. The results shows that there was a significant different between the customer satisfaction of prepaid and postpaid services. Because the significance value is less than 0.05 (Sig = 0.020).Therefore we can conclude that prepaid service customers are highly satisfied rather than postpaid service customers regarding their usage of mobile services.

e) *Independent sample one-way ANOVA test*

One- way ANOVA test can be used to find out the significant mean different in customer satisfaction among different age groups. Generally it is used when a researcher has one independent and one continues dependent variable and the independent variable specifies three or more groups for an example, age group at 18-30, 31-45 and 46-60). It was used to find out whether there is any significant mean difference of customer satisfaction across the three level of age group.

*Table 6* : Results of ANOVA

Descriptive Customer satisfaction

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
18-30	42	3.8413	.37441	.05777	3.7246	3.9579	2.50	4.58
31-45	37	3.9685	.25181	.04140	3.8845	4.0524	3.42	4.83
46-60	21	3.9643	.26163	.05709	3.8452	4.0834	3.50	4.33
Total	100	3.9142	.31437	.03144	3.8518	3.9765	2.50	4.83

Test of Homogeneity of Variances

Customer Satisfaction

Levene Statistic	df1	df2	Sig.
3.028	2	97	.053



ANOVA  
Customer Satisfaction

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.385	2	.193	1.987	.143
Within Groups	9.399	97	.097		
Total	9.784	99			

The above descriptive statistics represent that the mean customer satisfaction score were 3.8413 (SD = 0.37441) for 18-30 age group, 3.9685 (SD = 0.25181) for 31-45 age group and 3.9643 (SD = 0.26163) for 46-60 age group. The customer satisfaction scores of three level of age group were compared using an independent sample one way ANOVA. The results shows that there was no significant different between the customer satisfaction of three level of age group. Because the significance value is greater than 0.05 (Sig = 0.053). Therefore we can conclude that three level of age group people are equally satisfied regarding their usage of mobile communication services from both dialog and mobitel.

#### f) Hypotheses testing

NO	Hypotheses	Results	Tools
H1	There is a positive relationship between interactive marketing and customer satisfaction.	Accepted	Correlation
H2	There is an impact of interactive marketing on customer satisfaction.	Accepted	Regression
H3	There is a significant mean difference of customer satisfaction across the prepaid service and postpaid service.	Accepted	T - test
H4	There is a significant mean difference of customer satisfaction across the three levels of age group.	Rejected	ANOVA

## IX. CONCLUSION AND RECOMMENDATION

Based on the finding of the study, there are a few key points that can be used to conclude this research paper. It is very important that the interactive marketing in the mobile communication service providers in Jaffna peninsula contributes to the customer satisfaction. Mainly trust and relationship commitment in the interactive marketing contribute to the customer satisfaction. Therefore the mobile communication service providers should strive to earn customers trust .By giving and keeping promises,

showing concern for the security of customer transactions, providing quality services, showing respect for customers, fulfilling obligations to customers, and striving always to enhance customers' confidence. Furthermore, Effective communication predisposes customers to stay with a provider of mobile services. Satisfaction can also be nurtured by providing timely and reliable information. In contrast, customer satisfaction is not significantly contributed by the personalizing services and complaint handling in the interactive marketing in this study. But both dimensions are the important predictor variables to predict the customer satisfaction (Ndubisi, 2006; Taleghani et al., 2011). At the same time mean value of both dimensions are in a low level compare with the mean value of trust and relationship commitment dimensions in this study. Therefore, the service providers should have proper strategy to handle the complaint, by trying to avoid potential conflict, trying to solve manifest conflicts before they create problems and holding the ability to openly discuss solutions when problems arise. Furthermore, the commitment is another critical factor to building the customer satisfaction and loyalty. So that service providers should concentrate on customer commitment through offering the personalized and flexible services. Lastly, in the moderating effect of personal demographic variables, service providers should concern the age wise segmentation. Persons who are 18-30 years old have lowest level of customer satisfaction. Lot of expectations in the mobile service technological aspects might be the reason for the least level of satisfaction among customers who are 18-30 years old. Therefore the service providers should provide innovative and enthusiastic services to especially the persons who are 18-30 years old. In today's technologically advanced world and due to arrival of internet, it's much more difficult to retain a Customer. Several strategies have been attempted to retain customers (Afsar et al., 2010).Nguyen, (2006) recommended the strategies to develop the capability of interactive marketing in the mobile communication service sector especially in the Asian context.

1. Strategy development: It is imperative to develop an overall approach to managing customers. There is a need to link back to the overall corporate and marketing strategy of the company.
2. Customer information strategy (CRM): There is a

- need for detailed data identification, collection, analysis and interpretation of customer information to enable the detailed strategy to be implemented with confidence in the mobile communication service sector.
3. Reduce the customer list: There is a need to differentiate customers by value which will allow a firm to prioritize its marketing efforts, allocating more resources to high value customers, while minimizing the resources applied to low value customers.
  4. Planning and internal marketing: There is a need to draw together all the analyses of the different departments to produce a case for changing the way to manage customers plus the associated investment and profit implications, and developing a project plan to manage and monitor.
  5. Technology: it can be used to speed up the routine aspects of business, freeing up people for more complex issues and increasing their job satisfaction. Consumers are happy because of the increased speed of response and the capability to access information as required.

## X. LIMITATION AND FUTURE RESEARCH

This research focuses on mobile communication services in one particular district of the country; therefore further research in other sectors may be necessary before generalization can be made on the entire service industry. For the purpose of practicability and manageability, Convenience sampling method has been adopted to select respondents. Factors such as precision, confidence, time and cost constraints were taken into consideration in selecting sample size. Furthermore, this research mainly conducted based on the data collection, through the questionnaire. The other data collection methods had not been considered. As a result they may not be 100% accurate. In this study, interactive marketing contributes significantly to customer satisfaction and predicts 41.6 percent of the variation found. Remaining 58.4 percent of the variation should be found. Due to that, an important future research direction is to find out the key factors to determine the interactive marketing in the mobile communication sector in Jaffna peninsula through the factor analysis. Furthermore, interactive marketing research may include other less widely acknowledged interactive marketing variables, for example, friendship, recognition, thoughtfulness, understanding, benevolence, competence, and time to listen. Impact of the interactive marketing underpinnings can be investigated on other dependent variables such as customer retention, loyalty, market share, profitability and firm performance.

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# Students' Perception of Career Choice in Estate Management: A Study of Abubakar Tafawa Balewa University Bauchi, Nigeria

By Y. L. Gambo, J. U. Osagie, M. M. Salihu & A. O. Ogungbemi

*Abubakar Tafawa Balewa University Bauchi*

**Abstract** - Estate management as a course is still a very young course in Nigeria compared to courses such as Law, Medicine and Engineering amongst others. The study looked at the variables that influence students choice of career path as it has to do with Estate Management. Graduating students and those who just graduated from the school were adopted as the population sample for the study. Structured questionnaires were analyzed and the simple descriptive statistics were used for the study. The outcome of the study shows that the students are fully aware of the course before they applied to study it and have no regrets choosing a career in estate management. It recommends that more orientation should be given to students in the choice of their career at an early stage before coming to university.

**Keywords :** *Estate Management, Students, Career.*

**GJMBR-B Classification :** *FOR Code:150499 JEL Code: H52, H75*



*Strictly as per the compliance and regulations of:*



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## I. INTRODUCTION

Career selection is one of many difficult task students are faced with as this determines their future plans. The decision usually affects them throughout their future lives. The essence of who the student is will revolve around the students' future ambition. The job one engages in, most often is influenced by the training the person receives from the school. It appears most students career choice is determined by events and prevailing circumstances rather than their inert ability and goal oriented pursuit. The resource available to most students in secondary school appears to be the University Matriculation Examination (UME) brochure fabricated by the Joint Admissions and Matriculation Board (JAMB). Many Students rely on expert advice of guidance and counseling teachers in their schools (if such persons are available) in order to make a choice on their career paths. (Weiler, 1977).

Over the years in Nigeria, it is evident that many students gain admission to study estate management in tertiary institutions without good grasp of what the course is all about. Many of such students after their first year either change course of study or drop out of the

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university. Egbenta (2008) asserts that the problem of students dropping out of the University is not peculiar to Nigeria alone as about 20% of students at university of Bath drop out of higher education every year. Godbey (2011) reports that 6% of nations' teaching force leaves the profession yearly and more than 7% change schools in East Carolina. Early and Bright (2007) report that job satisfaction promotes career comfort and decisiveness predicts organizational commitment. The study concluded that career is relevant in a contemporary work environment. This implies that an employee's knowledge of the field of study is an important ingredient in achieving excellence in the work environment.

Hodkinson and Sparkes (1997) developed a sociological theory of career decision making. The theory on one hand sees human beings as free agents making their own decisions on a free market and deterministic theories where human beings are regarded as being ruled by societal structures on the other hand. The study revealed that none of the students choose the profession because it makes a good living. Santrock (2005) contested that school teachers and counselors can exert influence on children's career development on the ground that school is a place where students first encounter the world of work. In many empirical studies in different societies (Blau & Duncan, 1967 in Pafilis & Mylonakis, 2011) and in Greece (Kassimati, 1998), the primary role that education plays in the career of individuals has been proven. The studies show a very strong relationship between the level and type of education and the profession that a person practices. This implies the choice of the level and type of education that could be considered as being primary while that of the profession as secondary.

Family plays the main role in choosing the level of education since it is Cardinal Avenue through which the child gets his/her first contact with the social environment. A series of studies by economists and sociologists summarized the role of the family to majorly include: reproductive, economic, educational and psychological which will affect the individual, sometimes directly and sometimes indirectly to its occupational choices (Psachoropoulou & Kazimias, 1985; Kassimati, 1998)

In order for the individual to effectively and efficiently use his/her education, to acquire the requisite experience and offer in the development of the society, the primary step is the right choice of the profession to pursue. The employment of individuals, in all societies and all times, was the focal point of social structures. In particular, the distribution of persons in various professional roles and developments over time defined the character of each society (Filius, 1978 in Pafilis & Mylonakis, 2011). Bowles (1972) noted that the socio-economic status is positively correlated to plans for post-high school studies, while Wright (1979) argued that education and occupation of the father affects the educational aspirations of the children. According to Osakinle and Adegoroye (2008), factors that influence adolescents' choice of career are sex, location of choice maker, environment, school's influence (peer and curricular content), and religion, child up-bringing and family values. It follows that when parents work and enjoy their jobs; adolescents learn work ethics from both of them. It was argued that the development of work value is transmitted more strongly in the same-sex parent adolescent relationship than in the opposite-sex parent-adolescent relationships. Betz (2002) and Gates (2001) in Osakinle (2010) noted that many female have been socialized to adopt nurturing roles rather than career or achieving roles, that they traditionally have not seriously planned for, and have restricted their career choices to careers that are gender biased. Male and female make different choices because of their experiences socially and the ways the social forces structure opportunities available to them. Egbenta (2008) citing Janik and Rejnis (1994) outlined some requirements for embarking on real estate career; that the work requires in-depth knowledge of all facets of the field, well developed communication skills and personality traits that include careful attention to detail, honesty, a cool temperament, creativity, patience, assertiveness, foresight, and perseverance. The choice of career therefore in estate management is one that should be carefully made. It is against the foregoing the study asks the following questions: What informs student choice of estate management course? What prevailing circumstance makes a student study estate management? To what extent is the student interested in the course of study? The study aims at examining the students' perception on estate management choice of career in the university.

## II. STUDY AREA

Abubakar Tafawa Balewa University is one of the few universities that were created by the second republic civilian administration led by Alhaji Shehu Shagari in 1981. When the school came into being, it also had the Faculty of Environmental Technology at

inception. The faculty that currently has eight departments (Architecture, Building, Estate Management, Environmental management sciences, Industrial Design, Land Surveying, Quantity Surveying and Urban and Regional Planning) was bereft of Estate management as a department until 1994. The department is about the youngest in the faculty. The course is a five (5) year programme occurring in five different levels as against some other departments in the humanities whose study duration is four (4) years.

The students are expected to go for Industrial Training first in 200L level for three (3) months and the second field training is in their 300 level which is also for three (3) months while the third field training happens in their 400 level second semester and it is for six (6) months. The aim of this is to expose the students to real world of work and also provide a platform for the students to get a feel of what the course is about.

## III. METHODOLOGY

A structured questionnaire was designed for this study and was administered to the immediate graduated class of estate management students and the graduating class of the same department in Abubarker Tafawa Balewa University Bauchi. This was done in order to capture the mind of those who have gone through all the process there are in the making of an estate surveyor and valuer.

The simple descriptive analysis was adopted using frequency and percentages. A total of 118 questionnaires were distributed and retrieved from the respondents representing a hundred percent (100%) success rate in the actual field work and this same number was considered good for analysis and was used.

## IV. FINDINGS AND DISCUSSIONS

Six (6) key variables were adopted for discussion as they relate to perception of students in their choice of career in estate management, they are discussed below.

The place of awareness cannot be over emphasized in choice of course by a prospective student as a lot of them are familiar with courses such as how, medicine, Engineering Accumulating and the like. Estate management happens to be one of those courses that are young in most universities and there is the tendency of most people misconstruing what the course is all about. Based on the above, the level of awareness of the respondent with respect to the course was sought.

*Table 1:* Rating of information about Estate Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Well informed	44	37.3	37.3	37.3
	Informed	46	39.0	39.0	76.3
	Somehow Informed	25	21.2	21.2	97.5
	Indifferent	1	.8	.8	98.3
	Not Informed	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

Table 1 reveals that students' level of awareness will go a long way in determining whether or not they would seek admission into the department out of their own free volition and not out of frustration. The results show that a cumulative of 90 (76.3%) of the respondents

are either well informed 44 (37.3%) or informed 46 (39.0%) about the course before coming in to study it. It is thus obvious that they knew what the course was all about before opting for it and were not total novice as at the time they were admitted to study the course.

*Table 2:* Reason for choosing Estate Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dreams Course	30	25.4	25.4	25.4
	Parental Influence	10	8.5	8.5	33.9
	Peer Influence	15	12.7	12.7	46.6
	Motivated by previous work experience	12	10.2	10.2	56.8
	Early School Counselor	6	5.1	5.1	61.9
	Change of Admission by the Institution	33	28.0	28.0	89.8
	Others	12	10.2	10.2	100.0
	Total	118	100.0	100.0	

If the students actually chose estate management as a course, the question then would be 'what inspired that choice'? Table 2 went a step further to inquire the major reason why the students chose Estate Management as a course as against other courses available to them. 33(28.0%) of the students actually stumbled into the course due to change of course during admission by the school while 30(25.4%) of the students actually opted for the course because it is their dream course. Next in declining order is peer influence 15 (12.7%). However, shocking is the fact that the role of school counselor came a distant last 6(5.1%) which in fact raises the question whether there are counselors at that level of education or their role is just not recognized. The result here can be argued that there could still be some relationship with what was obtained in table 1 as the students could actually be well informed about the course and still prefer to study some other course based on the popularity associated with such a course and merely choose estate management as a second choice probably because they did not meet

up with the cut-off mark of their first choice, hence they settled for estate management.

If the above is the case, there is the need to for the study to check the incidence of the students

choosing Estate management as a course of study and this was treated as reflected in table 2.

*Table 3:* Incidence of coming to the department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Personal Choice	68	57.6	57.6	57.6
	Change due to Academic incapacitation	21	17.8	17.8	75.4
	Choice due to perceive prospect of the course	15	12.7	12.7	88.1
	Admitted against personal wish	14	11.9	11.9	100.0
	Total	118	100.0	100.0	

70 The response got however shows that entry into Estate management was based on personal choice 68 (57.6%) while 21 (17.8%) of the respondents enrolled due to the academic deficiency. This implied that the

students must have actually developed some likeness or interest in the course before they applied to study it in the university.

*Table 4:* Preference of Est. Mgt. to other courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most preferred	42	35.6	35.6	35.6
	Preferred	40	33.9	33.9	69.5
	Somehow preferred	22	18.6	18.6	88.1
	Indifferent	10	8.5	8.5	96.6
	Dislike	4	3.4	3.4	100.0
	Total	118	100.0	100.0	

If the students did choose to study Estate Management as a course as an alternative compared to other courses available, table 4 sought to know the level of the respondents' preference of the course to other courses available to them. The result in the table shows that a cumulative of 82(69.5%) respondents rated the

course as either preferred 40(33.9%) or most preferred 42(35.6%) coming least in the table was "Dislike" for other courses. The implication of this is that the respondents liked and preferred the course before opting to study the course.

*Table 5:* Rating of Interest in Estate Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Interesting	97	82.2	82.2	82.2
	Somehow Interesting	17	14.4	14.4	96.6
	Regrettable	1	.8	.8	97.5
	Indifferent	2	1.7	1.7	99.2
	Not Sure	1	.8	.8	100.0
	Total	118	100.0	100.0	

So far during the course of the study the interest of the respondents in the course from table 5 97(82.2%) of the respondents rated the course as being interesting while a negligible percentage of respondents found the course either regrettable, or indifferent or not sure.

Table 6 : Intended place of work

Valid		Frequency	Percent	Valid Percent	Cumulative
					Percent
	Public Sector(Ministry, L.G.A)	20	16.9	16.9	16.9
	Private Sector(Banks, Oil Company, Property Companies e.t.c.)	60	50.8	50.8	67.8
	Private Practice(Estate Surveying and Valuation Firms)	27	22.9	22.9	90.7
	Will not practice	5	4.2	4.2	94.9
	Not sure	6	5.1	5.1	100.0
	Total	118	100.0	100.0	

There is a way students normally pass on information down the line on issues that they are interested in. This implies that the students who found the course as being interesting would definitely pass the information down the line to as many people that they came in contact with or even mentored. Table 6 finally looked at the intended place of work the respondents would want to work in majority of the respondents preferred to work in private sector employment 60(50.8%) while 27(22.9%) of the respondents would like to be involved in private practice.

## V. CONCLUSION AND RECOMMENDATIONS

Generally the study attempted to capture the mind of students studying estate management in Abubarkar Tafawa Balewa University as regards the choice of a career in Estate management which is a relatively new course in Nigeria as against other popular courses such as Law, accounting, Medicine and Engineering amongst others. The study revealed that the students already had a prior knowledge of what the course was all about and it was a choice they made on their own and not based on external influences from either parents or peers. However, it was also revealed that some of them had to opt for the course because they could not get admitted into the institution based on their course of first choice. It implies that Estate management was a second choice as it were to those who stumbled into the course due to academic deficiency. An area which the study however did not cover was what their first choice was as this was not within the scope of the research. It however is not out of place if a further study is done to look at that aspect.

Also, the study concentrated only on Abubakar Tafawa Balewa University in Bauchi which the only university is offering the course in Bauchi State of Northern Nigeria but one of the three tertiary institutions offering the course in the state, the other two institutions are polytechnics. A broader study that would look at a

global picture would also give a clearer view as to the perception of students in tertiary institutions.

It is obvious that estate management as a course is still in its pupilage stage and more needs to be done by stakeholders in carrying out awareness campaign to the grass root particularly to students in secondary schools and the institution should also be at the fore front of this campaign. Career orientation should built in college curriculum to enable students know what they are going for in life at an early stage.

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# Direct Cost of Scope Creep in Governmental Construction Projects in Qatar

By Osama Hussain

*Min Of Awqaf*

**Abstract** - A very common reason for projects failure is the poor scope management and control . (Scope Creep) is the current leading cause of project failure globally according to the 2010 Global Survey, Top 10 Obstacles to Project Success<sup>1</sup> This paper discuss the direct cost of scope creep in governmental construction projects in the state of Qatar .The paper is based on a study prepared by the author to support a new change control system which is going to be designed by him . The study contains a questionnaire with participation of 70 project manager and official in the governmental construction sector in the state of Qatar. The paper will investigate the reasons for scope creep and will provide an estimate for the direct cost resulting from scope creep in some construction projects executed in the last few years. A case study will be provided as an example, lessons learned from the project will be provided. Finally the paper will present suggestions - based onthe questionnaire – to avoid scope creep in governmental construction projects.

*GJMBR-A Classification: FOR Code: 150312 JEL Code: P48, R48, R42*



DIRECT COST OF SCOPE CREEP IN GOVERNMENTAL CONSTRUCTION PROJECTS IN QATAR

*Strictly as per the compliance and regulations of:*



RESEARCH | DIVERSITY | ETHICS

# Direct Cost of Scope Creep in Governmental Construction Projects in Qatar

Osama Hussain

**Abstract** - A very common reason for projects failure is the poor scope management and control . (Scope Creep) is the current leading cause of project failure globally according to the 2010 Global Survey, Top 10 Obstacles to Project Success<sup>1</sup> This paper discuss the direct cost of scope creep in governmental construction projects in the state of Qatar .The paper is based on a study prepared by the author to support a new change control system which is going to be designed by him . The study contains a questionnaire with participation of 70 project manager and official in the governmental construction sector in the state of Qatar.

The paper will investigate the reasons for scope creep and will provide an estimate for the direct cost resulting from scope creep in some construction projects executed in the last few years.

A case study will be provided as an example, lessons learned from the project will be provided.

Finally the paper will present suggestions - based on the questionnaire – to avoid scope creep in governmental construction projects.

## I. LIMITATIONS

This paper is copyrighted material , only fair use is permitted (for non-profit educational purposes only)

This paper and study is covering the state of Qatar.

The paper covers governmental construction projects, these projects include projects like departments headquarters and small public services points, it doesn't include public works (like roads, hospitals, dams ...etc

## II. DEFINITIONS

It is not unusual for construction projects to witness a major scope changes, however, scope change and scope creep are completely different. "Scope Change is an official decision made by the project manager and the client to change a feature X to expand or reduce its functionality. Generally, scope change involves making adjustments to the cost, budget, other features, or the timeline."<sup>2</sup>

On the other hand "Scope Creep is generally referred to as the phenomenon where the original

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<sup>1</sup> The 2010 Global Survey, Top 10 Obstacles to Project Success (<http://www.mutoperformancecorp.com/2010SurveyResults.htm>)

<sup>2</sup> <http://pm.stackexchange.com>

project scope to build a product with feature X, Y, and Z slowly grows outside of the scope originally defined in the statement of work. Scope creep refers to scope change which happens slowly and unofficially, without changing due dates or otherwise making adjustments to the budget."<sup>3</sup>

Another definition for scope creep is the "the tendency for a project to extend beyond its initial boundaries".<sup>4</sup>

While some project manager accept the fact that scope creep is a must and try to live with it and reduce its direct effects ,most project manager are struggling to fight scope creep.

## III. INTRODUCTION

Historically, construction projects have a long history of cost overrun (cost escalation), even in the gigantic projects where hundreds of people are involving in the planning stage for years.

Like many other construction projects in the world, governmental construction projects in Qatar are witnessing a cost overrun.

In many governmental construction projects that I was involved in, the final product was never the same as originally planned, for many reasons the project scope was changing and evolving. The project management team was struggling trying to update schedule, cost and other project constrain to keep up with the new scope.

Back in 2006 we made a breakthrough in our organization PM procedures of work, I started to submit a direct cost estimate for "scope creep" as an attachment in the final project report. The senior management was completely surprised about the additional costs; they were convinced that scope creep was a real obstacle. The scope management plan was not efficient as expected.

I was assigned the responsibility to prepare a report about the direct cost of scope creep in my organization construction projects , so I started by analyzing the problem and open discussions with fellow project managers in governmental organizations , I discovered that we all share the same problem . The senior management decided to "scope creep" my assignment and expand the study to include a

<sup>3</sup> <http://pm.stackexchange.com>

<sup>4</sup> Scope Creep-A Lethal Project Disease Thoughts on Prevention and Cure

questionnaire about scope management and control. The results will be used to support a new scope management system that will be introduced next year.

#### IV. SURVEY QUESTIONNAIRE

To achieve the study objectives, I carried a historical research about scope creep in construction projects in Qatar, based on my studies; I developed a survey questionnaire to understand the root cause of the problem.

The questionnaire was distributed to 70 project manager and government officials, the questionnaire consist of 3 parts, part one is general information about the participants, part 2 asks questions about scope creep, and part 3 is about possible solutions for the problem.

Response from 60 project managers and government official were received and analyzed. The outcome of the questionnaire will be discussed below.

#### V. RESULTS AND FINDINGS

##### a) Results and Findings :

It was clear from the questionnaire results that most of the participants understand the term scope creep (fig 1), in addition 92% pf them witnessed a scope creep in one or more of the projects they executed ( fig 2 ).

An assessment was made to the projects submitted by the participants for evaluation, none governmental projects were eliminated, the next step was to study the final project report to obtain the required data such as baseline cost and variations. The study results has shown that:

- All projects had more than 10 variations orders.
- There is an inverse relationship between project final cost and direct cost of scope creep.
- 35% of the participants referred scope creep in the projects to the ignorance of key stakeholders during

Fig. 1

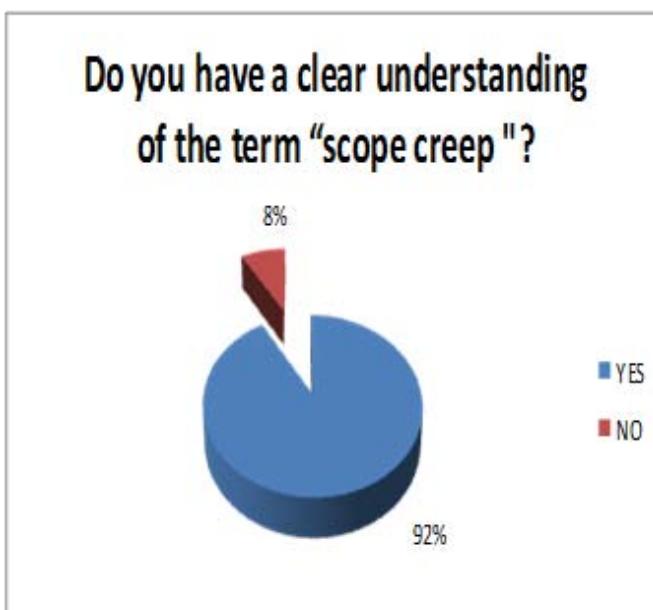
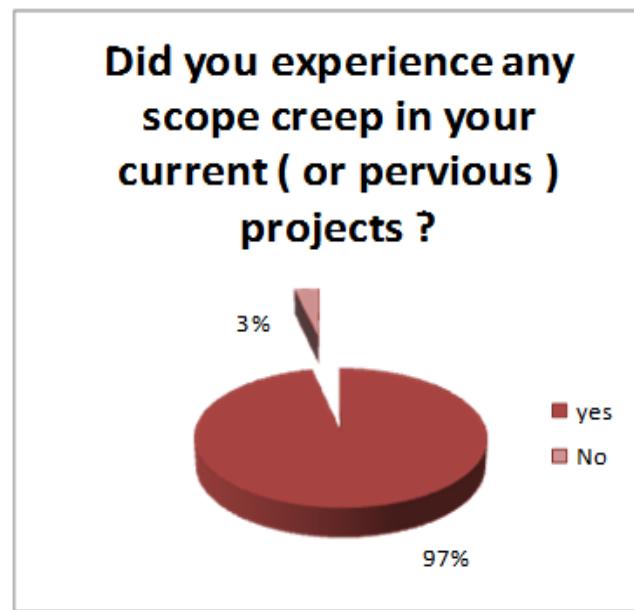
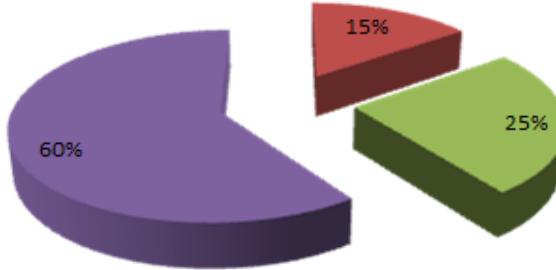


Fig. 2



## In your opinion ,what is the best way to overcome these challenges



- In your opinion ,what is the best way to overcome these challenges
- More Research and development
- Increase awareness regarding the application of scope management and control
- Other

Fig. 3

### b) Direct Cost of Scope Creep

The majority of our respondents agreed on the negative impact of the scope creep. The above table

shows the direct cost of scope creep for governmental construction projects, the data comes directly from the final project report :

No	Original Project Budget (QR)	Final project cost (QR) - approximately	Variations	Variations%	Direct Cost Due to scope creep	Direct Cost Due to scope creep %
1	3,000,000	3,800,000	450,000	12	350,000	9.21
2	5,500,000	7,450,000	1,280,000	17	670,000	8.99
3	8,000,000	9,650,000	1,000,000	10	650,000	6.74
4	15,000,000	18,900,000	3,100,000	16	800,000	4.23
5	22,000,000	23,200,000	520,000	2	680,000	2.93
6	30,000,000	34,150,000	3,820,000	11	330,000	0.97
7	35,000,000	49,000,000	13,670,000	28	330,000	0.67

Table 1 : Projects Data.

Notes : All the above information was obtained directly from final project report.

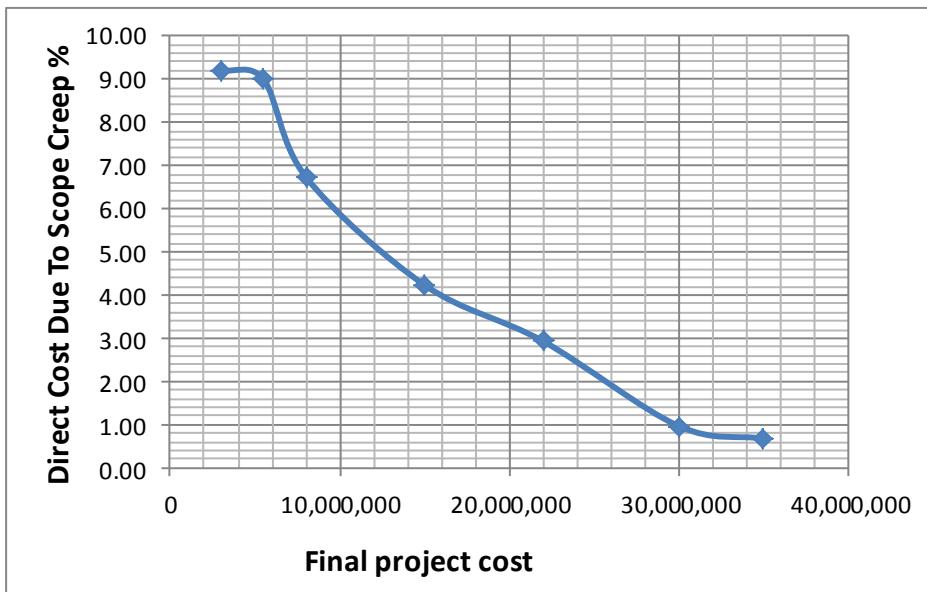


Fig. 4

## VI. MAIN CAUSES OF SCOPE CREEP IN CONSTRUCTION PROJECTS :

According to the study and the questionnaire, the 10 top reasons for scope creep are:

1. Ignorance of key stakeholders until the project is underway.
2. The project is executed after years of completion of study and scope definition.
3. Scope definition is done by the wrong people.
4. Government officials are always "ambitious" and unrealistic regarding the outcome of projects.
5. Intervention by politicians and senior government officials.
6. The data was not enough when the scope was defined.
7. Bad management of project changes, and absence of scope management and control systems.
8. Most managers focus on major scope changes and ignore small changes that could lead to bigger scope creep problems.
9. In government projects, it is not easy to differentiate between what is included in the project and what is not included.
10. Conflict in different government agencies interests.

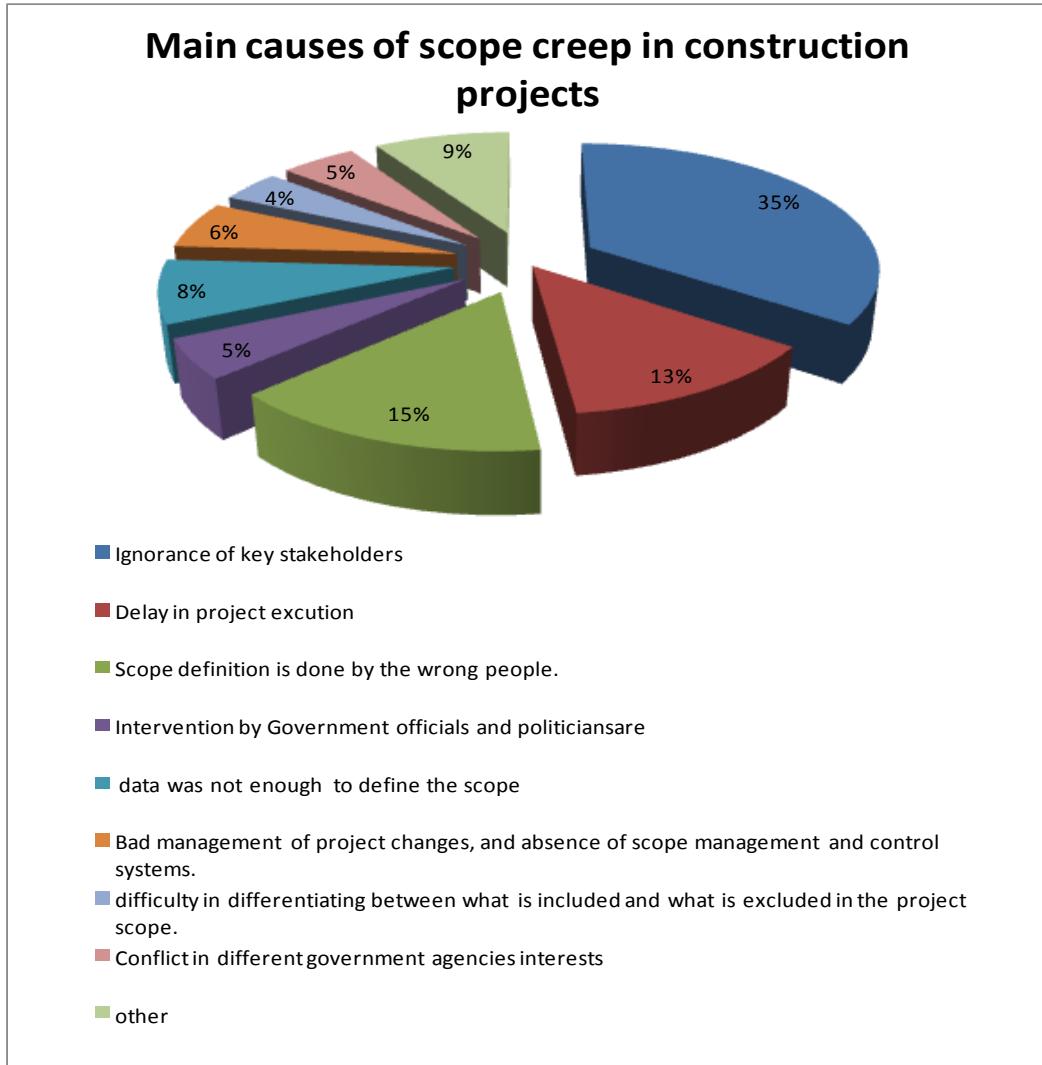


Fig. 5

It is clear from the chart that 65% of the participants agree about the 3 main scope creep causes. In fact these causes are considered as a characteristics of project management in the public sector; the work is done in the wrong time (years before the project execution) by the wrong people, who always ignore the interests of the key stakeholders.

## VII. HOW TO AVOID SCOPE CREEP IN GOVERNMENTAL PROJECTS IN QATAR? HOW TO REDUCE COSTS

According to the questionnaire, most respondents suggested that extra awareness about the impact of scope creep and the application of an effective scope control system will reduce the effect of the problem; in addition, other ways to solve the problem could be summarized as follows:

1. Project scope must be identified by the right people at the right time.

2. Stakeholder's analysis must be completed before the scope is defined.
3. Project team must sell the project to all stakeholders early before the start (get buy in).
4. An effective control system must be used for all types of projects.
5. Project team must gather all relevant information before finalizing the scope statement.
6. Project team must use an effective and clear communications system.

## VIII. CASE STUDY

The AWQ (which is a government agency) witnessed an increased work load in the last 3 years; the total No of employee was tripled. The offices were crowded, as a result the senior management decided to revive the head quarter project which was postponed by the Minister several years ago.

1. In order to get finance for the project, the AWQ made some modifications for the project, they also

- adjusted the project cost and sent it to the minister office.
2. The project scope was defined after the approval of the budget. The project scope was to build a new headquarter for the agency and to solve the congestion in the agency offices.
  3. Shortly after the project started, a new organizational chart was approved for the agency, two new departments were created, the investment department, and training & development.
  4. The training and development department requested the addition of new multipurpose hall for seminars, lectures and other related training activities .the change was approved.
  5. As the restructuring processes was imposed by the minister, the senior management of the agency made a claim about the new two departments. They succeed to get extra financial provision for the HQ project. The extra funds guaranteed were 4 times the actual value originally calculated (the senior management was expecting the minister office to apply some budget cuts).
  6. The senior management began to think about new ways to invest the extra funds.
  7. The design office informed the senior management about the new municipal regulations in the area; it is now possible to increase the height of the building by one more story. the design office informed the management that they will make design changes at no costs ( the design office was gold plating his services and planning to get new projects from the agency) .
  8. The senior management welcomed the free gift from the design office and exerted some pressure on the contractor to make the changes for the same rate in the original contract without taking the inflation and increasing in building materials prices into account . Knowing that many variations will be underway the contractor agreed to add the extra floor.
  9. After the completion of the concrete skeleton of the building, the agency discovered that the car parking is no longer suitable for the capacity of the building. It was not possible to increase area of the parking (cant exceed the maximum building area from the lot) , the agency decided to add a basement to the original parking area .
  10. The addition of the new basement floor added substantial costs to the project , due to high ground water table in the area .
  11. After the completion of the building, a detailed cost report was submitted to the senior management about the running and maintenance cost of the building. The running cost was exceeding the planned value.
  12. Based on the internal audit unit request ,the senior management initiated an investigation about the

reasons for cost overrun and delay of the project , the final report attributed the main cause to scope creep , none professional project management of the project and absence of clear scope control procedure .

13. The senior management blamed the new municipal regulations, construction market conditions and the contractor.

*a) Impact of Scope Creep On This Project :*

1. The project was completed 2 years later than originally planned.
2. The total cost overrun was 25 million QR (40% of the original budget), of the total the direct cost of scope creep was about 15 million QR.
3. Increased running and maintenance costs.

*b) Some Lessons Learned From This Project ( About Scope Creep ) :*

1. Don't initiate a project without a clear written scope statement.
2. Don't underestimate the small changes of scope; the sequences must be taken into account.
3. Project scope management and control is a must , no matter the size of the project.
4. The owner should investigate the real intentions behind any "free gifts" from the design offices , contractors... etc
5. All stakeholders must be identified and consulted before defining the project scope.
6. Government agencies will never acknowledge there responsibility in projects scope creep, there are always plenty of other project stakeholders to blame.

## IX. CONCLUSION

The scope creep has a serious negative impact on governmental construction projects in the state of Qatar. This paper has outlined the main causes ,the direct cost of scope creep and possible solutions for the problem - according to the survey questionnaire .

Among other reasons a defect in stakeholder analysis at the early stages of the project and the large time gap between project studies and execution are on the top of the list .The respondents suggested that extra awareness about the impact of scope creep and the application of an effective scope control system will reduce the effect of the problem .A key finding of the study is the inverse relationship between project size and the direct cost of scope creep , the larger the project ,the lower direct cost of scope creep , this could a result of hiring a n external project management company in large projects .

A case study for a construction project was introduced; the case has shown the mechanism and impact of scope creep and the lessons learned from the project .

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4. **How to prevent or minimize scope creep?** *Clarity consultants.*

APPENDIXES:

1. **Appendix (1) : The Scope Management & Control Questionnaire**



## Scope Management & Control

### Questionnaire

- ❖ The purpose of this survey study is to investigate the direct costs of **scope creep in governmental construction projects**. The information provided in this questionnaire is highly confidential and shall be used **ONLY** for research purposes. Your perfect information will be appreciated as it will assist to complete the study.

## PART 1 : GENERAL INFORMATION

1. Name (optional )

.....

2. Discipline

.....

3. Please circle the figure that represent your years of experience :

1 2 3 4 5

6 7 8 9 10

11 12 13 14 15

16 +

(Graduate )

(Intermediate)

(advanced )

(Expert )

4. Please circle the figure that represent your years of experience (In the state of Qatar ) :

1 2 3 4 5

6 7 8 9 10

11 12 13 14 15

16 +

5. What is your highest qualification :

Bachelor (Bsc –Btech)

Master

PhD

other

6. Professional Member ship :

Yes (.....)

No

7. Do you hold a formal project management qualification ?

Yes (.....)

No

## PART 2 :SCOPE CREEP :

1. Do you have a clear understanding of the term “scope creep ” ?

Yes  No

2. What is the difference between scope creep and scope changes? circle the correct answer :

- Scope creep is a synonym of scope change .
- Scope creep is the process of controlling the project scope.

Scope creep occur where the original project scope slowly grows outside the scope originally defined in the statement of work.

3. Did you experience any scope creep in your current ( or previous ) projects ?

Yes  No

If you answered “yes” for Q3 :

(If you need to enter data for more than one project use extra copies of this page)

a. Project type

Governmental  commercial

b. Project Size:

small (<10 million QR )  medium(<30 – 50> million QR)  large (>50 million QR )

c. Who was responsible for controlling the project scope ?



Project manager       sponsor       Project Team       collective responsibility

- d. From the project records ,what was the total value of the variations and cost creep in the projects

Variations : .....

Scope creep : .....

- e. What were the lessons learned about scope creep and scope control in this project?

.....  
.....  
.....

## PART 3 : SCOPE CONTROL CHALLENGES :

1. Do you think it is important to protect the project scope

Yes       No

2. Do you agree or disagree with the following statements :

Agree      Disagree

Scope cant be controlled in governmental construction projects           

Formal scope control procedure is required for large (complex )  
construction projects only .           

Scope control management was applied in many construction projects and shown

a significant successes .

Scope management and control faces a lot of barriers in the construction industry.

scope management and control can overcome the challenges and barriers and will play a major role in the future of construction projects.

3. In your opinion ,what is the main challenge of Scope management and control in governmental construction projects :

.....  
.....  
.....  
.....

4. In your opinion ,what is the best way to overcome these challenges :

- More Research and development .
- Increase awareness regarding the application of scope management and control in construction industry
- Others ,please specify :

.....  
.....  
.....

5. Do you have any intention to know more about scope management and control ?

Yes  No



6. Do you have any intention to apply scope management and control in your future projects?

Yes  No

\* Thank you for your participation



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# Students, Teachers, and Organizational Capacities' Impact on Overall Students Performance in Mafraq Governorate

By Dr. Salem Al-Oun

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**Abstract** - Environmental positions and personality characteristics and attitude towards school affect students' performance. Environmental factors include social and organizational environment of the school and the physical environment. The study was conducted using field research. Interviews and surveys were conducted with 229 administers located at three directorates of the North Badia region. Subjects were selected using stratified random sampling. Results indicated that education at Mafraq Governorate lacks quality and quantity of supply being located away from urban centers. Over all perceived performance was associated with elementary grade inputs of first and second grade number of sections; negatively associated with eleventh grade the number of students nursing stream; and no association with twelfth grade inputs. Results showed positive association with number of geology teachers. Results indicated that attributes of teaching-organization and capacity of quality of education supply and other variables associated with perceived overall performance as follows: (1) teaching-organizational entity such as structural, staff frustration, positive classroom environment, and caring and support for students; (2) quality of education such as perception of existing pedagogy and directing student to choose a track; (3) other variables such as students attitude, teachers attitude, available school services, and students gender. Many schools are suffering, especially in the Northeast Badia Region, from small number of students in geographically dispersed villages. It is more appropriate to increase numbers of students to a range of 20-30 per section to stimulate competition among students.

**Keywords** : student's performance, teachers organizational, capacity, higher education, impact, inputs,outputs, market, Mafraq, Jordan.

**GJMBR-B Classification:** FOR Code:150499 JEL Code:P46, R48, O47



STUDENTS, TEACHERS, AND ORGANIZATIONAL CAPACITIES IMPACT ON OVERALL STUDENTS PERFORMANCE IN MAFRAQ GOVERNORATE

*Strictly as per the compliance and regulations of:*



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**Abstract** - Environmental positions and personality characteristics and attitude towards school affect students' performance. Environmental factors include social and organizational environment of the school and the physical environment. The study was conducted using field research. Interviews and surveys were conducted with 229 administrators located at three directorates of the North Badia region. Subjects were selected using stratified random sampling. Results indicated that education at Mafraq Governorate lacks quality and quantity of supply being located away from urban centers. Over all perceived performance was associated with elementary grade inputs of first and second grade number of sections; negatively associated with eleventh grade the number of students nursing stream; and no association with twelfth grade inputs. Results showed positive association with number of geology teachers. Results indicated that attributes of teaching-organization and capacity of quality of education supply and other variables associated with perceived overall performance as follows: (1) teaching-organizational entity such as structural, staff frustration, positive classroom environment, and caring and support for students; (2) quality of education such as perception of existing pedagogy and directing student to choose a track; (3) other variables such as students attitude, teachers attitude, available school services, and students gender. Many schools are suffering, especially in the Northeast Badia Region, from small number of students in geographically dispersed villages. It is more appropriate to increase numbers of students to a range of 20-30 per section to stimulate competition among students.

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## I. INTRODUCTION

The relationship between human capital and economic growth is highly conditioned by the quality and distribution of education in the labor force. Investing in more and better-distributed education in the labor force helps create conditions that could lead to higher productivity and higher economic growth. Most developing countries, including those in MENA, have committed substantial resources over the last 40 years to expand and improve their education systems (Galal, 2008). The main shortcoming of past efforts lies in the weak link between the improvements in

the level, quality, and distribution of human capital and economic growth, income distribution, and poverty reduction. This case is further reinforced by the lack of readiness of most education systems in MENA to deal with globalization and the increasing emphasis on knowledge in the development process, the region's enormous youth bulge, and the additional financial resources required expanding higher levels of instruction, having essentially achieved full enrollment at the primary level (World Bank, 2004).

Neither growth rates nor education appear to have contributed to the low poverty levels of the region. The main reasons for low poverty rates in the MENA seem to be actively pursued redistributing income through various mechanisms: (1) relatively moderate and somewhat declining inequality of income distribution, so whatever growth rates in GDP per capita occurred, they contributed to higher consumption per capita for the poor despite slower economic growth rates; and (b) income support programs by the state to the poor families such as Jordan. Jordan poverty rates fell despite low economic growth in the 1990s. Further, poverty rates are lower in East Asia and MENA than in Latin America, and are declining within countries in MENA that have had more rapid rates of growth. These policies seem to have had a much more direct effect on reducing poverty than educational investment policies because they directly affect the incomes of lower-income families rather than depending on the indirect effects of educational investment (Galal, 2008).

In Jordan, the Ministry of Higher Education gave higher education sector its attention during the last two decades as its perceived role in the comprehensive development of industrial, commercial, business, agricultural, and health sectors. The development of higher education sector has been on content, programs, and pedagogy that control quality and quantity. The development focused on international standards that provide competitiveness of graduates at the regional and international level. Seven cores of focus were adapted that included: university management; admission procedures and equal opportunities; accreditation and quality assurance; scientific research, development and graduate studies; IT and technology skills; funding; and learning environment. Evaluation and assessment as initiatives for higher education

development in Jordan is considered to be a central core for quality assurance. However, to realize the importance of such vision it is important to focus on the base of education at the school level. To match these goals, the Ministry of Education was accredited the ISO9001 for Management and Quality Assurance in its educational and other activities that targeting the development of human resources (teachers and students) at the school level (National Strategy for Higher Education and research, years 2007-2012).

How such implemented development plans can be adopted to local communities that are the most in need for socio-economic sustainable development like the Governorate of Mafraq. Such vital development includes the simplest executive jobs to the most complex management ones required.

#### *a) Importance and Significance of the Study*

Statistics of 2004 show that applied science majors are not established in schools within the dispersed human settlements of Mafraq Governorate from the urban center, Mafraq City. Additionally, the further settlements are from the capital city Amman, the less such majors are offered to local communities. Whilst, such majors qualify high school students to be accepted to applied science majors at the university level such as agriculture, arid land development, resources management, engineering, architecture, nursery, and medicine that are believed to be the most needed by the local market in Mafraq Governorate (Department of Statistics, 2004).

Being the first of its kind, the present study emphasizes the role of human resources development at the educational institutions level in providing qualitative and competitive graduates to Mafraq Governorate market. Such investment can enhance socio-economic security for the local community. This research can be a model for local communities with socio-cultural and economic limitations. The researchers are expected to gain more expertise in the development and evaluation of educational systems and pedagogy, and their relation to market needs.

Goals of the study are to diagnosing the relevance of inputs and outputs of higher education that will make Mafraq Governorate dependent on its own human resources. The study outcomes will provide a set of guidelines towards making educational environments more efficient.

## II. LITERATURE REVIEW AND THEORY

#### *a) Challenges Facing Education Sector*

The conditions under which education systems contribute to economic and social development have changed and this argues for considering alternative paths of education development. For many developing countries, an abundant supply of low-wage, unskilled labor used to be a route to rapid growth and national

prosperity, but this is no longer so. Several new challenges have been introduced: (1) Globalization and the increasing importance of knowledge in the development process to excel in a more competitive environment. (2) Clients to be served by the education system have also changed. (3) The number of eligible students seeking post-compulsory education is expected to increase considerably over the next decades. (4) The education systems will need to become more effective in transmitting skills and competencies to all. (5) Facing these new challenges will be costly (Galal, 2008).

In an ever-changing labor market, students, graduates and postgraduates have to be prepared in accordance to the existing demands. Through the centuries, universities have shown that they are able to adapt to new challenges. Because of this ability, universities have been able to survive as institutions of knowledge and learning. Presently universities are challenged by other knowledge producers, by other education providers, by new technologies and finally by students and employers (Weimer, 2000). Also, the tendency of economies and businesses to operate globally is clearly increasing. The job market not only looks for skilled specialists in a particular field but more and more they require additional skills, such as languages, ICT knowledge, and soft skills. Universities provide organizational means searching new methods of collaboration with partners in economy. Collaboration may provide, with very important feedback information, help to respond to the demands of employers and change or development of study programs, as well as teaching and learning strategies (Valiulis, 2003). Specialization is to be encouraged as to study any subject may have an educational value for those who can benefit from it quite apart from the intrinsic merit of the particular course (Robbins, 1963).

#### *b) Challenges Facing the Education Sector in Jordan*

- i. Globalization and Knowledge Economy: The contribution of education and human resources to the overall index is significant in Jordan. The individual needs of the students are not commonly addressed in the classroom; there is little consideration of individual differences in the teaching-learning process. Current pedagogical practices lack support for weak students, although Jordan appears to be making additional investments in this area. In addition, Jordan's education system is one of the region's most flexible in Vocational Education and Training (VET) (Galal, 2008). In 2000, the Jordanian Higher Education Accreditation Council was established along with methods to conduct internal and external evaluation of university programs. Jordan possesses education systems that exhibit better engineering, more aligned incentives, and greater

- public accountability than some countries in the region (Galal, 2008).
- ii. Education Finance: Jordan allocates less than 15 percent of their budget to education. In the 1980s, Jordan constructed science labs and libraries in rented and government-owned facilities to improve the teaching of science. In the late 1980s, Jordan introduced information system to improve decision making at the central and governorate levels. In Jordan, services were contracted out to the private sector since 2000 (e.g., development of curricula and pedagogical tools, teacher trainings, and installation of ICT equipment) (Galal, 2008).
- iii. Enrollement: Jordan is relatively more successful in providing more equitable access and higher-quality education to their population than other countries. Jordan currently has average Net Enrollment Rate (NER) above 90 percent. Jordan experienced temporary setbacks in enrollment rates before recovering and continuing their paths of growth in 1995. As for secondary education, Gross Enrollment Rate (GER) today for Jordan is 85 percent or more. By 1990, Jordan had surpassed the benchmark of the average higher education for the region, which has quintupled from 5 percent in 1970 to 24 percent today. Jordan constitutions also guarantee the right of education for all, but no commitment is made that education will be provided by the state for free. These constitutional commitments were made typically in the wake of independence from colonial powers and have put pressure on governments to deliver. Over the period 1970–2003, Jordan was relatively more successful in providing access to reasonable-quality education for most of their populations than were the rest of the countries in the region. Jordan has increasingly relied on households to contribute to the cost of publicly provided education through the payment of fees, and has also encouraged private provision of education, especially at the tertiary level. Historically, the private sector played a modest role in the provision of education (Galal, 2008).
- iv. Gender: Gender parity was reached before full primary enrollment; female students outnumber male students by a significant margin. Jordan currently has the most equal education distribution in the region. Averaging the scores for the adult literacy rates and TIMSS indices, Jordan score particularly high. Since the 1960s, despite the Six-Day War for Jordan, the civil war in Lebanon, the Iran-Iraq War for Iran, and the Gulf War for Kuwait, Jordan was able to protect its education systems. Jordan performed well in meeting education objectives though it has low per capita income (Galal, 2008).
- v. Education and Migration: Among the 195 countries studied by Docquier and Marfouk (2004), Jordan is among the top 30 countries with the proportion of skilled emigrants in the total emigration stock, and is ranked 27 (Galal, 2008). Migration is an important channel for resolving local market imbalances with potentially large benefits to the individuals and nations involved. Labor movement is particularly important for the MENA because one of the region's main characteristics is excess labor in Jordan and excess capital in another (such as the Gulf Co-operation Council Countries). Jordan export workers to the Gulf, but also imports uneducated workers from neighboring countries like Egypt and Syria. The demand for Arab workers in the Gulf, according to Girgis (2002), is expected to fall. Nationals are given skilled jobs at higher wages. Asian workers are increasingly given unskilled jobs at lower wages and at wages below those of workers from Arab countries. For both the educated and uneducated individuals in countries like Jordan higher wages overseas are an important pull factor to convince some to migrate. The rates of return to education in countries like Jordan are low and declining (Galal, 2008).
- vi. Social Challenges and Market Demands: Students and parents increasingly favor professional degree programs that help graduates firstly to get a job, rather than a liberal education that is capable of enriching their lives. Society is telling universities that although educational quality is important, the cost of education is even more important. At the same time, the labor market seeks low-cost quality services rather than prestige. This could be because a culture of excellence, which has driven the evolution of education and competition among universities, is no longer acceptable or sustained by the public. Although this shift from prestige-driven to cost-competitive market forces may broaden, the mission and capacity of many universities could be at the expense of the excellence of the best educational institutions (Duderstadt, 1999). Excessive attractiveness of some study programs causes not only disproportion in the market for specialists, but also partly compromise it (Valiulis & Zavadskas, 1999; Valiulis, 2003).

c) *Marketing Higher Education*

A number of authors have recognized the increasingly important role that marketing is playing in higher education institutions' efforts to attract new students (Carlson, 1992; Fisk & Allen, 1993; Murphy & McGarrity, 1978; Wonders & Gyuere, 1991). Marketing actually is linked to needs assessment, market research, product development, pricing, or distribution (Kotler &

Fox, 1995; Murphy & McGarry, 1978). In a higher education context, many customers have been recognized; parents, alumni, donors, the community at large, the government and prospective employers, but the primary customer remains the student (Conway, MacKay & Yorke, 1994; Robinson & Long, 1987; Scott, 1999; Wallace, 1999). When universities offer qualifications that satisfy student needs, marketing mix alluded to a set of controllable variables that an institution may use to produce the response it wants from its various publics through a 4Ps-type analysis (Product, Price, Place and Promotion) (Kotler & Fox, 1995). Price relates to aspects such as the tuition fees, bursaries and scholarships and payment terms for tuition fees. Place is the distribution method, be it face to face or by distance learning. Promotions is comprised of a package of tools such as advertising, public relations and face-to-face selling that could take place at an open day. With the intangible nature of the services, some call for a fifth element, people (Coleman, 1994; Gray, 1991; Keller, 1983; Lin, 1999) and physical facilities (Kotler & Fox, 1995), to be added.

*d) Incentives and Accountability in Demand and Supply*

Arab countries has tended to focus too much on engineering education and too little on incentives and public accountability. No systematic attempts have been made to link the performance of schools and teachers to student results, to put in place effective monitoring mechanisms, or to make information about school performance available to parents and students. Parents and students do not have adequate mechanisms to influence education objectives, priorities, and resource allocation (Galal, 2008).

- i. Aligning incentives on the demand side: Education is an investment and its reform has to be seen as part of a larger reform process of the entire economy (Panizza, 2001). The proposed reforms to encourage labor-intensive growth include measures to reduce the bias against exports (Galal and Fawzy, 2001) and measures to rationalize the prices of capital relative to labor (Radwan, 1998; Fawzy, 2002). It is important, however, that additional reforms to be undertaken to shift the demand for labor from the government to the private sector. This can be achieved in part by discouraging employment in government. At the same time, attention should be given to the informal sector, which is the most important source of employment (Assaad, 1994).
- ii. Aligning incentives on the supply side: On-going reforms require improving the supply quality of schools that include: (1) Aligning the incentives of teachers, bureaucrats, and private sector education providers to produce good quality education is difficult but necessary. In public

schools, it requires motivating teachers to teach effectively in the classroom through performance based financial and pecuniary rewards, in addition to improving the training of teachers. It also involves decentralization and the engagement of parents in the activities of the school, possibly including the selection of teachers. In addition, it involves: (a) greater competition among schools by allowing students to enroll in the school of their choice on the basis of systematic information prepared by the Ministry of Education; (b) fair competition and the availability of accurate information about school performance; (c) reinvention of its authority to verify equal access and a minimum curriculum for all students; and (d) resolution of disputes between schools and parents to fulfill the role of an arbitrator based on a set of previously known rules, procedures, and penalties. In private schools, profit maximization and competition take care of many of the motivational problems noted above. (2) Improving the physical quality of schools, and upgrading of the curriculum by increasing pressure on the treasury to spend sufficiently on building and maintaining schools and by delivering services that are not an integral part of the education process (Galal, 2002).

*e) Quality of Educational Environment Impact on Students Performance*

Educational environment is the setting where interaction between students and teachers takes place. There is evidence that situational (environmental) positions and dispositional (personality) characteristics and attitude towards school (Gump, 1987; Weinstein, 1985; Totusek & Staton-Spicer, 1982; Konyea, 1976) affect students' performance. Students and teachers' personality characteristics and attitude towards school (Brooks & Rebata, 1991; Gump, 1987; Weinstein, 1985; Totusek & Staton-Spicer, 1982) affect student's performance. Interactions between environment factors and the personal characteristics of students do exhibit significant effects on the academic performance (Lewin, 1943). Basic physical requirements of the school building like minimum standards for classroom size, acoustics, lighting, heating and air conditioning, in addition to pedagogical, psychological and social variables act together as a whole in shaping the context within which learning takes place (Lackney, 1999). Therefore, educational environmental include social, organizational, and physical environments:

*i. Teaching Environment*

A study by Tam and Cheng (1995; 1994) measured the internal social environment of the school organization and its relations to the performance of teachers and students. School environment and performance of students did have theoretical and

practical implications in school management. Leadership has been found to be an important factor in the maintenance of a cohesive social environment for the teachers to work in. A minimum period of time required for leadership effects to take root (Ming & Cheong, 1995; Cheng, 1993). Additional factors that reflect learning/teaching environment, were labeled: strength of leadership, staff frustration, positive classroom climate, caring and support to students (a combination of three environment variables: esprit, intimacy, and student-centeredness), formalization, and pupil control (pupil control ideology minus organizational ideology) (Ming, 1994; Ming & Cheong, 1995). Leadership factor was measured by the integration of the five aspects: instructional (educational), structural (hierarchy of authority, hindrance (difficulty and obstruction) as signs of bureaucratization of a school, and participative decision), human resource, political, and cultural (symbolic) (Sergiovanni; 1984; Bush, 1986; Bolman & Deal, 1991; Cheng, 1993). Personal characteristics of the students included age and gender. Personal characteristics of the teacher included average teacher teaching experience of the school (teaching age), age of the teacher, and gender of the teacher. Teacher performance was measured by efficacy and time-use at the individual level. Students' performance was measured by learning efficacy (efficiency). Students' competition was a function of affiliation and involvement, better social relationship among students increase students' engagement in studying (Ming, 1994; Ming & Cheong, 1995).

ii. *School Environment*

- i.) Schools Size: Small schools benefit students socially and academically, while smaller school buildings consume less energy. Additionally, small schools serve as true community centers. The use of school facilities can be shared with a variety of community organizations fostering meaningful partnerships civic participation and engagement, as well as opportunities for children to walk and bike with the added public health benefit of increasing their physical activity (Lackney, 1999). On average, the research indicates that an effective size for an elementary school is in the range of 300-400 students and that 400-800 students is appropriate for a secondary school (7-8) (Cotton, 1996). Further, school size affects the following:
- ii.) Academic Achievement: (Burke, 1987; Haller, Monk, & Tien, 1993; Stockard & Mayberry, 1992; Walberg, 1992; Bates, 1993; Eberts, Kehoe, & Stone, 1982; Eichenstein, 1994; Summers & Wolfe, 1977; Fowler, 1992; Eberts, Kehoe, & Stone, 1982; Stockard & Mayberry, 1992).

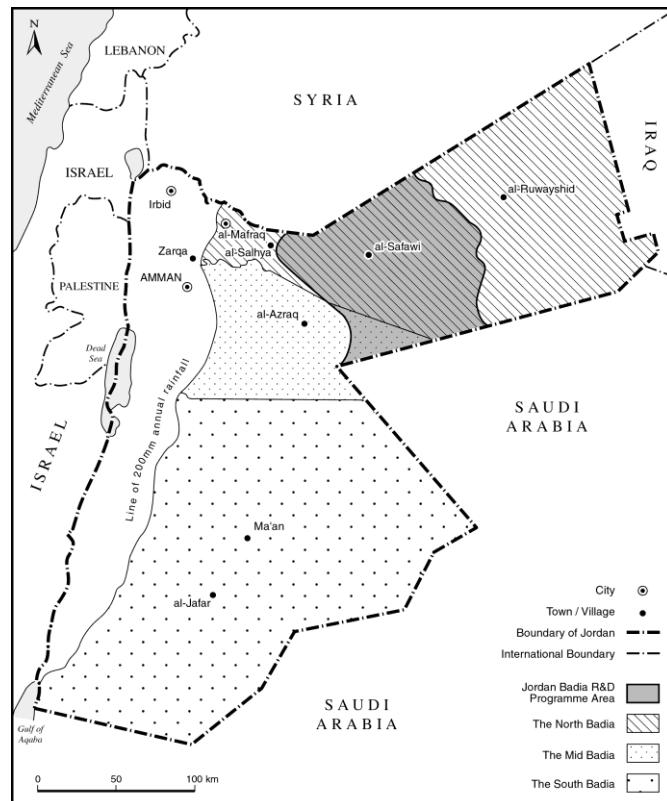
- iii.) Quality of the Curriculum: Howley (1994, 1996) revealed that there is no reliable relationship between school size and curriculum quality. In terms of instructional approaches and strategies, teachers in small schools are more likely to form teaching teams, integrate their subject matter content, employ grouping and cooperative learning, and use alternative assessments (Raze, 1985; Rutter, 1988; Walberg, 1992).
- iv.) Cost-Effectiveness: The relationship between size and costs varies depending on school circumstances (Robertson, 1995; Rogers 1987).
- v.) Student Attitudes: Studies by Aptekar (1983) and Bates (1993) indicated that student attitudes overwhelmingly favor small schools over large ones.
- vi.) Social Behavior: Studies by Duke and Perry (1978); Garbarino (1980); Gottfredson (1985); Stockard and Mayberry (1992) showed that small schools have lower incidences of negative social behavior than do large schools.
- vii.) Extracurricular Participation: Small schools (100-150), in comparison with large schools (over 2,000) offer students greater opportunities to participate in extracurricular activities (Barker & Gump, 1964; Burke, 1987; Cawelti, 1993; Howley, 1996; Barker & Gump, 1964; Schoggen & Schoggen, 1988; Berlin & Cienkus, 1989; Rutter, 1988; Schoggen & Schoggen, 1988; Berlin & Cienkus, 1989; Rutter, 1988; Stockard & Mayberry, 1992; Burke, 1987; Walberg, 1992).
- viii.) Attendance: Students in smaller schools have higher attendance rates than those in large schools, and those who change from large to small secondary schools exhibit improvements in attendance (Fowler, 1995; Gregory, 1992; Gregory & Smith, 1987; Howley, 1994; Smith & DeYoung, 1988; Walberg, 1992; Bates, 1993; McGanney, Mei, & Rosenblum, 1989; Rutter, 1988).
- ix.) Dropouts: the holding power of small schools is considerably greater than that of large schools (Fetler, 1989; Gregory, 1992; Jewell 1989; Pittman & Haughwout, 1987; Rogers, 1987; Smith & DeYoung, 1988; Stockard & Mayberry, 1992; Toenjes, 1989; Walberg, 1992).
- x.) Belongingness/Alienation: Some researchers found a greater sense of among students in small schools than in large ones (Burke, 1987; Campbell et al., 1981; Fowler & Walberg, 1991; Gregory, 1992; Howley, 1994; Pittman and Haughwout, 1987; Stolp, 1995; Walberg, 1992).
- xi.) Self-Concept: Grabe (1981), Rutter (1988), and Stockard and Mayberry (1992) have found that both personal and academic self-regard are more positive in smaller schools.

- xii.) Interpersonal Relations: There are positive correlations between small schools and favorable interpersonal relations among students and between students and teachers (Bates, 1993; Burke, 1987; Fowler & Walberg, 1991; Gottfredson, 1985; Gregory & Smith, 1982; 1983; Smith, Gregory, & Pugh, 1981; Kershaw & Blank, 1993; Pittman & Haughwout, 1987; Rutter, 1988; Smith & DeYoung, 1988; Stockard & Mayberry, 1992).
- xiii.) Teacher Attitudes: administrator's and teacher's attitudes toward work, administration, and one another, as well as the incidence of cooperation/collaboration with their colleagues are in favor to smaller schools (Eberts, Kehoe, & Stone, 1982; Gottfredson, 1985; Gregory, 1992; Johnson, 1990; Stockard & Mayberry, 1992).
- xiv.) College Entry: the assertions about college readiness and the relative merits of large and small schools college-related variables such as entrance examination scores, acceptance rates, attendance, grade point average, and completion found small schools equal (Fowler, 1992; Jewell, 1989) or superior (Burke, 1987; Swanson, 1988) to large ones in their capacity to prepare students for college entrance and success.

f) *Research Setting Demographics*

Mafrqa Governorate area is about 26435 Square kilometers, which represents about 29.6% out of Jordan's total area, and the second largest governorate after Ma'an. The governorate has four regions that include (Department of Statistics, 2001): (1) Mafrqa center with 104,000 with 3 districts and 72 settlements of which 25 increases over 1000 people, (2) Northwest Badia and its center is al Al Al-Bayt University and have three districts with 71,000 population and 42 settlements eight of which increases over 1000 people, (3) Northeast Badia, Safawi is its center, and have four districts with 51,000 population and 67 settlements with 10 settlements that have more than 1000 population, and (4) Ruwaished is its center with population of 17,000 and twelve settlements, four of which its populated with more than 1000 (Department of Statistics, 2002). The governorate has 18 municipalities that lack services and facilities for its local residents. These municipalities include: (1) Greater Mafrqa, (2) New Bal'ama, (3) Zaa'tri and Mansheyya, (4) Hausha; (5) Baseleyyah; (6) AsSarhan; (7) Sabha and Dafyanah; (8) Safawi; (9) Umm Alquttayn and Makeytah; (10) Bani Hashem; (11) New Rhab; (12) Mansheyyat Bani Hasan; (13) New Deyr Alkahf; (14) New Rweyshid; (15) AsSalhiyyah and Nayfah; (16) Alhusseyn bin Abdullah; (17) Khaldeyyah; (18) New Umm Aljmal (Department of Statistics, 2002)

*Figure 1 : Jordan's Map Showing North Badia Region*



*Source: Al-Oun, 1997.*

Mafraq Governorate population reached 239,000 and represents about 4.6% of Jordan's total population of 2001, of which 47.6% are females and 52.4% of which are males; 42% are less than 15 years old compared to Jordan's rate, which is 39%; and 33.1% urbanite and 66.9% town residents. Population density is about 9-11 per one square kilometers compared to the rest of Jordan, which is 58 per square kilometer. Life expectancy is 65.6 years old for females and 70 years old for males, compared to 68.6 years old Jordan's females and 71.1 years Jordan's males. Average infant death for each on thousand of a year old is 43% males and 31% females compared to rates of 30.7% males and 29.3% females in Jordan. Average family size is 6.4% compared to 5.8% of Jordan's (Department of Statistics, 2002). Poverty level is 28% compared to 11% for Jordan. Crime rate is 2.7% of Jordan's total. About 2890 students in 41 elementary schools benefit from the feeding program established by the Ministry of Education. Car ownership is 1/30 compared to 1/17 in the rest of Jordan (Department of Statistics, 2002).

Operating financially viable structures were 3.7% of Jordan's total in 1999. Building construction reached 3.1% of Jordan's total in 2000. Building construction license reached 6.4%. Construction beds offered by the general bed's department reached 2.6% out of Jordan's total. NGO's are 7.8% and cooperative associations are 5.7% (Department of Statistics, 2002). Manpower reached 13433 paid and unpaid, which is about 2.3% of Jordan's rate, 28% are females and 6% are foreigners. 69% of those work in public sectors and 14% for their own in 1999. Manpower for 2001 rated 4% of the total Jordan's manpower. In 2001 manpower rated 52% in defense and management of education and health, meanwhile its reached 10% in trades, transportation, and telecommunications. Economic activities in Mafraq governorate reached 36.8% compared to 38.8% in Jordan. Unemployment reached 17.3% compared to 14.7% in Jordan in 2001. Incomes of less than 100JD represented 20% and 100-199JD represented 62% and 200-299JD 14%. About 0.9% of total registered Jordan's engineers were from Mafraq Governorate in 2000. Registered lawyers represented 1.8% from Jordan's total in 2000 (Department of Statistics, 2002). Those who are registered are 264 and of which 1818 were employed, statistics of 1999-2002, the registered were 44 and the employed are 24. The department of employment issued 6837 approval for foreigners. No vocational centers ate the governorate. Those who benefited from training programs at the Work Affairs Ministry in 2000 were no females, and 18/20 who applied and employments were in two institutions. Of those who applied in this program about 3.3% were employed out of Jordan's total. About 2.7% of total applicants to the Civil Services Court were from Mafraq Governorate in 2001. Those who applied to Public

Services court were employed as shows in Table 1 (Department of Statistics, 2002).

One of the major problems the governorate suffer from is the disperse location of human settlements and of natural resources, which make the provision of infrastructure and services very costly. Road infrastructure represents 15% from the total of Jordan. 98% of the population is provided with water, electricity, and phone lines. Daily water use is rated 229 liters/person. Water loss is 73% of Jordan's total. In 2000 Mafraq governorate share was 1.8%, Gasoline is 3.5%, and diesel is 4.4% out of Jordan's total. Tourism activities are limited if not rare. The natural resources of the governorate are underground water, natural gas, and basalt zeolite. Average hospital beds are 10.8 for each 10000 compared to 16 in Jordan. Infants' hospital birth is 6.4% of Jordan's total infants born in hospitals. Disease like Zuhar Ameybi is 58.7%, mali fever is 55%, lung disease is 12.7%, and lever disease is 10.3% of Jordan's total. Most of those who use health centers have military insurance (Department of Statistics, 2002).

There are three directorates in Mafraq Governorate: Mafraq Center, Northeast Badia, and Northwest Badia. Infiltration may be for premature marriage, financial and living conditions and some students and their families, and lack of transportation. The latest statistics shows that Mafraq Governorate have about 353 schools, of which 337 built by the Ministry of Education, one by the Military, One by the Ministry of Social development, two by UNRWA, eight by private sector, in addition to three private sector kindergartens. Statistics show that there is total of 35562 male students, 32924 female students, 1989 male teachers, and 2416 female teachers, distributed over the North Badia Directorate schools. About 4206 teachers attend these schools 55% of which are females. There are 60 schools that are partially or totally rented. 30 Schools has two day shifts. About 40% of the schools have adjoined classrooms (135 schools) (Department of Statistics, 2002).

In addition, there is one public university in the governorate, which its students in 2010/2011 were 12092 of which 57.186% were females. Admission rate from the governorate were 17% in 1999/2000. Majors of study include educational sciences, human sciences, jurisdiction, law, political science, social sciences, financing and business administration, IT, science, and architecture. Teaching staff reached 174, of which 20 were females that hold Ph.D. in 2010/2011. About 1160 students from the governorate were attending different universities around Jordan, 675 of which were females (Department of Statistics, 2002; Al Al-Bayt Registration Office, 2011).

Finally, there is one two-year college in the governorate located in Mafraq city and has 181 female students, and has two programs one academic and the other in business administration in 2010/2011. While

about 553 students from Mafraq governorate attended different colleges around Jordan, about 456 of which were females (Department of Statistics, 2002).

Mafraq Governorate succeeded in providing most eligible children with educational opportunities, thus narrowing gender, rural, and socioeconomic gaps in access to schooling. This has led to strains resulting from the maintenance costs of the established education apparatus; new demands for instruction at post-compulsory levels of education; and the consequent costs of ongoing inefficiencies: dropouts, low graduate employment, and ambivalent learning outcomes. How much of this outcome is the consequence of particular characteristics of the education systems and how much is due to weak linkages between education and labor markets?

#### *g) Conceptual Framework*

From the previous review the following framework can be concluded:

- i. Investment in education is translated into higher economic growth and investment returns, improved income equality, and lower poverty. It is reflected in measures like available supply, incentives of supply, demand, and market failures. However, investment in education is challenged by globalization and knowledge, economy, demographic pressure, finance of education, pedagogical reforms, and education and migration.
- ii. Education is a value chain that requires context understanding. Market challenges and university education includes co-operation with the market, privatization of higher education, marketing higher education, and marketing in higher education.
- iii. Demand of the educational environment in the value chain is reflected in indications like opportunities of jobs and economic activities, training, and limitations of demand.
- iv. Supply of the educational environment in the value chain includes the teaching-organizational, physical entities, and capacity of quality and quantity of supply, in addition to personality issues of the teacher and the student.

#### *h) Hypotheses of the Study*

Based on the above review and the assumption that Higher Education in Mafraq Governorate lacks supply of applied sciences majors (such as agriculture, engineering, architecture, nursery, medicine, arid land development, and resources management) at the local university level, it is hypothesized that there is a demand for higher education majors by the local community.

Further, students lack competitiveness because they lack preparedness at the school level. Lack of preparedness is affected by lack of capacity in quantity and quality of the supply of the Teaching Environment and as follows:

- 1) Lack of preparedness is affected by lack of capacity in quantity of supply - number of sections and students.
- 2) Lack of preparedness is affected by lack of capacity in quantity of supply – number and specialties of teachers.
- 3) Lack of preparedness is affected by the capacity of the quality of the teaching environment - teaching-organizational entity of the school environment.

### **III. RESEARCH METHODS**

The hypotheses of the study were investigated based on field research using surveys. One leader for two teams of eight assistants conducted the field research.

#### *a) Field Research - Survey*

Surveys were conducted by interviewing a sample of schools administrators from the four directorates in the North Badia region (Mafraq center, Northwest Badia, and Northeast Badia) representing the eighteen municipalities that included a target population of all elementary and secondary schools. Interviews took place inside the school building in the municipal office for the whole sample.

#### *b) Sampling Technique*

A stratified proportional random sample was used. Stratification was for the eighteen municipalities. The 18 municipalities (covering about 100 villages) included: (1) Greater Mafraq, (2) New Bal'ama, (3) Zaa'tri and Mansheyya, (4) Hausha; (5) Baseleyyah; (6) AsSarhan; (7) Sabha and Dafyanah; (8) Safawi; (9) Umm Alquttayn and Makeyftah; (10) Bani Hashem; (11) New Rhab; (12) Mansheyyat Bani Hasan; (13) New Deyr Alkahf; (14) New Rweyshid; (15) AsSalhiyyah and Nayfah; (16) Alhusseyn bin Abdullah; (17) Khaldeyyah; (18) New Umm Aljmal.

The total number of sample frame is 337 schools of which 231 for elementary education, and 96 secondary, 8 vocational and academic, and two vocational. The proportion is suggested to be about 60%-70% of the schools distributed over the three directorates and covering all the municipalities. So from each municipality only two-thirds of the total available schools were suggested to be interviewed from both female and male elementary and secondary schools. Randomization used the list of schools in each municipality which is alphabetically ordered. Selection was assigned randomly as every other school in the list until the proportion of 60-70% of the schools is achieved from each of the female and male elementary and secondary schools list. Final sample proportion was 67.9% with a size of 229 schools' administrators. Response rate was 67.3% in Mafraq center, 42.3% in Northeast Badia, and 51.5% in Northwest Badia.

c) *Questionnaire Instrument*

The questionnaire included the following sections:

1) Supply for manpower (human resources) capacity – Teaching Environment:

1.a. *Capacity of supply at the schools level in terms of quantity.* (1) School capacity – distribution across levels of education, gender, and pass and fail; (2) Available levels of study - distribution across gender and pass and fail; (3) Available fields of study – distribution across gender, and pass and fail; (4) High school education distribution across gender, fields of study, and pass and fail; and (5) Available teachers – distribution across majors, gender, age, teaching experience, and teaching efficacy and hours of teaching (time-use for teaching).

1.b. *Capacity of supply at the schools level in terms of quality.* (1) Perception of available teaching pedagogy; (2) Directing students to choose the track they may need by providing qualified teacher who provides supervision and guidance to students; and (3) Obstacles of concentration at the Ministry of Education Level: financial, specializations, incentives; (4) Evaluating the impact of implemented development program provided by the Ministry of Education and Ministry of Higher Educations on the local community - limitations and vision.

2) Supply of the educational environment in the value chain includes the teaching-organizational and physical entities, reflected in quality and quantity, in addition to personality of the teacher and the student - School Environment:

2.a. *Teaching-organizational entity includes understanding available human resources capacity in terms of quantity.* (1) Strength of leadership ((a) instructional (educational) (teaching pedagogy), and (b)

structural (organizational: hierarchy of authority, bureaucracy and hindrance (difficulty of authority), and participation decisions); (2) staff frustration; (3) positive classroom environment; (4) caring and support to students (esprit, intimacy, and student-centeredness); (5) formalization; and (6) students control (student control ideology-organizational ideology).

2.b. *Physical entity include understanding classroom and school infrastructure and services:* (1) Classroom environment include: classroom size, classroom arrangements, lighting, thermal conditions, and air quality; and (2) School environment include: school size, noise location, building age.

2.c. *Other Variables that may affect the teaching-learning environment include:* (1) student attitude towards the school, student affiliation and involvement, and students' competition; (2) teacher attitude and teacher performance; and (3) Availability of Services.

3) Student performance - Learning efficacy of perceived qualitative performance or attainment test scores of average annual in all subjects such as: Science, Math, Physics, Chemistry, Biology, Geology, Computer Science, Arabic, & English.

#### IV. RESULTS AND ANALYSIS

a) *Descriptive Statistics*

i. *Demographic Information of interviewed subjects*

Interviewed schools municipals were distributed over Mafraq Governorate. Location of interviewed schools from the center of the main city of Mafraq ranged from the city itself to villages located 218 km away, see Table 1. The average distance from Mafraq city of the sampled schools was about 29 km.

*Table 1.* Descriptive Statistics – Characteristics of Interviewed Municipals of Schools

Variables	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Village Distance from Mafraq City	228	218	0	218	29.25	33.593	1128.499
Subject's Gender	229	1	1	2	1.55	.499	.249
Educational Level	229	5	1	6	3.08	.914	.836
Training Workshops	229	6	1	7	5.90	2.107	4.438
Place of Residence	229	3	1	4	1.49	.589	.347

Interviewed subjects were about 45% males and 55% females, see Table 2. Their education level ranged from college to Ph.D. and distributed as follows: Ph.D. (3.5%), Masters (17.5%), Diploma (56.3%), Bachelor (13.5%), and College (8.7%), see Tables 1 & 2.

*Table 2 :* Frequencies Distribution of Major Characteristics of Interviewed Municipals of Schools

	Frequency	Percent	Cumulative Percent
Gender			
Male	104	45.4	45.4
Female	125	54.6	100.0

Educational Level			
Ph.D.	8	3.5	3.5
M.A./M.Sc.	40	17.5	21.0
Diploma	129	56.3	77.3
Bachelor	31	13.5	90.8
College	20	8.7	99.6
Other	1	.4	100.0
Training Workshops			
Management	25	10.9	10.9
Pedagogy	6	2.6	13.5
Computer Skills	13	5.7	19.2
Specialized	1	.4	19.7
Other	2	.9	20.5
None	12	5.2	25.8
More than One	170	74.2	100.0
Years of Service			
<5 Yrs	76	33.2	33.2
6-10 Yrs	57	24.9	58.1
11-15 Yrs	26	11.4	69.4
16-20 Yrs	29	12.7	82.1
21-15 Yrs	23	10.0	92.1
>25 Yrs	18	7.8	100.0
Place of Residence			
Same Village/City	127	55.5	55.5
Another Village	93	40.6	96.1
Another City	9	3.9	100.0
Total	229	100.0	100.0

Training workshops that municipals received included training in: management (10.9%), pedagogy (2.6%), computer skills (5.7%), and specialized training (0.4%), see Tables 1 & 2. In terms of years of service for the interviewed municipals: less than five years of service (33.2%), 6-10 years (24.9%), 11-15 years (11.4%), 16-20 years (12.7%), 21-15 years 10%, and more than 25 years (7.8%). About 50% of the subjects served 6-10 years, see Table 2.

More than half of the sample comes from the same town they work at (55.5%); about 40.6% come from other villages in the North Badia regions, and only about 3.9% come from outside the North Badia Region, see Tables 1 & 2.

## ii. Descriptive Statistics of the Major Study Variables

### a. Capacity of Physical Entity of Educational Supply

Capacity of the physical entity of the education supply includes: (1) Classroom environment: proper classroom size in terms of students numbers, classroom area, classroom size in terms of students numbers, classroom shape, classroom seats arrangement, classroom's furniture arrangement flexibility, attention to furniture and equipment so teachers can store their tools, natural and additional lighting sources, thermal

conditions, air quality and natural ventilation; and (2) School environment: availability of services such as computer labs, science labs, art studios, school library, indoor and outdoor sports facility, food facility, praying facility, school fencing, school gate, rest rooms, school size in terms of students numbers, school area, school quite location/noise location, and building maintenance.

1) Classroom Environment : In terms of classroom area, it ranged from 4-48 square meters. However, most of the sample (73.7%) has classroom area of 10-29 square meters. In regards to classroom size in terms of students' numbers, the number of students ranged from 2 to 50 students, with an average size of about 21 students. About half the sampled schools (52.8%) have classroom size of less than 20 students. In regards to proper classroom size in terms of students' numbers, most of the sample agreed on its appropriateness (71.2%). Classroom shapes were square, rectangular, and irregular. However, the most occurring shape is rectangular (58.5%) and the least is irregular (2.6%). In terms of classroom seats arrangement, most of the sample (85.6%) agreed on its appropriateness. Also, about 54.2% of the

sample agreed on classroom's furniture arrangement flexibility. Further, most of the sample (72.5%) considered the attention to furniture and equipment so teachers can store their tools is appropriate. In terms of natural lighting sources, most of the sample agreed on its availability (90.8%). Number of windows in classrooms ranged from 1-8, the most frequent occurrence of number of windows is two (48.5%) indicated so. In terms of additional lighting sources, about two-thirds of the sample (79.5%) agreed on its presence. Thermal conditions: only about half the sample agreed on its heat availability (47.2%) and on about one-quarter (26.2%) agreed on its cooling control. In regards to air quality and natural ventilation, most of the sample (87.3%) agreed on its availability in classrooms.

2) School Environment: In regards to availability of services such as computer labs, science labs, art studios, school library, indoor and outdoor sports facility, food facility, praying facility, school fencing, school gate, rest rooms, school size in terms of students numbers, school area, school quite location/noise location, and building maintenance. In terms of services, about 77.7% of the schools have computer labs, and only 42.4% has science labs, and 13.5% has art studios. On the other side, about half the sample has libraries (50.2%) school library. Further, only 11.8% of the schools have indoor sports facilities, and 27.9% has outdoor sports facilities. In addition, about two-thirds (69%) has food facility, and only 24% has praying facility. Further, about two-thirds (65.5%) has school fencing, and about two-thirds (63.8%) has school gates. Most of the schools (91.7) have rest rooms.

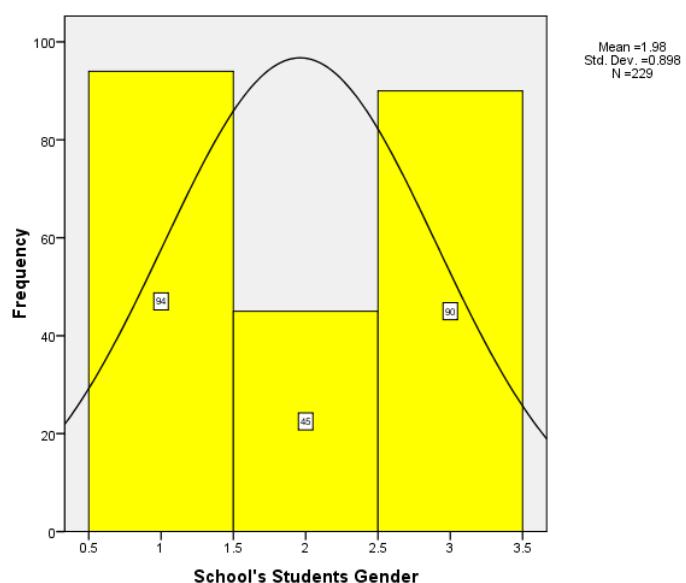
On the other hand, school size, in terms of students' numbers, ranged from schools that have less than 50 students (about 6.2%) to schools that has 500-757 students (only about 3.2% of the sample). However, about 61.1% of the sample has schools of less than 150 students, and the most occurring number of students at sampled schools is 150-200 students (about 40.7%). School area ranged from 54-10000 square meters, with the most occurring area of 200-500 square meters (39.9%). About half the sample (48%) has area of less than 500 square meters. Further, 79% of the sample agreed on the schools being located in a quite zone and away from noise. In terms of building maintenance, about half of the sample (54.6%) agreed it is well maintained.

#### b. Capacity of Quantity of Educational Supply

Capacity of supply at the schools level in terms of quantity: (1) School capacity – distribution across levels of education, gender, and pass and fail; (2) Available levels of study - distribution across gender and pass and fail; (3) Available fields of study – distribution across gender, and pass and fail; (4) High school education distribution across gender, fields of study, and pass and fail; and (5) Available teachers – distribution across majors, gender, age, teaching experience, and teaching efficacy and hours of teaching (time-use for teaching).

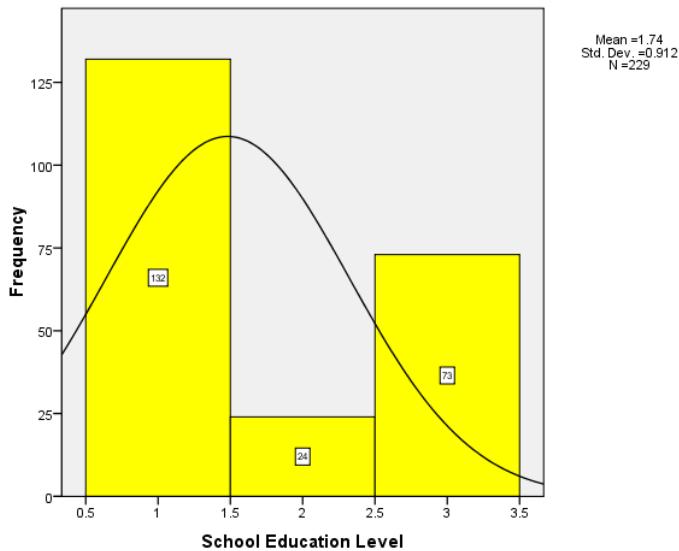
1) *Schools capacity* – distribution across gender, levels of education, number of sections and students, and pass and fail: The distribution of gender across the sampled schools was as follows: 41.05% males, 19.65% females, and 39.30% mixed genders, see Figure 2.

Figure 2 : Distribution of Students' Gender across Sampled Schools (1 – Males, 2- Females, 3- Mixed Gender)



The education level across the sampled schools was as follows: about 57.64% of schools were elementary, 10.48% secondary, and 31.88% have all levels, see Figure 3.

Figure 3 : Distribution of Education Level across Sampled Schools (1 – Elementary, 2- Secondary, 3- All Levels)



#### Elementary Stage

In terms of distribution of students sections, students' numbers, pass, and fail across of the sample, results showed the following:

1. 1<sup>st</sup> grade - for the 115 schools who responded, sections ranged from 1-10, students numbers in these sections ranged from 5-165, and failing students ranged from 0-2.
2. 2<sup>nd</sup> grade - for the 117 schools who responded, sections ranged from 1-3, students numbers in these sections ranged from 1-91, and failing students ranged from 0-1.
3. 3<sup>rd</sup> grade - for the 140 schools who responded, sections ranged from 1-4, students numbers in these sections ranged from 1-80, and failing students ranged from 0-4
4. 5<sup>th</sup> grade - for the 153 schools who responded, sections ranged from 1-3, students numbers in these sections ranged from 1-101, and failing students ranged from 0-3.
5. 6<sup>th</sup> grade - for the 146 schools who responded, sections ranged from 1-3, students numbers in these sections ranged from 1-102, and failing students ranged from 0-2.
6. 7<sup>th</sup> grade - for the 140 schools who responded, sections ranged from 1-3, students numbers in these sections ranged from 1-121, and failing students ranged from 0-11.
7. 8<sup>th</sup> grade - for the 130 schools who responded, sections ranged from 1-4, students numbers in these sections ranged from 2-145, and failing students ranged from 0-4.
8. 9<sup>th</sup> grade - for the 122 schools who responded, sections ranged from 1-4, students numbers in these sections ranged from 2-137, and failing students ranged from 0-7.

9. 10<sup>th</sup> grade - for the 111 schools who responded, sections ranged from 1-4, students numbers in these sections ranged from 2-137, and failing students ranged from 0-5.

#### Eleventh Grade Stage

In terms of distribution of students sections, students' numbers, pass, and fail across of the sample, results showed the following:

1. 11<sup>th</sup> grade/scientific - for the 48 schools who responded, sections ranged from 1-3, students numbers in these sections ranged from 1-124, and failing students ranged from 0-1.
2. 11<sup>th</sup> grade/literature - for the 81 schools who responded, sections ranged from 1-2, students numbers in these sections ranged from 3-60, and failing students ranged from 0-10.
3. 11<sup>th</sup> grade/computer - for the 12 schools who responded, sections ranged from 1-2, students numbers in these sections ranged from 14-89, and failing students were none.
4. 11<sup>th</sup> grade/nursing - for the two schools who responded, sections were 1, students numbers in these sections ranged from 7-24, and failing students were none.
5. 11<sup>th</sup> grade/trade - for the one school who responded, sections were one, students numbers in the section was 18, and failing students were none.
6. 11<sup>th</sup> grade/industrial - for the one school who responded, but subject did not provide additional information about students' numbers and number of failing students.
7. 11<sup>th</sup> grade/agricultural - for the one school who responded, sections were 1, students numbers in the section was 37, and failing students were none.

8. 11<sup>th</sup> grade/management - for the one school who responded, sections were 1, students numbers in the section was 3, and failing students were none.
9. 11<sup>th</sup> grade/vocational - for the four schools who responded, sections were 1-2, students numbers in these sections ranged from 14-31, and failing students were none.
10. 11<sup>th</sup> grade/beauty - for the one school who responded, sections were 1, students numbers in the section was 12, and failing students were none.

*Twelfth Grade Stage (Tawjeehi)*

In terms of distribution of students sections, students' numbers, pass, and fail across of the sample, results showed the following:

1. 12<sup>th</sup> grade/scientific - for the 38 schools who responded, sections ranged from 1-4, students numbers in these sections ranged from 3-124, and failing students ranged from 0-15.
2. 12<sup>th</sup> grade/literature - for the 73 schools who responded, sections ranged from 1-2, students numbers in these sections ranged from 3-55, and failing students ranged from 0-26.
3. 12<sup>th</sup> grade/computer - for the 12 schools who responded, sections ranged from 1-2, students numbers in these sections ranged from 15-92, and failing students were 0-2.
4. 12<sup>th</sup> grade/nursing - for the three schools who responded, sections were 1, students numbers in these sections ranged from 9-25, and failing students were 0-3.
5. 12<sup>th</sup> grade/trade - for the one school who responded, sections were one, students numbers in the section was 20, and failing students were 14.
6. 12<sup>th</sup> grade/industrial – no school from the sample has industrial at this level.
7. 12<sup>th</sup> grade/agricultural - for the one school who responded, sections were 1, students numbers in the section was 26, and failing students were none.
8. 12<sup>th</sup> grade/management - for the one school who responded, sections were 1, students numbers in the section was 6, and failing students were none.
9. 12<sup>th</sup> grade/vocational - for the three schools who responded, sections were 1-2, students numbers in these sections ranged from 15-25, and failing students were none.
10. 12<sup>th</sup> grade/beauty - for the one school who responded, sections were 1, students numbers in the section was 12, and failing students were none.
- 2) *Available Teachers* – Distribution across Majors, Age, Specialty, Teaching Experience (years of Service), and Teaching Efficacy and Hours of Teaching (Teaching Load Measured in Hours), Training Workshops, and Place of Residence:
1. Religion Teachers : ranged from 0-6 with a total number of 210 and an age of 20 and above, served 0-24 years with an average of 7.7 years, taught 0-61

hours with an average of 21.2 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.

2. Arabic Teachers : ranged from 0-7 with a total number of 209 and an age of 20 and above, served 0-30 years with an average of 9.4 years, taught 0-123 hours with an average of 24.2 hours a week, trained with an average of 3-4 workshops, and resided mostly in the North Badia region.
3. English Teachers : ranged from 1-6 with a total number of 214 and an age of 20 and above, who has education of College to Bachelor degree, and served 0-25 years with an average of 7.1 years, taught 0-87 hours with an average of 22.8 hours a week, trained with an average of 3 workshops, and resided mostly in the North Badia region.
4. Culture Teachers : ranged from 0-3 with a total number of 204 schools and an age of 20-50, who has education of College to Ph.D. degree, and served 0-19 years with an average of 6.3 years, taught 0-25 hours with an average of 17.0 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
5. Math Teachers : ranged from 0-6 with a total number of 203 schools and an age of 20 and above, who has education of College to Ph.D. degree, and served 0-30 years with an average of 7.1 years, taught 0-79 hours with an average of 22.1 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
6. Science Teachers : ranged from 0-6 with a total number of 191 schools and an age of 20 and above, who has education of College to Masters degree, and served 0-22 years with an average of 7.4 years, taught 0-42 hours with an average of 20.2 hours a week, trained with an average of 3-4 workshops, and resided mostly in the North Badia region.
7. Physics Teachers : ranged from 0-3 with a total number of 159 schools and an age of 20-50, who has education of Bachelor to Masters degree, and served 0-16 years with an average of 5.2 years, taught 0-32 hours with an average of 18.8 hours a week, trained with an average of 1-2 workshops, and resided mostly in the North Badia region.
8. Chemistry Teachers : ranged from 0-2 with a total number of 142 schools and an age of 20 and above, who has education of Bachelor to Ph.D. degree, and served 0-16 years with an average of 4.6 years, taught 0-24 hours with an average of 17.8 hours a week, trained with an average of 1-2 workshops, and resided mostly in the North Badia region.
9. Biology Teachers : ranged from 0-2 with a total number of 138 schools and an age of 20 and above, who has education of Bachelor to Ph.D.

- degree, and served 0-26 years with an average of 6.5 years, taught 0-24 hours with an average of 16.7 hours a week, trained with an average of 1-2 workshops, and resided mostly in the North Badia region.
10. Geology Teachers : ranged from 0-2 with a total number of 133 schools and an age of 20-40, who has education of Bachelor to Masters degree, and served 1-15 years with an average of 5.0 years, taught 7-21 hours with an average of 16.1 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
  11. Computer Teachers : ranged from 0-8 with a total number of 161 schools and an age of 20 and above, who has education of College to Masters degree, and served 0-17 years with an average of 4.0 years, taught 0-38 hours with an average of 15.6 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
  12. Geography Teachers : ranged from 0-6 with a total number of 164 schools and an age of 20 and above, who has education of College to Masters degree, and served 0-17 years with an average of 5.7 years, taught 0-28 hours with an average of 19.1 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
  13. History Teachers: ranged from 0-3 with a total number of 151 schools and an age of 20-50, who has education of College to Masters degree, and served 0-20 years with an average of 7.1 years, taught 0-27 hours with an average of 17.7 hours a week, trained with an average of 3-4 workshops, and resided mostly in the North Badia region.
  14. Arts Teachers: ranged from 0-6 with a total number of 131 schools and an age of 20-50, who has education of College to Masters degree, and served 2-16 years with an average of 8.3 years, taught 7-103 hours with an average of 19.4 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
  15. Athletics Teachers : ranged from 0-6 with a total number of 129 schools and an age of 20-50, who has education of College to Masters degree, and served 0-20 years with an average of 7.0 years, taught 0-28 hours with an average of 18.4 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region..

week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region..

16. Music Teachers : ranged from 0-1 with a total number of 61 schools and an age of 20-40, who has education of Bachelor to Ph.D. degree, and served 0-15 years with an average of 5.5 years, taught 0-21 hours with an average of 14.8 hours a week, trained with an average of 2-3 workshops, and resided mostly in the North Badia region.
  17. Languages Teachers : ranged from 0-8 with a total number of 69 schools and an age of 20-50, who has education of Bachelor to Masters degree, and served 0-21 years with an average of 6.8 years, taught 1-28 hours with an average of 21.4 hours a week, trained with an average of 5-6 workshops, and resided mostly in the North Badia region.
- c. *Capacity of Teaching-Organizational Entity of the Supply & Capacity of Quality of Education Supply at the School Level & Other Variables*

*Capacity of Teaching-Organizational Entity of the Supply* : Instructional capacity was assessed with an average of 4 and a tendency of strong agreement; structural agreement was also with an average of 4.1 and a tendency of strong agreement; staff frustration has a tendency of disapproval with an average of 2.6; positive classroom environment has a slight tendency of approval with an average of 3.7; caring and support for students has a slight tendency of approval with an average of 4; formalization has a tendency of strong agreement with an average of 4.2; and students control has a strong agreement with an average of 4.2, see Table 3.

*Capacity of Quality of Education Supply at the School Level*: Perception of existing pedagogy has a slight tendency of approval with an average of 3.8; directing students to choose the right stream also received slight approval with an average of 3.5; and obstacles of Ministry of Education concentration has a tendency of agreement with an average of 4.0, see Table 3.

*Other Variables*: Included students attitude with a tendency of slight agreement ( $M=3.8$ ); teachers attitude with tendency of agreement ( $M=3.98$ ); available school services has a slight agreement with  $M=3.4$ ; and perceived students' performance has a tendency of slight agreement ( $M=3.1$ ), see Table 3.

*Table 3* : Descriptive Statistics about Independent Variables – Organizational Entity & Capacity of Quality of Supply & Other Variables

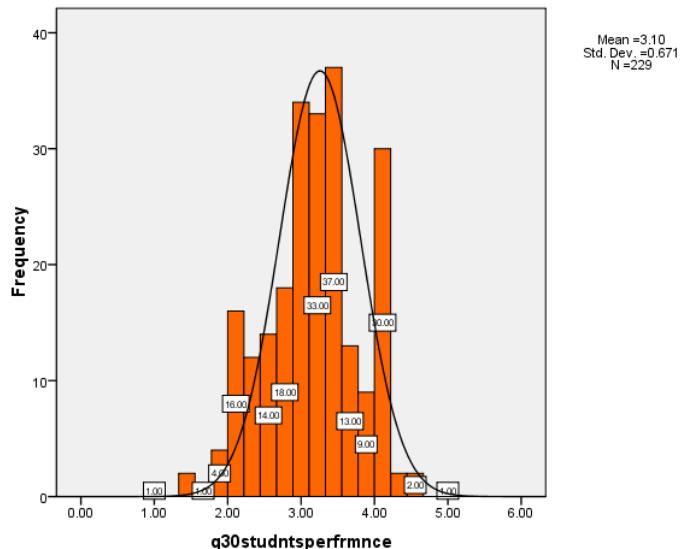
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
<b>Teaching-Organizational Entity</b>							
Instructional	229	2.40	2.60	5.00	4.0170	.38732	.150
Structural	229	3.67	1.33	5.00	4.1317	.50557	.256

Staff Frustration	229	4.00	1.00	5.00	2.6288	.92454	.855
Positive Classroom Environment	229	4.00	1.00	5.00	3.7810	.77435	.600
Caring & Support for Students	229	4.00	1.00	5.00	3.9597	.65705	.432
Formalization	229	3.50	1.50	5.00	4.2329	.51498	.265
Students Control	229	2.50	2.50	5.00	4.2205	.44125	.195
<b>Quality of Education</b>							
Perception of Existing Pedagogy	229	3.50	1.50	5.00	3.8443	.61237	.375
Directing Students Track	229	4.00	1.00	5.00	3.4716	.98356	.967
Obstacles of Ministry Concentration	229	4.00	1.00	5.00	3.9502	.76167	.580
<b>Other Variables</b>							
Students Attitude	229	2.88	2.13	5.00	3.7718	.53898	.291
Teachers Attitude	229	3.33	1.67	5.00	3.9816	.54591	.298
Available School Services	229	3.89	1.00	4.89	3.3557	.66320	.440
Perceived Students Performance - Learning Efficacy	229	4.00	1.00	5.00	3.1009	.67052	.450

- d. *Education Outputs - Student performance - Learning efficacy of perceived qualitative performance or attainment test scores of average annual in all subjects such as: Science, Math, Physics, Chemistry, Biology, Geology, Computer Science, Arabic, & English.*

Over all perceived students' performance averaged 3.1, with a slight agreement, see Figure 4.

*Figure 4* : Distribution of Perceived Students Performance – Overall Qualitative Learning Efficacy



Meanwhile perceived students' performance in all subjects were as follows, see Table 4:

1. Science ranged from 1-5 with  $M= 3.2$ .
2. Math ranged from 1-5 with  $M= 2.9$ .
3. Physics ranged from 1-5 with  $M= 2.7$ .
4. Chemistry ranged from 1-5 with  $M= 2.9$ .
5. Biology ranged from 1-5 with  $M= 3.1$ .
6. Geology ranged from 1-5 with  $M= 3.2$ .
7. Computer Science ranged from 1-5 with  $M= 3.4$ .
8. Arabic ranged from 1-5 with  $M= 3.7$ .
9. English ranged from 1-5 with  $M= 2.9$ .

**Table 4 :** Descriptive Statistics about Dependent Variable – Perceived Students Performance / Qualitative Learning Efficacy – Education Outputs

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
<b>Overall Performance</b>	229				3.10	0.670	
<b>High Performance in Science</b>	229	4	1	5	3.23	1.023	1.047
<b>High Performance in Math</b>	229	4	1	5	2.85	1.066	1.136
<b>High Performance in Physics</b>	229	4	1	5	2.71	0.896	0.803
<b>High Performance in Chemistry</b>	229	4	1	5	2.87	0.918	0.842
<b>High Performance in Biology</b>	229	4	1	5	3.13	0.923	0.851
<b>High Performance in Geology</b>	229	4	1	5	3.18	0.907	0.823
<b>High Performance in Computer Science</b>	229	4	1	5	3.39	0.854	0.730
<b>High Performance in Arabic</b>	229	4	1	5	3.67	0.835	0.696
<b>High Performance in English</b>	229	4	1	5	2.88	1.077	1.160

Frequency distribution of perceived students' performance in all subjects was as follows:

1. Science, about one-third of the sample does not agree that students have high performance in science, accumulative percent = 34.5%.
2. Math, about half of the sample does not agree that students have high performance in Math, accumulative percent = 51.1%.
3. Physics, about half of the sample does not agree that students have high performance in Physics, accumulative percent = 44.1%.
4. Chemistry, about one-third of the sample does not agree that students have high performance in Chemistry, accumulative percent = 37.6%.
5. Biology, about one-quarter of the sample does not agree that students have high performance in Biology, accumulative percent = 24.9%.
6. Geology, about one-fifth of the sample does not agree that students have high performance in Geology, accumulative percent = 22.7%.
7. Computer Science, about one-fifth of the sample does not agree that students have high performance in Computer Science, accumulative percent = 17.0%.
8. Arabic, most of the sample agree that students have high performance in Arabic, accumulative percent = 76.9%.
9. English, about half of the sample do not agree that

students have high performance in English, accumulative percent = 50.7%.

*b) Relationship between Overall Students Performance and Capacity of Students & Teachers Quantity (Inputs)*

In order to test the hypothesis that lack of preparedness is affected by lack of capacity in quantity of the supply of the Teaching Environment (Students and Teachers), the following statistical Multi-level Analysis were carried out.

*i. ANOVA Test – Effect of Overall Perceived Performance by Quantitative Inputs of Supply*

Further analysis was carried out to investigate the effect of capacity of quantity of Education Supply of students on Overall Perceived Performance using anova test.

*a. Overall Performance Affect by Quantitative Inputs of Elementary Stage Supply (numbers of sections and students)*

The test of effect of directorates of Village Distance over capacity of quantity of Education Supply at the Elementary stage using anova test (Table 5), indicated that numbers of sections at the elementary level affect Overall Performance at Second, Third, Fifth, Sixth, Seventh, Eighth, Ninth, and Tenth Grades.

**Table 5 :** ANOVA – Perceived Students Performance - Overall Learning Efficacy over Elementary Stage Students Input/Capacity of Quantity of Supply

	Sum of Squares	df	Mean Square	F	Sig.
<b>1<sup>st</sup> Grade No. of Sections</b>	<b>48.427</b>	<b>29</b>	<b>1.670</b>	<b>1.273</b>	<b>.171</b>
<b>1<sup>st</sup> Grade No. of Students</b>	<b>9740.228</b>	<b>22</b>	<b>442.738</b>	<b>.631</b>	<b>.891</b>
<b>2<sup>nd</sup> Grade No. of Sections</b>	<b>31.387</b>	<b>29</b>	<b>1.082</b>	<b>1.716</b>	<b>.017</b>
<b>2<sup>nd</sup> Grade No. of Students</b>	<b>6261.028</b>	<b>23</b>	<b>272.219</b>	<b>.608</b>	<b>.913</b>
<b>3<sup>rd</sup> Grade No. of Sections</b>	<b>27.528</b>	<b>29</b>	<b>.949</b>	<b>1.607</b>	<b>.032</b>

3 <sup>rd</sup> Grade No. of Students	5794.779	23	251.947	.811	.712
4 <sup>th</sup> Grade No. of Sections	14.576	29	.503	.883	.642
4 <sup>th</sup> Grade No. of Students	6752.424	24	281.351	.805	.726
5 <sup>th</sup> Grade No. of Sections	23.999	29	.828	1.726	.016
5 <sup>th</sup> Grade No. of Students	10892.274	25	435.691	1.135	.315
6 <sup>th</sup> Grade No. of Sections	28.998	29	1.000	2.029	.003
6 <sup>th</sup> Grade No. of Students	12279.305	25	491.172	1.145	.306
7 <sup>th</sup> Grade No. of Sections	48.114	29	1.659	2.863	.000
7 <sup>th</sup> Grade No. of Students	17502.806	27	648.252	1.093	.361
8 <sup>th</sup> Grade No. of Sections	44.404	29	1.531	2.280	.000
8 <sup>th</sup> Grade No. of Students	20773.267	27	769.380	1.070	.390
9 <sup>th</sup> Grade No. of Sections	46.288	29	1.596	2.521	.000
9 <sup>th</sup> Grade No. of Students	19487.354	27	721.754	1.009	.465
10 <sup>th</sup> Grade No. of Sections	43.058	29	1.485	2.510	.000
10 <sup>th</sup> Grade No. of Students	11934.826	26	459.032	.544	.960

b. *Overall Performance Effect by Quantitative Inputs of Eleventh Grade Stage Supply*

The test of effect of overall performance by capacity of quantity of Education Supply at the Eleventh Grade stage using Anova Test of Variance (Table 6)

indicated significant effect of sections at Eleventh Grade Scientific, Computer and Nursing streams. As well, as significant effect of Number of students at Eleventh Grade Scientific and Computer streams.

*Table 6* : ANOVA – Perceived Students Performance - Overall Learning Efficacy over Eleventh Grade Stage Students Input/Capacity of Quantity of Supply

	Sum of Squares	df	Mean Square	F	Sig.
Scientific/11 <sup>th</sup> Grade No. of Sections	9.636	29	.332	1.550	.044
Scientific/11 <sup>th</sup> Grade No. of Students	14206.063	17	835.651	9.937	.000
Literature/11 <sup>th</sup> Grade No. of Sections	9.818	29	.339	1.315	.141
Literature/11 <sup>th</sup> Grade No. of Students	1666.720	26	64.105	.602	.920
Computer/11 <sup>th</sup> Grade No. of Sections	3.807	29	.131	1.640	.027
Computer/11 <sup>th</sup> Grade No. of Students	4278.000	8	534.750	46.276	.005
Nursing/11 <sup>th</sup> Grade No. of Sections	1.253	29	.043	2.363	.000
Nursing/11 <sup>th</sup> Grade No. of Students	144.500	1	144.500	.	.
Trade/11 <sup>th</sup> Grade No. of Sections	.130	29	.004	.482	.989
Industrial/11 <sup>th</sup> Grade No. of Sections	.096	29	.003	.729	.843
Agricultural/11 <sup>th</sup> Grade No. of Sections	.067	29	.002	.496	.987
Management/11 <sup>th</sup> Grade No. of Sections	.180	29	.006	.444	.994
Vocational/11 <sup>th</sup> Grade No. of Sections	1.276	29	.044	1.334	.130
Vocational/11 <sup>th</sup> Grade No. of Students	182.000	3	60.667	.	.
Beauty/11 <sup>th</sup> Grade No. of Sections	.120	29	.004	.440	.995

c. *Overall Performance Effect by Quantitative Inputs of Twelfth Grade Stage Supply*

The test of effect of overall performance by capacity of quantity of Education Supply at the Twelfth Grade stage using Anova Test of Variance (Table 7)

indicated significant effect of sections at Twelfth Grade Nursing streams. As well, as significant effect of Number of students at Twelfth Grade Scientific and Computer streams.

*Table 7* : ANOVA Test – Perceived Students Performance - Overall Learning Efficacy over Twelfth Grade Stage Students Input/Capacity of Quantity of Supply

	Sum of Squares	df	Mean Square	F	Sig.
Scientific/12 <sup>th</sup> Grade No. of Sections	10.016	29	.345	1.510	.054

<u>Scientific/12<sup>th</sup> Grade No. of Students</u>	12823.178	16	801.449	12.252	.000
Literature/12 <sup>th</sup> Grade No. of Sections	9.959	29	.343	1.404	.093
Literature/12 <sup>th</sup> Grade No. of Students	2210.565	23	96.112	1.126	.354
Computer/12 <sup>th</sup> Grade No. of Sections	2.109	29	.073	.821	.730
<u>Computer/12<sup>th</sup> Grade No. of Students</u>	4710.167	7	672.881	17.421	.008
Nursing/12 <sup>th</sup> Grade No. of Sections	1.367	29	.047	2.662	.000
Nursing/12 <sup>th</sup> Grade No. of Students	160.667	2	80.333	.	.
Trade/12 <sup>th</sup> Grade No. of Sections	.043	29	.001	.312	1.000
Industrial/12 <sup>th</sup> Grade No. of Sections	.000	29	.000	.	.
Agricultural/12 <sup>th</sup> Grade No. of Sections	.067	29	.002	.496	.987
Management/12 <sup>th</sup> Grade No. of Sections	.102	29	.004	.371	.999
Vocational/12 <sup>th</sup> Grade No. of Sections	1.253	29	.043	1.525	.050
Vocational/12 <sup>th</sup> Grade No. of Students	66.667	2	33.333	.	.
Beauty/12 <sup>th</sup> Grade No. of Sections	.033	29	.001	.233	1.000

i. *ANOVA Test - Effect of Overall Perceived Performance Effect by Quantitative Inputs of Supply/Teachers*

Further analysis was carried out to investigate the effect of over capacity of quantity of Education Supply of teachers on Overall Performance using Anova

Test. The test of effect of over capacity of quantity of Education Supply of Teachers on Overall Performance using Anova Test (Table 8) indicated that numbers of Religion, Arabic, English, Math, Physics, Biology, Geology, Computer, History, and Languages Teachers is affect Overall Performance.

*Table 8 : ANOVA – Perceived Students Performance - Overall Learning Efficacy over Teachers Input/Capacity of Quantity of Supply*

	Sum of Squares	df	Mean Square	F	Sig.
<u>Religion Number of Teachers</u>	47.422	29	1.635	2.125	.001
<u>Arabic Number of Teachers</u>	102.591	29	3.538	1.923	.005
<u>English Number of Teachers</u>	57.413	29	1.980	1.572	.039
<u>Culture Number of Teachers</u>	6.302	29	.217	.772	.793
<u>Math Number of Teachers</u>	68.258	29	2.354	1.926	.005
<u>Science Number of Teachers</u>	33.406	29	1.152	1.147	.286
<u>Physics Number of Teachers</u>	15.723	29	.542	1.607	.032
<u>Chemistry Number of Teachers</u>	11.893	29	.410	1.524	.050
<u>Biology Number of Teachers</u>	14.496	29	.500	2.079	.002
<u>Geology Number of Teachers</u>	7.618	29	.263	1.864	.007
<u>Computer Number of Teachers</u>	33.820	29	1.166	1.542	.046
<u>Geography Number of Teachers</u>	18.537	29	.639	1.477	.064
<u>History Number of Teachers</u>	16.820	29	.580	1.910	.005
<u>Arts Number of Teachers</u>	9.538	29	.329	.986	.492
<u>Athleticss Number of Teachers</u>	10.169	29	.351	.821	.730
<u>Music Number of Teachers</u>	.416	29	.014	.526	.979
<u>Languages Number of Teachers</u>	130.636	29	4.505	2.251	.001

ii. *Regression Model for the Significant Students Inputs Effect of Overall Students Performance*

The hypothesis that Overall Student Performance is affected by a set of Students Inputs was reported none significant in Table 9.

*Table 9* : Multivariate Tests Model - Perceived Students Performance - Overall Learning Efficacy over Significant Numbers of Students & Sections

Effect Wilks' Lambda	Value	F	Hypothesis df	Error df	Sig.
Intercept	.088	3.444	3.000	1.000	.373
Perceived Students Performance – Overall Learning Efficacy	.041	.386	18.000	3.314	.920

However, factors that could contribute to the regression model in the order of their strong effect are: number of students at Eleventh Grade Computer

stream, Twelfth Grade Scientific stream, and Twelfth Grade Computer stream, see Table 10.

*Table 10* : Tests of Between-Subjects Effects - Perceived Students Performance - Overall Learning Efficacy over Significant Variables

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2 <sup>nd</sup> Grade No. of Sections	.233	6	.039	.175	.966
	3 <sup>rd</sup> Grade No. of Sections	.233	6	.039	.175	.966
	5 <sup>th</sup> Grade No. of Sections	9.733	6	1.622	7.300	.066
	6 <sup>th</sup> Grade No. of Sections	9.733	6	1.622	7.300	.066
	7 <sup>th</sup> Grade No. of Sections	5.733	6	.956	.400	.844
	8 <sup>th</sup> Grade No. of Sections	15.333	6	2.556	2.421	.250
	9 <sup>th</sup> Grade No. of Sections	9.733	6	1.622	1.043	.530
	10 <sup>th</sup> Grade No. of Sections	10.933	6	1.822	2.050	.297
	Scientific/11 <sup>th</sup> Grade No. of Sections	3.733	6	.622	2.800	.214
	Scientific/11 <sup>th</sup> Grade No. of Students	11334.000	6	1889.000	20.682	.015
	Computer/11 <sup>th</sup> Grade No. of Sections	.900	6	.150	.	.
	Computer/11 <sup>th</sup> Grade No. of Students	4126.233	6	687.706	59.513	.003
	Scientific/12 <sup>th</sup> Grade No. of Sections	7.833	6	1.306	5.875	.087
	Scientific/12 <sup>th</sup> Grade No. of Students	10837.733	6	1806.289	27.484	.010
	Literature/12 <sup>th</sup> Grade No. of Sections	2.233	6	.372	1.675	.360
	Computer/12 <sup>th</sup> Grade No. of Students	4441.233	6	740.206	14.887	.025
	Nursing/12 <sup>th</sup> Grade No. of Sections	.233	6	.039	.175	.966
	Vocational/12 <sup>th</sup> Grade No. of Sections	.933	6	.156	.175	.966
Intercept	2 <sup>nd</sup> Grade No. of Sections	.019	1	.019	.086	.789
	3 <sup>rd</sup> Grade No. of Sections	.019	1	.019	.086	.789
	5 <sup>th</sup> Grade No. of Sections	4.876	1	4.876	21.943	.018
	6 <sup>th</sup> Grade No. of Sections	4.876	1	4.876	21.943	.018
	7 <sup>th</sup> Grade No. of Sections	6.519	1	6.519	2.729	.197
	8 <sup>th</sup> Grade No. of Sections	13.376	1	13.376	12.672	.038

iii. *Regression Model for the Significant Teachers Inputs Effect of Overall Students Performance*

The hypothesis that Overall Student Performance is affected by a set of Teachers Inputs was reported significant, see Table 11.

*Table 11* : Multivariate Tests Perceived Students Performance - Overall Learning Efficacy over Number of Teachers

Effect Wilks' Lambda	Value	F	Hypothesis df	Error df	Sig.
Intercept	.376	26.042	12.000	188.000	.000
Perceived Students Performance - Learning Efficacy	.139	1.190	348.000	2128.068	.014

However, factors that contributed to the regression model in the order of their strong effect are: Number of Teachers in Languages, Religion, Biology,

Arabic, Math, History, Geology, Physics, English, and Chemistry, see Table 12.

*Table 12 : Tests of Between-Subjects Effects - Overall Learning Efficacy over Number of Teachers*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Religion Number of Teachers	47.422	29	1.635	2.125	.001
	Arabic Number of Teachers	102.591	29	3.538	1.923	.005
	English Number of Teachers	57.413	29	1.980	1.572	.039
	Math Number of Teachers	68.258	29	2.354	1.926	.005
	Physics Number of Teachers	15.723	29	.542	1.607	.032
	Chemistry Number of Teachers	11.893	29	.410	1.524	.050
	Biology Number of Teachers	14.496	29	.500	2.079	.002
	Geology Number of Teachers	7.618	29	.263	1.864	.007
	Computer Number of Teachers	33.820	29	1.166	1.542	.046
	Geography Number of Teachers	18.537	29	.639	1.477	.064
	History Number of Teachers	16.820	29	.580	1.910	.005
	Languages Number of Teachers	130.636	29	4.505	2.251	.001
Intercept	Religion Number of Teachers	162.769	1	162.769	211.504	.000
	Arabic Number of Teachers	428.307	1	428.307	232.776	.000
	English Number of Teachers	324.028	1	324.028	257.304	.000
	Math Number of Teachers	223.122	1	223.122	182.577	.000
	Physics Number of Teachers	15.799	1	15.799	46.832	.000
	Chemistry Number of Teachers	14.174	1	14.174	52.665	.000
	Biology Number of Teachers	18.808	1	18.808	78.212	.000
	Geology Number of Teachers	3.794	1	3.794	26.926	.000
	Computer Number of Teachers	56.346	1	56.346	74.516	.000
	Geography Number of Teachers	29.096	1	29.096	67.248	.000
	History Number of Teachers	16.984	1	16.984	55.938	.000
	Languages Number of Teachers	12.241	1	12.241	6.117	.014
Total	Religion Number of Teachers	679.000	229			
	Arabic Number of Teachers	1645.000	229			
	English Number of Teachers	1285.000	229			
	Math Number of Teachers	919.000	229			
	Physics Number of Teachers	131.000	229			
	Chemistry Number of Teachers	97.000	229			
	Biology Number of Teachers	91.000	229			
	Geology Number of Teachers	43.000	229			
	Computer Number of Teachers	337.000	229			
	Geography Number of Teachers	199.000	229			
	History Number of Teachers	133.000	229			
	Languages Number of Teachers	612.000	229			

c) *Relationship between Overall Students Performance Capacity of Teaching-organizational, Capacity of Quality of Education & Other Entities and*

In order to test the hypothesis that lack of preparedness is affected by lack of Teaching-organizational, Capacity & capacity in Quality of the supply of the Teaching Environment, the following statistical Multi-level Analysis were carried out.

i. *ANOVA Test – Overall Performance over Teaching-organizational Capacity and Qualitative Inputs of Supply*

Further analysis was carried out to investigate the effect of capacity of Teaching-organizational, Capacity & capacity in Quality of the supply on Overall Perceived Performance using anova test. The test of

effect of Teaching-organizational, Capacity & capacity in Quality of the supply on Overall Performance using Anova Test (Table 13) indicated significant relationship

with Students' Gender, caring and support for students, perception of existing pedagogy, students attitude, teachers attitude, available school services.

**Table 13 :** ANOVA Test - Capacity of Teaching-organizational Entity, Capacity of Quality of Education & and Other Entities Student Performance over Overall Learning Efficacy

Variable	Sum of Squares	Df	Mean Square	F	Sig.
<u>Students' Gender</u>	37.657	29	1.299	1.767	.013
School Education Level	31.945	29	1.102	1.358	.115
Instructional	4.683	29	.161	1.089	.354
Structural	7.945	29	.274	1.083	.361
Staff Frustration	31.143	29	1.074	1.305	.148
Positive Classroom Environment	23.126	29	.797	1.397	.096
<u>Caring &amp; Support for Students</u>	19.313	29	.666	1.675	.022
Formalization	7.232	29	.249	.932	.570
Students Control	6.264	29	.216	1.127	.308
<u>Perception of Existing Pedagogy</u>	22.828	29	.787	2.499	.000
Directing Students Track	33.989	29	1.172	1.250	.188
Obstacles of Ministry Concentration	11.213	29	.387	.636	.926
<u>Students Attitude</u>	17.750	29	.612	2.512	.000
<u>Teachers Attitude</u>	19.962	29	.688	2.855	.000
<u>Available School Services</u>	26.140	29	.901	2.419	.000

ii. *Regression Model for the Significant Teaching-organizational Capacity and Qualitative Inputs of Supply with Overall Students Performance*

The hypothesis that Overall Student Performance is affected by a set of Teaching-

organizational, Capacity& capacity in Quality of the supply of the Teaching Environment significant in Table 14.

**Table 14 :** Multivariate Tests Models - Capacity of Teaching-organizational Entity, Capacity of Quality of Education & and Other Entities Student Performance over Overall Learning Efficacy

Effect Wilks' Lambda	Value	F	Hypothesis df	Error df	Sig.
Intercept	.023	1146.377	7.000	193.000	.000
Perceived Students Performance – Overall Learning Efficacy	.211	1.674	203.000	1329.011	.000

However, factors that contributed to the regression model in the order of their strong effect are: teachers attitude, student's attitude, perception of

existing pedagogy, available school services, and caring and support for students, see Table 15.

**Table 15 :** Tests of Between-Subjects Effects - Capacity of Teaching-organizational Entity, Capacity of Quality of Education & and Other Entities Student Performance over Overall Learning Efficacy

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Positive Classroom Environment	23.126	29	.797	1.397	.096
	Caring & Support for Students	19.313	29	.666	1.675	.022
	Students' Gender	37.657	29	1.299	1.767	.013
	Perception of Existing Pedagogy	22.828	29	.787	2.499	.000
	Students Attitude	17.750	29	.612	2.512	.000
	Teachers Attitude	19.962	29	.688	2.855	.000
	Available School Services	26.140	29	.901	2.419	.000

Intercept	Positive Classroom Environment	1138.672	1	1138.672	1994.882	.000
	Caring & Support for Students	1215.590	1	1215.590	3057.484	.000
	Students' Gender	289.466	1	289.466	393.809	.000
	Perception of Existing Pedagogy	1074.138	1	1074.138	3410.621	.000
	Students Attitude	1075.688	1	1075.688	4415.046	.000
	Teachers Attitude	1205.110	1	1205.110	4997.797	.000
	Available School Services	828.147	1	828.147	2222.817	.000
Total	Positive Classroom Environment	3410.551	229			
	Caring & Support for Students	3689.025	229			
	Students' Gender	1084.000	229			
	Perception of Existing Pedagogy	3469.722	229			
	Students Attitude	3324.156	229			
	Teachers Attitude	3698.247	229			
	Available School Services	2678.914	229			

- a) *Capacity of Quality of Education Evaluation - impact of implemented development program provided by the Ministry of Education and Ministry of Higher Educations by the subjects*

In order to realize how the relationship of overall student performance is associated with capacity of quality of education; the following analysis was extracted from the interviews with the sampled municipals:

a. *Evaluations of Inputs – SWOT Analysis:*

1. Inputs Strength: availability of all streams; teachers specialties, capacity, skills, and cooperation; small students numbers; and available electronic pedagogy.
2. Input Weaknesses: Lack of computers; lack of parents awareness and support to intensify students' performance; hard courses in comparison to students capacity and ability; weak physical infrastructure like crowdfess in some classrooms, rented buildings, and bad quality buildings; dense teaching schedules; dispersed school from residential settings; lack of instruments, tools, and computers in remote schools; insufficient financial and technical capacities of school; lack of experience of teachers; lack of community feedback; limited authority of teachers over students; lack of scientific majors; two teaching shifts (morning and evening) and mixed schools; travel distance for teachers and students; unqualified teachers for the first three grade levels.
3. Opportunities: Improvement of physical environment, infrastructures, facilities, labs, equipment, buildings, and classrooms; direct and intensive training for managers and teachers; electronic teaching; intensification of elementary stage by provide quality inputs; provision of technical team working under municipals; interaction with local community; separation of gender, and educational levels.
4. Threats: Students attitude; centralization; weak classroom management; escape of teachers to other professions to generate better income; decrease of students numbers in schools in favor of increasing household manpower and, therefore, income; infiltration from schools; lack of financial support for the poor; parents attitude; social structure of kinships and clans; lack of thermal control in extreme weather conditions; and lack of safe playground, school fencing, and other infrastructures.
5. Assessment of Education Economically, Socially, and culturally: should be based on reality and community understanding, as it does not fit with household needs, as well, it is not responsive to community demands and lifestyle.
6. Quality Assurance for Students & Teachers: there are gaps in teacher's performance and student's performance; exchange with students is weak; and there is lack of training in electronic education.
7. Distinctness to students and Teachers: is being lower but there are potentials to keep enhancing it, but infrastructure does not help and there are no incentives for both teachers and students.
8. Human Resources: Are available in full capacity and qualification but are unable to orient students energy; also it does not match with community and Badia region needs, distribution is not efficient; and limited resources and incentives for the available human resources.
9. Flexibility of Subject Choice & Job Opportunities: All streams are available, but awareness is weak, choice is inflexible, and match with needs is disturbed by geographical locations; also choices do not fit market and North Badia Region needs.
10. Upgrading in Teaching and Learning Environment: Should be based on information technology; but some schools suffer from lack of infrastructure and

- feel upgrading is not made possible, especially for schools who have rented buildings.
11. Electronic Infrastructure: Most schools have it available but some lack its availability. Some municipals indicated their need for simple computer infrastructure; and others suffer from lack of computer systems at their schools.
- b. *Quality Assessment:*
1. Existing Pedagogy: it is a foreign system on Arab students; it is applied without consideration for its appropriateness for the region; some contents are above students capacity; continuous change in content which causes frustration among students and teachers; it is rigid; it has gaps between students' abilities and capacities; it is informative and not responsive to context; it lacks vocational emphasis; requires self-improvisation that depends on students who does not get parental support; and it is traditional.
  2. Suggested Pedagogy: suggested pedagogy development by providing clearer content, progressive, and fixed pedagogy; change in some courses content; comprehensive and compatibility; decrease course size; intensify electronic teaching/learning; enhance fitness of pedagogy to remote area needs; enhance hierarchy throughout the different levels of education; decrease overload of information; focus on practical and applied pedagogy; tailor for regional needs; and intensify quality of Math and English at first three grade levels.
  3. Existing Students Interaction: students are attitudinal; interaction lacks communication and discussion, and is traditional; some students are disrespectful and lack motivation and belonging; some students have negative behavior and not cooperative; others are careless; and students lack support from their families and communities.
  4. Suggested Students Interaction: teachers to be kind to students, aware, responsible, and to communicate with students, to deal with students positively and easily, and to encourage respect; to increase student's motivation and encourage discussion; ad to enhance effective control and not just implementation and execution of regulations; to facilitate teacher's authority over students; to make students aware of education importance.

## V. CONCLUSIONS

Capacity of quality of education Supply at the school level: perception of existing pedagogy has a slight tendency of approval; directing students to choose the right stream also received slight approval; and obstacles of Ministry of Education concentration has a tendency of agreement. In terms of capacity of teaching-organizational entity of the supply, instructional

capacity was assessed with a tendency of strong agreement; structural agreement was also with a tendency of strong agreement; staff frustration has a tendency of disproval; positive classroom environment has a slight tendency of approval; caring and support for students has a slight tendency of approval; formalization has a tendency of strong agreement; and students control has a strong agreement. Additionally, students' attitude has a tendency of slight agreement; teachers' attitude has tendency of agreement; available school services has a slight agreement; and perceived students' performance has a tendency of slight agreement.

### a) *Overall Students Performance and Capacity of Students & Teachers Quantity (Inputs)*

Over all perceived performance was associated with Elementary grade inputs 1st Grade and 2nd Grade number of sections; negative association with Eleventh Grade the number of students Nursing Stream; and none of the Twelfth Grade inputs. It also showed positive association with Number of Geology Teachers. In terms of capacity of quantity of Education Supply at the Elementary level effect on Perceived overall performance, results indicated that attributes of effect at the elementary stage level include: numbers of sections at Second, Third, Fifth, Sixth, Seventh, Eighth, Ninth, and Tenth Grades.

In terms of capacity of quantity of Education Supply at the Eleventh Grade level effect on Perceived overall performance, results indicated that attributes of effect at the Eleventh Grade level include: sections of Scientific, Computer and Nursing streams; as well as, number of students at Scientific and Computer streams. In terms of capacity of quantity of Education Supply at the Twelfth Grade level effect on Perceived overall performance, results indicated that attributes of effect at the Twelfth Grade level include: sections of Nursing streams; as well as, number of students of Scientific and Computer streams.

In terms of capacity of number of teachers on Perceived overall performance, results indicated that attributes of effect number of teachers include the following majors: Religion, Arabic, English, Math, Physics, Biology, Geology, Computer, History, and Languages teachers.

Overall Student Performance is affected by a set of attributes of Capacity of Students Quantity inputs was not significant. However, factors that could contribute to the regression model in the order of their strong effect are: number of students at Eleventh grade Computer stream, and Twelfth Grade Scientific and Computer streams.

Overall Student Performance is affected by a set of attributes of Capacity of Teachers Quantity inputs was significant. However, factors that contributed to the regression model in the order of their strong effect are:

number of teachers in Languages, Religion, Biology, Arabic, Math, History, Geology, Physics, English, and Chemistry.

*b) Overall Students Performance and Teaching-organizational Capacity, Qualitative Inputs of Supply, and Other*

In terms of Teaching-Organization & Capacity of Quality of Education Supply & Other Variables association with Perceived overall performance, results indicated that attributes of Teaching-Organization & Capacity of Quality of Education Supply & Other Variables associated with the following: (1) Teaching-Organizational Entity such as Structural, Staff Frustration, Positive Classroom Environment, and caring and support for students; (2) with quality of education such as perception of existing pedagogy and directing student to choose a track; (3) other variables such as students attitude, teachers attitude, available school services, and students gender, which supports Sergiovanni (1984), Bush (1986), Bolman & Deal (1991), Cheng (1993b), Ming (1994), and Ming & Cheong (1995). However, the following attributed affected the Perceived overall performance differently: Students' Gender, caring and support for students, perception of existing pedagogy, students' attitude, teacher's attitude, and available school services, which supports Aptekar (1983), Bates (1993), Eberts, Kehoe, & Stone (1982), Gottfredson (1985), Gregory (1992) Johnson (1990), and Stockard & Mayberry (1992). Overall Student Performance is affected by a set of attributes of Teaching-organizational, Capacity & capacity in Quality of the supply is significant. However, factors that contributed to the regression model in the order of their strong effect are: teachers' attitude, students' attitude, perception of existing pedagogy, available school services, and caring and support for students.

*c) Recommendations - Vision and Solutions*

*Concentration of Certain High School Fields of Study at the Governorate Level – Impact of Implementation*

The following is a set of suggestions to follow:

1. For limiting **Cultural** obstacles that hinder the local community by Ministry of Education's Policies: activation of parents councils role in order to share cultural issues and taboos about education and work; activation of students council in order to aware them of vocational studies, increasing community cultural awareness via workshop, public lectures, awareness brochures, newsletters; adjusting regulation to control students build community libraries; support first grade at elementary stage; and launching summer school and courses for students in order to keep them disciplined and interested.
2. For limiting **Social** obstacles that hinder the local community by Ministry of Education's Policies: activating parents and local community councils to increase bridging and communication and responsibility towards education, increase community awareness, bond, cooperate, and communicate with local community; emphasizing teachers mission; providing trained counselors to solve students social problems; establishing open-door policy with the community; enhancing teachers' income; intensifying teachers' roles and social status; and enhancing team spirit.
3. For limiting **Financial** obstacles that hinder the local community by Ministry of Education's Policies: launching activities that generate money so as to enhance facilities and services at local schools; encourage donations and financial support by the local community and civic institutions; decrease school fees; honoring donors by offering their names to facilities; decreasing centralization and offering local management some freedom to enhance school budget; and increasing incentives for teachers and school budget by the Ministry of Education.
4. For limiting **Managerial** obstacles that hinder the local community by Ministry of Education's Policies: allowing new managements approach; activating managers role and authority; decentralizing decisions; activating punishment law; providing management incentives; bridging communication with managers and exchanging experience with other schools; and increasing capacity of municipals by intensifying training workshops.
5. For limiting **Training** obstacles that hinder the local community by Ministry of Education's Policies: Providing teachers with training before teaching; providing continuous and intensive training and awareness about teaching skills, responsibilities, and classroom environment; encourage effective training and participation; providing and increasing chances of training; evaluating training content; training students with speaking disabilities at local schools; launching summer training and workshops to save time; and training senior teachers about new methods and pedagogies and just fresh graduates.
6. For limiting **Technical** obstacles that hinder the local community by Ministry of Education's Policies: Supporting managers with technical team to get their job done; providing serious supervisors in the region, one supervisor for each subject; establishing extensive technical training and supervision by the Ministry of Education.
7. For limiting **Logistic** obstacles that hinder the local community by Ministry of Education's Policies: increasing and enhancing infrastructure and services for students, teachers, and management; distributing services equally among schools; implementing safety measures at the main street in front of the schools.

*d) Implication*

- Major issues that should be considered by education policy makers include:
1. To restructure inputs of education in the Northeast Badia Region.
  2. Emphasis of joining schools together, as it seems number of students as well as section are vital for output and more so than number of teachers. Many schools are suffering, especially in the Northeast Badia Region, from small number of students in geographically dispersed villages. It is healthier to increase numbers of students to a range of 20-30 per section for completion among students.
  3. Number of teachers and their major seem to be sufficient and more importantly are their attitude. This suggests working more on enhancing the teachers' attitude, as their qualifications seem sufficient but they lack inspiration and incentives and it seems to be a worthwhile issue of investment by policy maker of higher education.
  4. Physical infrastructure that supports students' activity seems vital and affects student's performance positively. Therefore, it is worth to invest in sports and arts facilities, and the like.

However, the following partners should play different roles:

1. Policy makers: should not be mainly concerned about the inputs of schooling (finance, curriculum, and student allocation), but should also pay attentions about the internal process of the school, such as instructional approaches, school structure, etc.
2. School administrators: the school environment may be related to the contextual factors of the schools, such as age, size, experience of the teachers, etc., which is not under the control of the school administrators, but they have the authority to plan and implement suitable policies which can reduce the negative effects of the school contextual factors. Another implication is for the school administrators to keep in mind that although the school environment is complicated, the different aspects of school environment are inter-related, and they need to take a holistic view about school environment, and that school management should not be conducted in a piecemeal fashion.
3. Education Department: since the principal is in a key role in the creation of a good school environment, which would be beneficial to the learning of the students and the success of the teachers, it implies that selection and training of principal should be given prominent attention by the policy makers and Education Department. The stability of leadership effect implies that in order for the leadership effects of principals to take root, the incumbents should not change too often.

4. Training programs: because a principal has multiple roles, he/she is an educational leader, a structural leader, a human relationship leader, a political leader, and a symbolic leader; it suggests that training programs for the principal should include the following five components.

*e) Limitations of the Research Study*

The research aperwork was long and even when released was not enough to convince the local municipals to collaborate with the extensive data related to teachers and students inputs (especially scores of students in all subjects and at all level). Further, teachers at the interviewed schools offered no time to work with or help the research team in extracting this data. In addition at the central exam office of the Ministry this data, which was supposed to be upload to EduWave, were not accessible or available. In terms of questionnaire, it was long, for future studies components of the research will be separated in different parcels and phases. Finally, the timing of the research was towards the end of the academic year; many schools where dropped out from the study because they were on vacation.

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## An Analysis of Some Key Segments of Food and Beverage Sector of India

By Ms. Sheena Chhabra & Dr (Ms) Ravi Kiran

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**Abstract** - Purpose- This research aims to study the changing trends of Food and Beverage sector since liberalization and to analyse the key segments of Food and Beverage sector of India. Research Methodology- The data regarding the sales of key segments like Confectionary, Bread, Fun food and Snack, and Food Juices and Concentrates is collected from year 1990 to 2010. Findings- Out of four segments, the total growth rate of Bread segment is maximum i.e. 3.54 percent. Originality- This paper is unique because the paper is focussing on Food and Beverage Sector which is an emerging sector in Indian economy. The analysis of various segments of the sector has been done through growth rates considering the sales from year 1990 to 2010 which includes the sales of recessionary period as well.

**Keywords :** *Food and Beverage (F&B) Sector, Confectionery, Fun food and Snacks, Food Juices and Concentrates, Growth rate, India.*

**GJMBR-A Classification:** FOR Code: 150401 JEL Code: P46, H53



*Strictly as per the compliance and regulations of:*



# An Analysis of Some Key Segments of Food and Beverage Sector of India

Ms. Sheena Chhabra<sup>a</sup> & Dr (Ms) Ravi Kiran<sup>a</sup>

**Abstract - Purpose-** This research aims to study the changing trends of Food and Beverage sector since liberalization and to analyse the key segments of Food and Beverage sector of India.

**Research Methodology-** The data regarding the sales of key segments like Confectionery, Bread, Fun food and Snack, and Food Juices and Concentrates is collected from year 1990 to 2010.

**Findings-** Out of four segments, the total growth rate of Bread segment is maximum i.e. 3.54 percent.

**Originality-** This paper is unique because the paper is focussing on Food and Beverage Sector which is an emerging sector in Indian economy. The analysis of various segments of the sector has been done through growth rates considering the sales from year 1990 to 2010 which includes the sales of recessionary period as well.

**Keywords :** Food and Beverage (F&B) Sector, Confectionery, Fun food and Snacks, Food Juices and Concentrates, Growth rate, India

## I. INTRODUCTION

In the past few decades, the food and beverage sector has flourished from a collection of mom-and-pop operations to a trillion-dollar business led by giant multinational corporations. Few companies like Coca-Cola and McDonald's can be found in all the corner of the world. The overarching theme dominating the food and beverage sector is blowing up the global demand and rapidly rising food prices. The instantaneous economic growth of developing nations such as China, India, Brazil and Vietnam gives billions of people the ability to indulge in ways previously enjoyed only by people of developed nations. This huge entry of consumers into the global food market has resulted in a fast and continuous increase in food prices, leading to increase in the global inflation.

According to a Corporate Catalyst India (CCI) survey, India is the second largest producer of food and has the potential to be the number one on the global food and agriculture canvas. Food Processing Secretary Ashok Sinha, stated that the Indian government has approved funds for establishing 15 mega food parks across the country. Food processing sector is one of the largest sectors operating in India which is highly

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fragmented. In total, there are more than 189 companies under Food and Beverage sector. Changing Consumer Preferences and increasing government regulation has impact on manufacturing and business strategies. In such a growing competitive market, customers demand customised product that is according to their taste. Quality is the most dominant factor that plays role in the success of a company in this sector.

As a result of globalization of industrial market and technological advancement, the competition in food industrial market is severe. It is important for organizations to identify new methods to maintain their competitiveness and sustain in the market. The overall growth of the sector comes from international expansion. The global firms like ITC, HUL, Britannia and Pepsi offer wide range of products which are high in quality and various Indian players like Haldirams, MTR and Parle leverage their position on competitive pricing and mass reach.

According to DIPP (Department of Industrial Policy and Promotion) report, F&B sector has attracted huge foreign direct investment (FDI) of US\$ 1,253.79 million from April 2000 to April 2011. The amount of FDI inflow for Food Processing Sector in India from April 2010 to November 2010 (in just 8 months) is US\$ 129.2 million.

India's food processing sector covers fruit and vegetables; meat and poultry; milk and milk products, alcoholic beverages, fisheries, plantation, grain processing and other consumer product groups like confectionery, chocolates and cocoa products, Soya-based products, mineral water, high protein foods etc. The most promising sub-sectors includes -Soft-drink bottling, Confectionery manufacture, Fishing, aquaculture, Grain-milling and grain-based products, Meat and poultry processing, Alcoholic beverages, Milk processing, Tomato paste, Fast-food, Ready-to-eat breakfast cereals, Food additives, flavours etc. Health food, health food supplements, Convenient Food and Branded Food are swiftly gaining vast popularity with the changing life styles of the consumers.

Social Media is acting as a boon for restaurant industry. Due to the rapid urbanisation culture and large working class in metropolitans as well as in tier II cities eating out at restaurants has become a simpler option for Indian food lovers. Customers usually explore new eating joints online, compare them and enjoy the food of their choice.

*Table 1*  
Status of Indian Food Processing Sector

1	Rank of Industry	5 <sup>th</sup>
2	Employment in Lakhs	16
3	Percentage of total industrial labour force	19
4	Total industry output in percentage	14
5	Output as percentage of GDP	5.5
6	Estimated Turnover (in Crore)	Rs 1,44,000
7	Unorganized sector (in Crore)	Rs 1,11,200

(Source: *A Manual for Entrepreneurs: Food Processing Industry, 2006*)

As depicted in Table 1, the food processing sector is one of the largest sectors in India. It is ranked fifth in terms of production, consumption, export and expected growth. The sector provides employment to 16 lakh individuals and contributes to 5.5% of Indian GDP. The estimated turnover of the sector is Rs 1, 44,000 crore.

## II. REVIEW OF LITERATURE

Michael J. McCarthy (2003) discovered an important public health story, touching an implication for food companies. This set of stories would benefit the advocates working to encourage the fiber content in American diets. Steve Demos (2003) explained why beverage marketers work hard to have vending machines in the schools. Demos' exemplified that with the placement of vending machines in schools, beverage suppliers are buying generations of customers.

Kraft, Campbell (2004) emphasised to create new products to capitalize on current diet trends like "low carb" even though they know the trends fade in about two years, well before the products will become profitable. According to them, in long run it will be cheaper to offer those items to consumers even if they do not make money than to pay lawsuits for not giving consumers choices.

El Zein et al. (2008) in a study exposed that 58% of the respondents (total 50 females) were involved in food and beverages processing and selling. Women found this activity suitable for them as many of them cook the food in their houses together with other domestic duties, assisted by other female family members. Besides, normally it takes them a relatively short time to sell their products at the market place and return home to resume other responsibilities for the rest of the day. In this way, they can earn money and manage their home as well.

Tambuan (2006, 2007) publicized that in manufacturing sector, most of the women entrepreneurs are in the food, beverages and tobacco sector, followed by textile, garment and leather, and non-metallic mineral products. In Indonesia, women entrepreneurs are more likely to be involved in these sectors than men, most of them own small shops or small restaurants or hotel.

Soni Kumari (2011) in her study conducted in Ranchi District revealed that Nisha Tulsyan has been famous for being the only women entrepreneur of Dhanbad, She is successfully running a bakery business .She teaches girls and women the art of cooking as well to make them capable of getting employment.

Hagen (2002) examined that the supply chains of food and beverages are under increased competition and regulatory pressure to develop and maintain knowledge management systems which assure the

quality standards of food products. Brannback & Wiklund,(2001); Hagen,(2002); Sporleder & Moss, (2002) reported that the advancement of biotechnology in food sector is a factor which led to rigorous competition and an urge for quality assurance as some events came out in food supply chain, including the application of biotechnology in agricultural products and food processing. In food and beverage sector, the responsibility and traceability of food ingredients (Hagen, 2002), handling process (Hagen, 2002), preservation (Sporleder & Moss, 2002), and labelling (Sporleder & Moss, 2002) have become more considerable. They are important for the organisations who want to enter European market, because TTA (traceability, transparency, and assurance) protocols have been launched there.

Brannback & Wiklund (2001) opined that in current food supply chain, both customers and producers need more information and knowledge and there is a need for enhanced flow of information from supplier side to customers (Sporleder & Moss, 2002). Sporleder, (2001) revealed that the competition among various firms in food sector has been changed from tangible assets to value added and wealth creation through Knowledge Management. The knowledge management system of a firm includes brands, reputations, and customer and supplier relationship (Sporleder & Moss, 2002).

Alavi and Leidner (2001) believed that application of knowledge is more important than knowledge itself which helps a firm to have a competitive edge over another firm.

### III. OBJECTIVE OF THE STUDY

- To study the changing trends of Food and Beverage sector in India since liberalization.
- Segment-wise analysis of Food and Beverage sector considering four segments (Confectionary, Bread, Fun food and Snack, and Food Juices and Concentrates).

### IV. METHODOLOGY

- Research Design-** In the study, exploratory research design has been used as conclusions are drawn on the basis of secondary data available. The data for the sales of key segments is collected from year 1990 to 2010. This entire time period is divided into two sub periods, i.e., Period I is from year 1990 to 2000 and Period II is from year 2001 to 2010.
- Population-** The food and beverage sector consists of many segments such as Confectionary, Branded Flour (ATTA), Bread, Biscuit, Fun & Snack food, Fruit Juices/ Pulp & Concentrates/ Sauces/ Ketch ups, alcoholic beverages, milk and dairy products.
- Sample-** The paper discusses only about four segments and these are Confectionary, Bread, Fun

- food and Snack, and Fruit Juices and Concentrates.
- Confectionary-** The entire Confectionery market can be divided into 7 major categories, namely Hard Boiled Candies (HBC), Toffees, Eclairs, Chewing gums, Bubble gum, mints and Lozenges. It is dominated by 2 major players, Cadbury India Ltd and Nestle India Ltd, which together account for about 90% of the total chocolate market.
  - Bread-** There are a number of producers in both sectors, organized and unorganized. The large organized sector players who are prominent in the high- and medium-price segments include Britannia, Modern Industries Ltd. Local manufacturers with numerous local brands cater to populous segment and contribute considerably in the bread segment.
  - Fun food & Snacks-** The culinary products including mainly wheat based products comprising of noodles, vermicelli, macaroni and spaghetti is gaining popularity. Lay, Kurkure, Uncle Chips, Lehar Namkeen, Bischips, Star Nuts, Crispies, Peppy Soya wheels, Ruffles, Haldirams, Fun Flips, Cheetos are the leading snacks brands in the market.
  - Fruit Juices and Concentrates-** There has been a steady rise in the capacity and production of the fruit processing units because of increased consumption. The leading fruit juice brands include Real, Onjus, Tropicana, Frooti, Jumpin. The fruit drinks are mainly based on oranges, mangoes, pineapples, grapes, apples, guava and tomato. They only differ in pulp content: the juices have over 85%, nectars (20% to 85%) and fruit drinks (less than 20%).

### V. RESULTS AND DISCUSSIONS

- Changing trends of Food and Beverage sector since liberalization**

Since liberalization in 1991 till January 2004 proposals for projects of over Rs.87715 crores have been proposed in various segments of the food and agro-processing sector. The Government has provided many liberal incentives to encourage the Food Processing Sector.

Despite inflation, small domestic food companies continue to be bullish about India's consumption. A rate of penetration of packed foods of 5% only is potential enough for many and has become an important reason to expand the market and investments. For example, a Mumbai-based Capital Foods, maker of Smith & Jones and Ching's brand of noodles is looking forward to launch a range of products from ready-to-cook, ready-to-eat, snacks and beverages. The Indian food market is approximately Rs 2, 50,000 crore (\$69.4 billion). Value-added food

products comprise Rs 80,000 crore (\$22.2 billion). The food processing industry is witnessing a 20% annual growth rate. The unorganized, small players account for more than 75% of the sector output in terms of volume and 50% in terms of value. The major Indian and Overseas Players in the Food processing Sector are ITC Limited (Packaged Foods & Confectionery), Parle Products Pvt. Ltd. (Bakery and Confectionary), Agro Tech Foods (Snacks), Perfetti India Ltd. (Confectionary), Cadbury India Ltd. (Confectionary and Beverages),

PepsiCo India Holdings (Snacks and Beverages), Nestle India Pvt. Ltd. (Confectionary), Britannia Industries Ltd. (Bakery Products), MTR foods limited (Snacks and Icecreams), Godrej industries Limited (Beverages and Staples), Gits Food Products Pvt. Ltd. (Snacks and Dairy), Dabur India Ltd. (Beverages and Culinary), Haldiram's (Bakery products and Snacks) and Hindustan Unilever Limited (Beverages, Staples, Dairy) etc.

*Table 2 : Food and Beverage: Segment-wise Scenario*

Year	Confectionery (Rs bn)	Bread (Rs bn)	Snack and Fun Foods (Rs bn)	Fruit Juices and Concentrates (Rs bn)
1990-91	8.2	6.42	16.6	0.22
1991-92	9.15	6.7	18.1	0.3
1992-93	9.6	7	18.6	0.42
1993-94	10.5	7.3	19.5	0.63
1994-95	11.44	7.65	20.5	1.03
1995-96	12.32	8	21.5	1.62
1996-97	13.36	8.8	22.6	1.68
1997-98	14.4	9.4	23.7	2.2
1998-99	15.6	10.15	24.9	3.3
1999-00	15.4	10.75	26.15	2.75
2000-01	16.5	11.9	27.5	2.48
2001-02	17.6	12.85	28.85	3.55
2002-03	18.9	13.85	30	3.95
2003-04	20.15	14.8	31.5	4.35
2004-05	21.7	15.85	33.2	4.8
2005-06	23	16.9	35	5.3
2006-07	23.75	17.9	37	5.8
2007-08	25.4	18.95	39.25	6.3
2008-09	26.8	20	41.75	6.85
2009-10	28.2	21.1	44.5	7.4
<b>Growth Rate for Period I</b>	1.69	2.08	1.64	2.25
<b>Growth Rate for Period II</b>	1.66	1.65	1.92	1.39
<b>Total Growth Rate</b>	2.02	3.54	3.12	3.21

*(Source: Ministry of Food Processing Industries, MOFPI)*

As depicted in Table 2 the results highlight highest growth in bread followed by Fruit Juices and Concentrates. Confectionery segment has grown at a slightly lower rate than other segments of food and beverage Sector. What is surprising in the results is that all segments report a higher growth rate in the first period viz. period I from year 1991-2000 as compared to second period, i.e., from year 2001-2010. One of the reasons could be recessionary trends in the second period that hit the entire world. Thus the period immediately following new economic policy of 1991 has

been associated with higher growth as compared to the second period of analysis.

According to IBMA (Indian Biscuits Manufacturers' Association), the production of Biscuits and Bread witnessed steep decline in 2008-09. This is due to precipitous hike in cost of production on account of increase in prices of major raw materials, i.e. Wheat Flour Veg. Oil, Sugar, Milk, Packaging Materials, Fuel, Wages, etc. Recent increase in prices of Petrol/Diesel in May 2008 has further resulted in cost push.

The growth in these segments during the first period is more as compared to that of second period like in Confectionery segment, it is 1.69 percent during 1990-2000 but it is 1.66 percent during 2000-2010. The growing list of factors include government subsidised food parks, tax breaks, increased FDI (foreign direct investments) and foreign food retailer interest, increased spending on the supply chain infrastructure, a burgeoning middle-class with fast growing disposable incomes and changing consumption patterns, modern retail formats, changing shopping behaviour and international road shows by the government.

## VI. KEY OPPORTUNITY AREAS

As per UN projections, the global population is expected to grow from the current 6.8 billion to 9 billion by 2050. As a result, global food production will have to increase by 70 percent to feed the additional 2.2 billion people, thereby providing strong growth potential for F&B companies.

The Indian food market is set to more than double by 2025. The market size for the food consumption category in India is expected to grow from US\$ 155 billion in 2005 to US\$ 344 billion in 2025.

The Government has set an investment target of Rs 1, 00,000 crore for the food processing sector by 2015. This is expected to almost double the country's presence in the global food trade to three per cent. This investment of one lakh crore will, undoubtedly, propel the growth of this sector, and put it at the higher growth trajectory.

According to a report published by market research firm RNCOS in April 2010, "With the rapidly growing Indian middle class population and their changing lifestyle, India is going to be one of the fastest growing food and beverage markets in the world. The Indian food and beverages market is projected to grow at a compound annual growth rate (CAGR) of about 7.5 per cent during 2009-13 and may touch \$ 330 billion by 2013. Also, not only the bona fide restaurant chains but even the Indian fast food market is expected to grow at a rate of 25-30 per cent annually".

The demand in key segments of Food and Beverage sector during 2014-15 is expected to increase to a significant level. The expected demand in 2014-15 for Confectionery is Rs 36 billion, Rs 26.90 billion for Bread, Rs 62.5 billion for Snacks and Fun foods whereas it is Rs 10.90 billion for Fruit Juices and Concentrates. With the introduction of Goods and Services Tax (GST) slates for 2012, the sector is expected to look forward to relief in the incidence of higher taxation burden.

## VII. CONCLUSION

With globalization of industrial market and technological advancement the market size of Food and

Beverage Sector has widened. Increased FDI inflow, government subsidised food parks, tax breaks are other reasons for the growth of this sector. Among the four key segments, i.e., Confectionery, Bread, Fun food and Snack, and Food Juices and Concentrates; the highest growth has been seen in the bread segment and the expected demand in 2014-15 for bread is Rs 26.90 billion.

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# Environmental Accounting & Reporting Practices: Significance and Issues: A Case from Bangladeshi Companies

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**Abstract** - The present study entitling "Environmental Accounting & Reporting Practices: Significance and Issues: A Case from Bangladeshi Companies" is based on both the primary and secondary data. The primary data were collected from the total number of 40 Chief Accountants and Senior Accountants, taking one from each company. The secondary data were collected from the Annual Reports-2010 of the companies. The main findings of the study are: i) the respondents have felt the strong need for EA (Environmental Accounting) and ER (Environmental Reporting) in their Annual Reports, ii) the respondents have also been aware for EA and ER practices, iii) as regards of nature of environmental disclosure, it is observed that only qualitative disclosures in positive sense have been provided in the Annual Reports either in Chairman or Managing Director statement, Directors' reports and a separate section "Environmental Compliance", iv) Environmental disclosures in the form of expenditure in energy, waste management, safety related measure and environment protection presented in their Annual Reports were not remarkable in the sample companies excepting expenditure in energy, v) the respondents have identified some major problems involved in EAR( Environmental Accounting and Reporting) practices as shown table -5 and also have suggested some measures as presented in table -6. From the above discussions, it is clear that EAR practices in the selected companies have been far from satisfactory and hence poor in real sense of the term. Therefore, in order to improve the EAR practices in the selected companies, the proper authority need to implement the suggestions put forward by the respondents without any further delay.

**Keywords :** Environmental Accounting, Environmental Reporting, Qualitative Disclosures, Listed Companies, Annual Reports.

**GJMBR-A Classification:** FOR Code: 150102, 150106 JEL Code: M42, M41



ENVIRONMENTAL ACCOUNTING REPORTING PRACTICES SIGNIFICANCE AND ISSUES A CASE FROM BANGLADESHI COMPANIES

*Strictly as per the compliance and regulations of:*



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## I. STATEMENT OF THE PROBLEM

It is to be mentioned here that very few studies have been carried out in the context of developing countries. In Hong Kong, a study carried out by Ho et al. (1994) found that out of 182 companies only nine companies (representing only 4.9%) disclosed environmental information in their annual reports for the year 1991. A recent Korean study by Choi (1998) shows that out of 770 listed companies 64 companies (8.3%)

made environmental disclosures in their audited semiannual financial statements for the year 1997. The average amount of disclosure per company was 7.5 lines. Tsang (1998) made a longitudinal study of social and environmental reporting in Singapore over a ten year period from 1986 to 1995. He covered 33 listed companies and found that only 17 (52%) companies made social and environmental disclosures during the late 1980s and then a stable pattern since 1993. The reason for this may be attributed to the voluntary nature of the disclosures. Once the companies attained a certain level of disclosure, they were not motivated to go further.

In a study of 22 large multi-national corporations in Nigeria, Disu and Gray 1998 noted that less than a quarter of companies made disclosures in the environmental, equal opportunities and consumer areas. The data years for this study were 1994 and 1995. In another study of only four companies in Uganda, Kisenyi and Gray (1998) observed that none of them made any environmental disclosure. They conclude that social and environmental disclosure in Uganda is scarce, low grade and of little importance. In a study of 115 South African companies Savage 1994, reports that approximately 63% companies made environmental disclosures. The length of disclosure measured by the number of page was 0.5.

From the South Asian context, the study made by Singh and Ahuja (1983) is now a very outdated one. The data used for the study is now 25 years old. Moreover, it considered public sector unit. It is felt that more recent studies are needed examining the EAR practices of both the public sector unit. It is felt that more recent studies are needed examining the EAR practices of both the public as well as private sector companies to know the current practices of South Asian companies.

Bangladesh is facing the challenge of a very fast degrading environment. Some examples of this deterioration are Dhaka's Terrible air pollution (causing 15000 premature deaths and sickness every year), the 'clinically dead' river Buriganga and widespread arsenic pollution in the underground water. In the absence of pressure groups and appropriate regulatory measures, the degradation has gone to a level from which redress

is necessary on an urgent basis before Bangladesh faces an environmental catastrophe.

It is said that Bangladesh has paid huge costs for its economic achievements. The time has come to think about the environmental damage done by the economic activities that have been carried out by the corporate entities in Bangladesh. Had there been appropriate regulatory measures, pressure groups and environmental awareness in the peoples, Occidental's Magurjhara disaster would have attracted serious consideration.

Since the 1990s the Government of Bangladesh (GoB) has started to pay attention to the environmental management of the country. In the wake of increased public protests at various places in Bangladesh, environmental degradation due to increased industrial activities, pressure on a global scale to check environmental pollution and pressures from the donor agencies to improve the environmental condition, the GoB passed the Bangladesh Environmental Protection Act, 1995 (the Act hereafter). Under this Act, companies may be asked to disclose environmental information as and when required. Moreover, the Act requires environmental clearance before the establishment of a new industry. Other strategic responses of the GoB to the environmental protection include formulation of the National Environment Policy and the National Environmental Management Action Plan (NEMAP). At present, the corporate laws e.g. Companies Act-1994, SEC Rules-1987, Income Tax Ordinance-1984 of Bangladesh do not require any significant environmental disclosures.

It will be observed in the literature review that very few studies as so far been made on EAR (Environmental Accounting and Reporting) practices. But this issue of EAR is very vital from the view point of all the users of the financial statement both internal and external. Such EAR can obviously uphold the green image of these companies. Due to these situations the author has been interested to conduct a research on such vital issue of the organizations.

## II. OBJECTIVES

The broad objective of the study is to critically evaluate the EAR practices in the selected companies. However, the specific objectives of this study are:

1. To identify the need for environmental accounting and reporting practices.
2. To assess the awareness of the selected accountants as to the environmental accounting and reporting in the selected firms.
3. To examine the position of environmental information in the Annual Reports of the sample organizations during the year-2010.
4. To identify the problems involved in environment

accounting and reporting practices in the sample organization.

5. To suggest some measure as to overcome the problems thereby improving environment accounting and reporting practices in the samples

## III. LITERATURE REVIEW

EMA or environmental management accounting grew up from corporate environmental accounting and branched off along the lines of management accounting. Environmental accounting, on the other hand, continued to grow along the lines of financial accounting and dealt with the institutionalizing environmental concerns (Christmann, 2000; Fussel & Georg, 2000), disclosure practices (Llena, Moneva, & Hernandez, 2007; Robkob & Ussahawanitchakit, 2009; Singh & Joshi, 2009), financial performance (Gadenne, Kennedy, & McKeiver, 2009; Moneva & Ortas, 2010; ), assurance procedures (Dixon, Mousa, & Woodhead, 2004; Özbirecikli, 2007), etc. One of the early literatures on the subject was the primer issued by USEPA (1995), wherein environmental accounting was used as a common term to advance the cause of environmental responsibility through accounting. We can see the usage of the term environmental cost accounting (ECA) for the purpose of identifying and allocating environmental costs (p.30, *ibid*). The distinction between both the branches (EMA and EA) to align them along the hereditary lines (management and financial accounting) became more pronounced after EMA was formalized through guidance documents released by UNDSD (2001). This document provided the ground for delinking environmental conscious efforts through accounting along the lines of cost accounting and its usage in decision making. It is well known that formal accounting standard to handle ecological sensitive information still remains at voluntary disclosure level in spite of valiant support from scholars and researchers to institutionalize standards of ecological accounting (Schaltegger, 1997; Dzinkowski, 2007). By the time EMA guidance note was issued by IFAC (2005), the definition was crystallized and its separation from environmental (financial) accounting was complete (p.16, *ibid*).

Given the fact that statutory accounting and reporting is covered by the generally acceptable accounting principles and reporting norms of the respective countries and wherein these accounting standards have not yet attempted to internalize costs and expenses outside the boundary of financial transaction (Sarmento, Durão, & Duarte, 2005), leaving these "contingent" at best, we could see management accounting as more accessible and harmless experimental area that could meet the demands of decision-making and in turn support its legacy to satisfy the internal needs of management. We have used

thesethree articles – primer on environmental accounting issued by USEPA (1995), workbook on EMA issued by UNDSD (2001), and guidance note issued on EMA by IFAC (2005) – as nodal references against which the developments of EMA methodologies are traced. While USEPA (1995) was first practical guide, produced regionally to help organizations with environmental sensitive accounting, UNDSD (2001) was first collaborated efforts under the aegis of UN Division of Sustainable Development for organizational implementation of EMA. We could see refer to the waste accounting methodology that was being proposed with reporting format. IFAC (2005) developed first collaborated document that was accepted as standard text on this subject by academicians and practitioner bodies. IFAC took care to run the draft through its member constitutes, before issuance of final guidance note. These documents provided collective wisdom of time on EMA and provided widely acceptable reference material. We could to see promulgation of methodologies like wastage accounting, material flow cost accounting (MFCA), environmental performance indicators (EPI), along with life cycle methods in these documents.

The study entitled "Environmental Reporting in Developing Countries: Empirical Evidence from Bangladesh" conducted by Belal (2000) is worth mentioning here. This study covered 30% annual reports of Bangladesh companies relating to the 1996. The study showed that very limited environmental disclosures have been made in the Annual Reports of selected companies. Another study entitled as "Environmental Accounting and Reporting in Fossil Fuel Sector: A study on Bangladesh Oil, Gas and Mineral Corporation (Petrobangla) conducted by Bose (2006) is notable. This study indicated that Petrobangla takes many initiatives to provide environment – friendly energy in the economy. "Corporate Environmental Reporting Practices in Bangladesh – A Study of Some Selected Companies" made by "Rahman and Muttakin" (2005) disclose that EAR are done voluntarily by few number of listed companies in Bangladesh. The level of disclosure was also poor and limited to descriptive information without their quantification. The study has also identified some problems involved in EAR and also put forward some suggestions to remove the same. Another study entitled "Environmental Disclosure – A Bangladesh Perspective" conducted by Shil and Iqbal, (2005) is also remarkable. The study has reported that EAR practices have not been a widely concept in the related companies so far. The study has also pointed out that environmental disclosure still at initial stage in Bangladesh.

The above discussions show that there is a dearth of EAR literature in the context of developing counties in general and South Asian countries in particular. Against this background, it is argued that an

empirical study of EAR practices in Bangladesh would bridge the gap in the EAR literature. It is believed that this would make a significant contribution to the EAR literature from the South Asian context.

#### IV. RESEARCH METHODOLOGY

The study is essentially based on Bangladesh only. The reasons for selection of Bangladesh are firstly the authors' access to the Bangladeshi annual reports; secondly it helps to shed light on EAR in the developing countries in general and South Asian countries in particular.

A total number of 40 corporate annual reports of 40 companies have been obtained by contacting the company sources. The data year is 2010. All the selected companies are the listed companies of DSE. The sample selection is influenced by the objectives of the study and is constrained by the availability of the reports. The sample design is shown in Table 1.

The research methods involved an initial scrutiny of recent annual reports to observe the incidence of EAR. The companies making environmental disclosures were rigorously examined and analyzed. For this purpose, all sections of the annual report were carefully examined to note the presence of any environmental disclosures. Given the time and resource constraints, the nature of the study tends to be mainly exploratory and descriptive.

Although there are a number of ways in which EAR may be made, like many other studies (see, for example, Adams et al., 1995; Gray et al., 1995a,b; Guthrie and Parker, 1990; Roberts, 1990; Singh and Ahuja, 1983), this study will only take account of the disclosures made in the annual reports because this is the most common and popular document produced by the companies regularly.

Table 1: Sample Design

Classification of Companies	Total
Listed Pharmaceuticals	05
Listed Tannery Industries	05
Listed Cement	05
Listed Ceramics	05
Listed Engineering	05
Listed Food & Beverage	05
Listed Textiles	05
Listed Fuel & Power	05
Total	40

The present study also has considered primary data in order to assess the awareness of the respondents as to the environmental accounting and reporting practices. The primary data relating to the problems involved in EAR and suggestion of some measures as to the overcome the problems were also collected. To this end, a total number of 40 Chief

Accountants, taking one (01) from each selected companies were interviewed by direct method with the help of a structured questionnaire. Both the primary and secondary data collected for study purposes were processed manually to present the findings of the study.

## V. FINDINGS AND ANALYSIS

### a) Need for EA and Reporting

The EAR can uphold the green image of companies. They can make their annual reports more informative by providing environmental information. This reporting is important for the following reasons (Belal, 1997).

1. It would aid the discharge of the organization's accountability and increase its environmental transparency.
2. It helps examining of the concept of environment and determining the company's relationship with the society in general and the environmental pressure groups in particular. This helps an organization in seeking to strategically manage a new and emerging issue with its stakeholders.
3. Companies may be successful in attracting funds from 'environmentalist' individuals and groups.
4. Companies producing environment-friendly products may take competitive marketing advantage.
5. Companies may show their commitments towards innovation and change by making environmental disclosures.
6. Environmental reporting may be used to combat potentially negative public options.

In order to make environmental awareness, World Environment Day is observed on June 5 every year. It is to be noted here that Government of Bangladesh (GOB) has already banned the manufacture of polythene bag to make pollution free environment, since 2003. Considering the above backdrop, the present study has been undertaken.

The major purpose of an environmental accounting system is its capability to assist in the understanding and management of potential tradeoffs between conventional economic development objectives and environmental goals as a tool of policy formulation. The theory of environmental management that has developed over the past three decades views the environment as a source of economic wealth whose value reflects the services provided to society by the environment. If these services were traded in conventional markets, they would presumably command a positive price, reflecting what society would be willing to pay for them, as well as their scarcity. With this theory in mind, and linking it with the conventional economic accounts, one approach is to define an additional economic sector, i.e., 'Nature', and to account for the non-marketed goods and services generated by this sector in a way that is similar to the treatment of

marketed goods and services generated by conventional sectors (Peskin, 2000).

Accountancy has traditionally measured financial resources, but must now find ways to monitor the use and value of environmental resources both in terms of the raw materials consumed, the damage inflicted upon the environment by commercial activity and the waste disposal service which the environment provides. The lack of accurate environmental measurement within the traditional accounting model means that environmental goods and services are often undervalued, which contributes to their misuse and explanation. With mounting natural calamities, the need for incorporating environmental costs (expenditure) in the financial statements of both multinational corporations and domestic enterprises and to introduce the concept of environmental accountability and have environmental costs appear in Board of Directors reports, financial statements and the auditors reports has been greatly felt. In the absence of comprehensive accounting standards in the area of environmental protection measures, it was not surprising that International Standards Accounting Review: 1989 found that both the quality and quantity of disclosure was quite limited. Generally, when information appeared, it was found in the board of directors' report rather than in the financial statements or the notes.

Environmental reporting is an important aspect of a company's information system for external communication. Many companies realize the value of voluntary reporting on company business environmental performance, in addition to financial results. Various stakeholders show an increasing interest in such information. An effective environmental report can help assure stakeholders of the company's strategy for continued financial success without affecting environment. Environmental accounting and hence reporting is thus a means of stakeholder communication.

In order to know the respondents' views regarding the need for EAR a total number of 40 Chief Accountants and Senior Accountants have been surveyed. Their responses are tabulated below:

Table 2

Environmental issues	opinions					WA S
	Highly essential	Essential	Neutral	Not essential	Not at all essential	
Need for EA	30 (75%)	5(12.5 %)	0	5(12.5 %)	0	4.5
Need for ER	32(80 %)	8(20%)	0	0	0	4.8

Source: Field survey

It is revealed from the above table that 75% of the total respondents opined in favor of highly essential of environmental accounting; only 12.5% of the

respondents opined in favor of need only for environmental accounting and the remaining 12.5% were not in favor of the need of environmental accounting. As regards the ER, 80% of the respondents were in favor of highly essential and the rest 20% were in favor of essential only. The WAS for need for EA has been calculated on 4.5 in the 5 Point Likert Scale. Again WAS for need for ER has been computed at 4.8 in the 5 Point Likert Scale. All these figures signify the strong need for EA and ER in the Financial Statement and Reporting practices of the selected companies.

*b) Awareness of respondents regarding EA and ER:*

After assessing respondents' views regarding the need for EAR, it is essential to measure the awareness of the respondents regarding EA and ER. To know the awareness of the respondents as regards EA and ER in their organization is of utmost important to examine how much gap exists between the need and awareness. The selected respondents were requested to give their opinion as regards awareness. The following table shows their responses in 5 point Likert Scale:

*Table 3*

Environmental issues	opinions					WAS
	Highly Aware	Aware	Neutral	Not Aware	Not at all Aware	
Need for EA	24(60 %)	12(30 %)	0	4(10 %)	0	4.40
Need for ER	30(75 %)	6(15%)	0	4(10 %)	0	4.55

*Source: Field survey*

It is observed from the above table that 60% of the total respondents opined in favor of highly aware of environmental accounting; only 30% of the respondents opined in favor of aware only for environmental accounting and the remaining 10% were not aware of environmental accounting. As regards ER, 75% of the respondents were in favor of highly aware, 15% were

aware only and the rest 10% were not aware of environmental reporting. The WAS for need for awareness of EA has been calculated on 4.40 in the 5 Point Likert Scale. Again WAS for need for awareness of ER has been computed at 4.55 in the 5 Point Likert Scale. All these figures signify the strong awareness of the accountants for EA and ER in the Financial Statement and Reporting practices of the selected companies.

*c) Position of environmental information in the Annual Reports:*

*i. Nature of Environmental Disclosures:*

On our careful observation of the Annual Reports of the selected companies for the financial year-2010 reveals the following nature of environmental disclosure in their respective Annual Reports:

1. Only qualitative disclosure of the environmental issues in the nature of descriptive information without their quantification.
2. Presenting positive environmental information ignoring negative information.
3. Some companies have showed environmental information either in the chairman/ Managing Directors' statement or in directors' report. Again some other companies have provided environmental information under the caption "Environmental Compliances" separately in their annual reports.
4. Participation of all national program of "Environmental Pollution Control" arranged by some of the selected companies.

*ii. Environmental Disclosure:*

One of the significant objectives of the study was to examine the position of environmental information in Annual Reports of the sample organizations. The previous section 5.3.1 has shown the nature of the environmental disclosures, whereas the present section 5.3.2 shows the picture of environmental disclosures.

*Table 4*

Sector Wise Selected Industries	Total No.	Expenditure in Energy	Waste Management	Tree Plantation	Environmental Protection	Future Strategy	Safety Related Measure
Pharmaceuticals	05 (100%)	5 (100%)	5 (100%)	5 (100%)	5 (100%)	5 (100%)	5 (100%)
Tannery	05 (100%)	5 (100%)	2 (40%)	02 (40%)	02 (40%)	1 (20%)	1 (20%)
Cement	05 (100%)	5 (100%)	3 (60%)	04 (80%)	02 (40%)	2 (40%)	2 (40%)
Ceramics	05 (100%)	5 (100%)	2 (40%)	03 (60%)	02 (40%)	1 (20%)	1 (20%)
Engineering	05 (100%)	5 (100%)	2 (40%)	03 (60%)	02 (40%)	1 (20%)	1 (20%)
Food& Beverage	05 (100%)	5 (100%)	2 (40%)	02 (40%)	02 (40%)	1 (20%)	1 (20%)
Textiles	05 (100%)	5 (100%)	2 (40%)	03 (60%)	02 (40%)	1 (20%)	1 (20%)
Fuel & Power	05 (100%)	5 (100%)	3 (60%)	04 (80%)	02 (40%)	2 (40%)	2 (40%)

*Source: Annual Reports-2010*

It is seen from the above table that disclosure of expenditure on energy uses is the only mandatory

environmental requirement in the annual report of the corporate firms in Bangladesh. Information on tree

plantation have been disclosed in Annual Reports of 100% Pharmaceuticals industries, 80% of Cement industries and Fuel & power industries, 60% of Ceramics and Engineering and 40% of Textiles sectors, Food & Beverage industries and Tannery industries.

As regards Environmental Protection, the table shows that 100% Pharmaceuticals industries and 40% Fuel & Power industries, Textiles industries, Cement industries Tannery industries, Food & Beverage industries, Ceramic industries and Engineering have mentioned about environmental protection in their Annual Reports.

About waste management 100% Pharmaceuticals, 60% of Cement and Fuel & Power industries; 40% Food & Beverage industries, Textiles

industries, Engineering, Ceramics and Tannery industries have disclosed information in their Annual Reports.

In the above table it is clearly seen that except 100% Pharmaceutical industries all the industries disclosed few information regarding Future Strategy and Safety Related Measure in their Annual Reports.

*d) Problems involved in EA & ER Practices:*

One of the important objectives of the present study has been to identify the major problems involved in EARP in the selected companies. To this end our respondents were requested to mention the major problems of EARP. The following table shows the specific problems identified by the respondents:

Table 5

Specific problems:		Frequency	Percentage (%)
<b>A:</b>	<b>Legal problems:</b>		
1.	Lack of provision regarding EAR in the Companies Act-1994.	40	100%
2.	Lack of provision in the National Environmental Management Action Plan regarding EAR.	30	75%
3.	Lack of provision in the SEC Act regarding EAR	24	60%
4.	Lack of provision in Income Tax Ordinance -1984 regarding EAR.	32	80%
5.	Lack of professional guidelines regarding EAR.	20	50%
<b>B</b>	<b>Organizational problems:</b>		
6.	Lack of policies and management support regarding EAR practices.	40	100%
7.	Shortage of qualified and trained staff in Accounts Department.	32	80%
8.	Conflict with business motivation with EAR objectives	16	40%
<b>C.</b>	<b>Individual Level problems:</b>		
9.	Lack of knowledge and training of the Accounts Department staff on EAR.	32	80%
10.	Lack of favorable attitude of the Accounts Department staff regarding EAR.	22	55%

It is revealed from the above table that the problems: "Lack of provision regarding EAR in the Companies Act-1994" and "Lack of policies and management support regarding EAR practices" were identified as the top most problems of EARP which have been identified by 100% respondents. The next important problems are: "Lack of provision in Income Tax Ordinance -1984 regarding EAR", "Shortage of qualified and trained staff in Accounts Department" and "Lack of knowledge and training of the Accounts Department staff on EAR" which were identified by 75% respondents. The next important problems are: "Lack of provision in the SEC rules regarding EAR" as identified 60% respondents; "Lack of favorable attitude of the Accounts Department staff regarding EAR." as

identified by 55% respondents; "Lack of professional guidelines regarding EAR" as identified by 50% respondents and last problem namely "Conflict with business motivation with EAR objectives" has been identified by 40% respondents. Therefore, it can be said that all the selected companies have been facing the above mentioned problems of EAR practices in their respective organizations.

*e) Suggestions to overcome the problems:*

The selected respondents were also requested to suggest some measures as to overcome the above mentioned problems of EAR practices in their organization. Their suggestions are tabulated below:

*Table 6* : showing the suggestions of the respondents to overcome the problems:

Specific Suggestions:		Frequency	Percentage (%)
<b>A: As to overcome Legal problems:</b>			
1.	Inclusion of provision regarding EAR in the Companies Act-1994.	40	100%
2.	Inclusion of provision in the National Environmental Management Action Plan regarding EAR.	40	100%
3.	Making provision in the SEC Rules regarding EAR	32	80%
4.	Making provision in Income Tax Ordinance -1984 regarding EAR.	32	80%
5.	Existence of professional guidelines regarding EAR.	30	75%
<b>B As to overcome Organizational problems:</b>			
6.	Provision should be made regarding EAR in the organizational policies and management support.	32	80%
7.	Availability of qualified and trained staff in Accounts Department.	30	75%
8.	Removal of conflict of EAR objectives with business motivation.	20	50%
<b>C. As to overcome individual problems:</b>			
9.	Continuous job training should be given to the Accounts Department staff regarding EAR.	40	100%
10.	Attitude of the Accounts Department staff regarding EAR should be made positive.	20	50%

The above table reveals that 100% of the respondents have put forward the following suggestions as to overcome the problems of EAR practices:

1.	Inclusion of provision regarding EAR in the Companies Act-1994.
2.	Inclusion of provision in the National Environmental Management Action Plan regarding EAR.
9.	Continuous job training should be given to the Accounts Department staff regarding EAR.

Again the following suggestions have been offered by 80% respondents

3.	Making provision in the SEC Act regarding EAR
4.	Making provision in Income Tax Ordinance -1984 regarding EAR.
6.	Provision should be made regarding EAR in the organizational policies and management support.

Again the following two suggestions are made by 75% respondents

5.	Existence of professional guidelines regarding EAR.
7.	Availability of qualified and trained staff in Accounts Department.

Lastly, the following suggestions have been given by 50% respondents

8.	Removal of conflict of EAR objectives with business motivations.
10.	Attitude of the Accounts Department staff regarding EAR should be made positive.

From the above discussions it can be said that all the above suggestions put forward by the respondents demand special attention of the appropriate authority in order to improve the EAR practices in the selected companies.

## VI. RECOMMENDATION & CONCLUSION

This study has examined the EAR practices in Bangladesh. It is encouraging to note that a developing country such as Bangladeshis making efforts to experiment with this new area of corporate reporting. In conclusion, it may be said that the efforts made by the Bangladeshi companies to make environmental

disclosures are noteworthy and deserve appreciation, but it is observed that in most cases the quantity and quality of disclosures were less satisfactory and poor. The following are the recommendations based on the findings of the study:

1. This study indicated that the Companies have already given much effort in the field of environmental protection. However, the current accounting system does not reflect such efforts for its stakeholders. So, Companies should take the initiative showing such activities in their accounts.
2. Environmental expenditures incurred by companies should be classified into capital expenditures [e.g.,

- Purchasing a new Recycling Machine, Tree plantation, Soil remediation] and operating expenditures [e.g., annual operating and maintenance cost of the Recycling Machine, annual operating and maintenance cost of the Tree plantation].
3. Regulatory bodies should develop a standard to guide the practices of Environmental Accounting and Reporting.
  4. Research and studies should be encouraged in the field of Environmental Accounting and Reporting.
  5. Companies should maintain the provision for environmental liability.
  6. Companies should show data on environmental expenditure, environmental costs charged to income in the notes to the accounts in their annual reports.
  7. Companies should show fines and penalties paid by the company, environmental liabilities of the company, environmental provisions, and environmental costs capitalized in the notes to the accounts in their annual reports.

## VII. DIRECTIONS TOWARDS FURTHER STUDY

Additional research may be directed into areas such as the following: (i) a comprehensive study is necessary, covering a number of years to draw valid conclusions about the underlying trends and techniques of EAR practices in Bangladesh; (ii) it is believed that a comparative study of EAR practices in South Asian countries (including Bangladesh, India, Pakistan and Sri Lanka) will shed more light on EAR in this region; (iii) a study identifying the users of EAR and examining their perceptions about EAR in Bangladesh may be considered worth-while and needs urgent attention of future researchers and (iv) the role, if any, played by the professional bodies in the development of EAR in Bangladesh should be elucidated.

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# The Factors Influencing Consumers' Satisfaction and Continuity to Deal With E-Banking Services in Jordan

By Dr. Mahmud Jasim Alsamydai, Dr .Rudaina Othman Yousif &  
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**Abstract** - The current study examines the factors affecting customer satisfaction for the continuation in dealing with electronic (e-banking) services. For this purpose, a model has been designed for the study, which included a number of variables which were identified based on an investigation and examination of the environment of commercial banks in Jordan. The study's constructs were divided into five dimensions including E- banking service quality, personal factors, perceived usefulness, customer satisfaction, and continuity to deal with E banking services. Five hypotheses were developed based on the dimensions of the study as well as the relevant literature. In addition, the sixth hypothesis was added to measure the correlation between different constructs of the study's model. In order to collect the data required for examining the hypotheses and reaching conclusions, a questionnaire, consisting of (16) questions covering the dimensions and the hypotheses of the study, was designed. The design and development of this questionnaire was based on an initial pretested survey distributed to a sample consisting of 40 customers of Jordanian banks. The initial survey was also pretested and evaluated by a panel of experts in marketing, banking and IT specialists in order to assess the items within each construct. The questionnaire was then distributed to customers of commercial banks in Amman. Data collection resulted in 441 usable surveys for subsequent analysis. Overall, the findings provided support for the model of the study. All the hypotheses regarding the impact of the factors included in the study on customer satisfaction and continuity in dealing with E- banking services were supported. Moreover, the results of the study indicated that there is a significant relationship between all constructs of the study's model. These results indicated that the factors relating to E-banking service quality, personal factors and perceived usefulness have an influence on consumer satisfaction and continuation in dealing with E-banking services.

**Keywords :** E-banking, service quality, personal factors, Perceived Usefulness, Customer Satisfaction

**GJMBR-A Classification:** FOR Code: 150501 JEL Code: D12, P36



*Strictly as per the compliance and regulations of:*



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**Keyword** : E-banking, service quality, personal factors, Perceived Usefulness, Customer Satisfaction.

## I. INTRODUCTION

With the rapid growth of the Internet and the globalization of the market, most companies are attempting to attract and retain customers

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in the highly competitive electronic market. Electronic service (e-service) is becoming increasingly significant not only in identifying the success or failure of electronic commerce (e-commerce) function, but also in providing customers with a convenient and interactive service (Santos, 2003; Zhilin & Fang, 2004). In addition, customers now demand new levels of convenience and flexibility in addition to powerful and easy services that traditional means can not offer. As such, companies shifted their focus to e-service in their complete transaction process in pre and post-transaction stages (Cristobal, Flavian & Guinaliu, 2007). Such shift implies that understanding how customers perceive and evaluate e-service quality is vital for companies to succeed in the marketplace.

With a particular focus on e-services within the banking industry, the development in information technology has considerably influenced the development of more efficient banking services. The internet provides an efficient delivery way, through which customer banking services can be delivered more conveniently and economically (Gkoutzinis 2006). That is, E-banking is an improvement over the traditional banking system because it has reduced the cost of transaction processing, improved the payment efficiency, financial services and improved the banker-customer relationship. Similarly, Qureshi et al (2008) contended that the core reason of moving into the adoption of E-banking services is perceived usefulness, perceived ease of use, security and privacy enhanced by online banking. This has motivated national, international and global banks to offer E-banking services to their customers.

Different terms have been used to define E-banking, such as 'internet banking', and 'online banking'. However, despite its different labels, E-banking indicates the use of the internet and information technology as the delivery channel to conduct banking activities, for example, transferring funds, paying bills, viewing checking and savings account balances, applying for credit cards, transferring money and paying mortgages (Centeno, 2003; Gkoutzinis, 2006; Khan, 2007; Kim et al., 2006). Specifically, E-banking is where a customer can access his or her bank account via the

internet using personal computer or mobile phone and web-browser (Arunachalam & Sivasubramanian, 2007). Importantly, as the service delivery process in E-banking differs significantly from that in the traditional banks' environment mainly because of the lack of direct contact between the employees and the customers, the dimensions for defining e-service quality in E-banking become crucial.

Not only so, E-Banking services, in most developing countries, according to Wungwanitchakorn (2002), are still in its early stages. That is, if banks are to obtain the benefits of E-banking, an identification of how the service is perceived by potential consumers and their characteristics as well as the factors affecting their level of satisfaction and continuity to deal with such services is crucial. As Ribbink, *et al.* (2004) identified the importance of electronic customer satisfaction when conducting business online and stated that satisfaction is likely to be even more important online as well as their continuation to deal with such services. To do so, Methlie and Nysveen (1999) suggested that banks should try to enhance customers' satisfaction with e-banking services, and this can be achieved through delivering high e-service quality. That is, delivering high e-quality services requires an understanding of the e-service quality dimensions, and trying to improve the quality of the services, so that customers' satisfaction is assured. It is also important to understand the personal factors related to the customers such as their needs, experiences, habits, and knowledge as well as perceived usefulness which have an influence on customers' satisfaction with e-banking services, which leads to a continuity in dealing with such services. Interestingly, despite the importance and steady growth of e-banking services in Jordan, scant research attention has been given to the factors influencing customers' satisfaction and continuation in dealing with e-banking services in Jordanian commercial banks. More specifically, an exploration of e-banking services and the factors influencing customers' satisfaction and continuity in dealing with such services, within the Jordanian banking sector, has not been examined previously, further research in this area is warranted.

## II. RESEARCH QUESTIONS

E-banking services are facing many difficulties and problems particularly in the developing countries. Essentially, these problems are related to those customers who are dealing with such services and their level of satisfaction with E banking services. Despite the great development of the infrastructure of Jordanian banks, which is mainly based on the adoption of E banking services, such E banking services are still to be considered in its infancy.

The current study will be focusing on identifying the various factors influencing customers to deal with E

banking services in Jordan. As such, the following research questions were considered worthy of investigation:

1. Do the factors concerning the nature of electronic banking services have an impact on the customers' dealing with the electronic banks?
2. Do personal factors have an impact on the consumers' dealing with E banking services?
3. What is the level of consumers' perception of the usefulness of dealing with E banking services?
4. What is the level of customer's satisfaction in dealing with E banking services?
5. Does the level of consumer's satisfaction lead to continuity in dealing with E banking services?

## III. RESEARCH OBJECTIVES

The preceding discussion provides a brief overview of E banking and highlights the need to further our understanding of this particular area of E banking services in the context of customer satisfaction and continuity in dealing with such services. Therefore, the following research objectives were considered worthy of exploration:

1. To explore the impact of the factors related to E service quality on customers' satisfaction and continuity in dealing with E banking services.
2. To determine the impact of the personal factors on customers' satisfaction and dealing with E banking services.
3. To identify the perceived usefulness of dealing with E banking services.
4. To determine the level of customer satisfaction and its impact on the continuity in dealing with E banking services.
5. To examine the correlation between the different focal constructs in the model of the study.

## IV. STUDY MODEL

Within the marketing literature, the concept of E-banking and Internet banking as well as the factors affecting consumers' acceptance and usage of E-banking services and consumers' loyalty to such services have received considerable attention by several researchers (for example, Josee 1998; Fue *et al.*, 2009; Beh & Faziharadeen, 2010; Pham, 2010; Xin 2009; Hernan *et al.*, 2009; Malek, 2011; Manoranjan *et al.*, 2011). Based on these studies as well as the results of the pre-test of a survey distributed to 40 Jordanian customers, and taking into consideration the various marketing environment factors related to the banking sector in Jordan, the study model was developed which has conceptualized the focal constructs, that is, the factors influencing customers' satisfaction and continuity to deal with E banking services in Jordan.

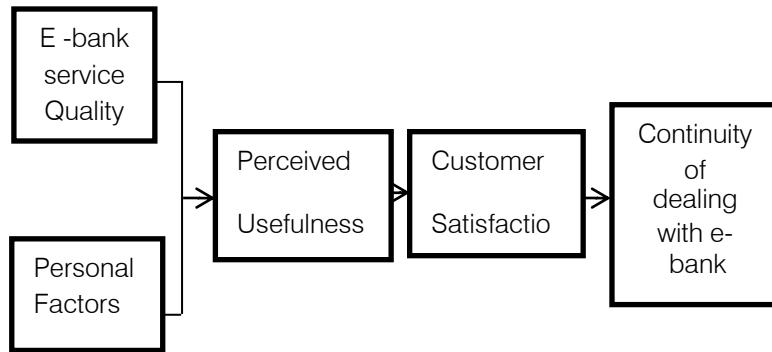


Figure 1 : Study model

Procedural definitions of the components of the study model:

*a) E-Banking Concept:*

The term (E-Banking) or (I-Banking) is used to express the concepts that have emerged in the early nineties of the last century such as (Remote Electronic Banking), (Home Banking), (Online Banking) and (Self-Service Banking). All these concepts refer to a basic mutual point, namely that the customer manages his financial affairs, bank accounts, and any financial and banking services that he wants to receive from the bank, from his office, home or anywhere whatsoever at any time (Alsamydai & Rudaina, 2005). Therefore, (E-Banking) is a comprehensive expression of all the concepts through which banks provide financial services electronically (Al -Ani, 2005). Similarly, in his definition of (E-Banking), (Rupa, 2003) states that in simple words e-banking implies provision of banking's products and services through electronic delivery channels.

Electronic banking facilitates the customers' access to their accounts and executing transactions electronically in an easier way through visiting the bank websites at any given time. In utilizing this facility, individuals and companies are saving a lot of their time and money. Some banks indeed provide this facility free of charge while some banks have lowers the costs for online transactions as compared to real life banking transactions (Karjaluoto *et al.*, 2002). All the banking power is provided to the customers in allowing them to fulfill their different banking needs, so with the online services customers can facilitate themselves by a number of ways: they can view their account details, review their account histories, payment and transfer funds, order and re-order cheques, pay utility bills, get loans by filling the loan application form online, activate or replace credit cards and get in touch with the customer care department (Amor, 1999).

*b) Service quality*

Service quality, in the context of offline and online services, has received considerable attention within the literature. Generally, service quality has been identified as consumers' comparison between service expectation and service performance (Parasuraman *et al.* 1985), as well as the subjective comparison that

customers make between the quality of service that they wish to receive and what they actually get (Gefen, 2002). Research into the importance of service quality within the banking industry identifies service quality as a critical factor in influencing satisfaction (Blanchard & Galloway, 1994; Grönroos, 2000; Hume & Mort, 2008; Lovelock & Wirtz, 2007; Zeithaml & Bitner, 2006), profitability (Heskett, Sasser & Schlesinger, 1997; Hinson, Mohammed, & Mensah, 2006) and a key indicator of companies competitiveness (Kotler & Keller, 2006; Grönroos 2001; Voss, 2003; Voss, *et al.*, 2004). Taking this point further, service quality is considered as a competitive tool which is crucial for corporate profitability and survival (Newman & Cowling, 1996; Rosen, Karwan, & Scribner, 2003; Lewis & Pescetto, 1996).

Service quality is determined by the total utility received by the beneficiary of the service. This represents the benefits package that he receives from the core and supplementary services. The consumer assesses the service quality by comparing his perceived mental image of the service which he constituted from information obtained via promotions, personal experiences, and the experiences of friends, family and all those around him, with the level of satisfaction that he receives. As failing to achieve the required satisfaction will prompt consumers to abstain from purchasing the service and to purchase services provided by the competition, service quality is correlated with the organization's service capability of achieving a level of customer satisfaction that surpasses his expectations (Alsamydai and Rudaina 2005). (Dee 2009) indicates that the concept of service quality is centered around the benefits obtained by the consumer of the service, while (Berry *et al* 1995) find that service quality depends on the current and past experiences of the customer with the services that benefited him, which is the main principle in evaluating the service based on the perceived quality of the service. Furthermore, the more satisfaction is achieved; the more the mental image will be enhanced, thus encouraging individuals to repeated purchases (Alsamydai and Rudaina 2003). Repeated purchases are the result of the total utility received by the consumer which determines the service quality from the viewpoint of the consumer.

Moving to the online context, research has identified E-service quality as a web-based service or an interactive service that is delivered on the internet (Ghosh et al., 2004; Zeithaml et al., 2000), and the overall customer assessment and judgment of e-service delivery in the virtual marketplace (Santos, 2003; Rowley, 2006). Past research on e-service quality suggested that one of the reasons for the increase importance of e-services quality is that over the Internet, it is much easier for customers to compare different service offerings than through traditional means (Santos, 2003). That is, customers of online services expect equal or higher levels of service quality than the customers of traditional services (Cronin, 2003; Santos, 2003).

Regarding the dimensions and aspects of service quality, many previous researchers such as Grönroos (1988) and Parasuraman et al. (1988) have proposed various conceptualizations of the service quality construct which has resulted in different instruments for measuring service quality. For example, Parasuraman et al. (1985, 1988) proposed the most popular and widely used service quality model, in the traditional context, which is consisted of five dimensions, that were later adapted and confirmed to suit the online context by (Xin and Li, 2009) and those dimensions are considered most suitable to be used for the current study. These five dimensions are: Tangibles, Empathy, Assurance, Reliability, and Responsiveness: Tangibles are the physical facilities, equipment, and appearance of the website and web applications that provide and deliver the service. Empathy refers to the caring, individualized attention that the Internet firm provides its customers with through its website. Assurance means the helps and safeguards on the website to inspire trust and confidence. Reliability is the technical capability to perform the promised service dependably and accurately, and Responsiveness refers to willingness of the Internet firm and technical capability to help customers and provide prompt service.

#### c) Personal Factors

A review of the offline and online service quality and customer satisfaction literature has revealed that a range of personal related factors including customers' needs, knowledge, experience, habit and trust have an impact on customer satisfaction and behavioral outcomes (Laforet and Li, 2005 ; Servon, & Kaestner, 2008). For example, a considerable amount of knowledge and expertise is required to enhance consumers' use of e-banking services. According to Al-Ghamdi (2009), consumers' experiences may influence trust when they purchase products or services online. In this context, consumer may not quickly adopt e-banking due to a lack of understanding and knowledge about this technology (Corritore, Kracher & Wiedenbeck, 2003). In the same vein, Gerrard,

Cunningham, & Devlin (2006) found that customers who have never purchased products over the Internet were more likely to continue to use traditional banking services. Karjuoto et al. (2002) contended that prior computer experience, prior technology experience, and prior personal banking experience positively affect consumers' attitude and behaviors towards online banking. In addition and as mentioned previously, trust and habit were found to have a significant influence on customer behavioral outcomes (Beh & Faziharudean, 2010). That is, trust is seen as an important factor supporting a positive view of internet banking service quality (Altintas & Gürsakal, 2007).

#### d) Perceived usefulness

The importance of perceived usefulness has been widely recognized in the field of electronic banking (Guriting & Ndubisi, 2006; Eriksson et al., 2005; Laforet & Li, 2005; Polatoglu & Ekin, 2001; Liao & Cheung, 2002). According to these studies, perceived usefulness is the subjective probability that using the technology would improve the way a user could complete a given task. According to the TAM, perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. In particular, Davis (1993) defined perceived usefulness as the individual's perception that using the new technology will enhance or improve her/his performance. Gerrard and Cunningham (2003) noted that the perceived usefulness depends on the banking services offered such as checking bank balances, applying for a loan, paying utility bills, transferring money abroad, and obtaining information on mutual funds.

Extensive research has proved the significant effect of perceived usefulness on attitude, behavior and intention (Davis et al., 1989; Venkatesh & Davis, 1996, Venkatesh, 2000; Venkatesh and Morris, 2000). There is extensive evidence emphasizing the significance of impact of perceived usefulness on adaptation intention (Chen & Barnes, 2007; Guriting & Ndubisi, 2006; Eriksson et al., 2005; Hu et al., 1999; Venkatesh, 2000; Venkatesh & Davis, 1996; Pikkarainen et al. 2004; Venkatesh & Morris, 1996). Particularly, Tan & Teo (2000) suggested that the perceived usefulness is an important factor in determining adaptation of innovations.

Many other empirical studies have consistently identified perceived usefulness as a primary factor that influences information system use (Davis, 1989; Subramanian, 1994; Szajna, 1996). Moreover, many researches reaffirmed that perceived usefulness is an important indicator for the technology acceptance (Davis, 1993; Taylor & Todd, 1995). That is, an individual evaluates the consequences of their behavior in terms of perceived usefulness and their behavioral choices are based on the desirability of the perceived usefulness.

Therefore, perceived usefulness will influence their intention to accept and use e-banking services. This is in line with Chau and Lai's (2003) study which has examined the contributing factors towards consumer's adoption of internet banking and found that perceived usefulness was found as an important factor in fostering a positive attitude towards accepting the internet banking services.

*e) Customer satisfaction*

The term customer satisfaction is used frequently by workers in the marketing field to measure the extent of the organization's ability to provide products that meet or surpass the consumer's expectations, so as to identify the possibility of his repeated purchase of its products in the future. In general, the term consumer satisfaction is utilized in signifying the consumer's feelings towards the organization and its products. (Paul et al 2010) indicate that customer satisfaction can be defined as ' the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals. While (Kotler 2006) defines satisfaction as: a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations, and additionally suggests that the degree of customer satisfaction is the key to the success of the marketing strategy. (Alsayyad and Rudaina 2006) argue that the degree of satisfaction represents the difference between what the product achieves regarding the satisfaction of the customer after acquiring it and benefiting from it, and what he had expected to benefit from it before acquiring it. The more the customer satisfaction meets or surpasses the raised need, the higher the degree of satisfaction. Therefore, customer satisfaction of services is achieved by the supplication of core and supplementary services that are to his satisfaction, which is only accomplished through the organizations' accurate identification of the needs and desires of the consumers and working to meet them ( Alsayyad and Rudaina 2003).

As customers face a growing range of products and services, their choices are mainly determined based on their perception of quality, service and value, thus, companies need to understand the determinants of customer satisfaction. That is, increased customer satisfaction leads to behavioral outcomes such as commitment, loyalty, intention to stay and post-purchase behavior (Newman, 2001). Since most companies seek to satisfy customers by meeting their requirements, it is essential for banks that offer E-banking services to regularly and consistently measure the degree of satisfaction of their customers. As customers use the E-banking services, it might be that they are not satisfied, to some extent, with certain

dimensions of the service quality. For this reason, this research examines customer satisfaction with various service quality dimensions.

*f) Continuity to use E banking services*

Literature review has indicated that during the past decade most research regarding online banking highlighted on initial adoption (i.e., factors of attracting customers to bank online and barriers of deterring people to bank online) and only few literature studied continuity of using online banking services. As firms obtain their profits largely from customers continuously using their services in the market of Internet-based services, and little previous research focused on the continuity of using online banking services, it is considered crucial to examine such factor in the context of e-banking.

## V. HYPOTHESES OF THE STUDY:

Based on the objectives of the current study as well as the study's model, the hypotheses of the study are formulated and divided into two categories; which are:

The first category: The effect of the study's variables on the continuity to deal with E banking services:

H1: Different e service quality dimensions have an influence on perceived usefulness, customer satisfaction and continuity to deal with e banking services.

H2: The personal factors have an influence on perceived usefulness, customer satisfaction and continuity to deal with e banking services.

H3: Perceived usefulness has an influence on customer's satisfaction and continuity to deal with e banking services.

H4: Customer satisfaction has an influence on customers' continuity to deal with e banking services.

H5: Continuity to deal with e banking services is influenced with both e service ease of use as well as the saving in cost and time as a result of using e banking services.

The second category: An examination of the constructs of the model of the study:

H6: There is a significant relationship between the constructs of the study's model (E service quality dimensions, personal factors, perceived usefulness, customer satisfaction, and continuity to deal with e banking services).

## VI. METHODOLOGY

*a) Data source*

The current research methodology is mainly based on two sources of data collection which are:

1. Secondary sources which are related to data and information obtained from the existing literature and previous studies related to the topic of the research in order to advance our understanding and assist in developing the study's model as well as the questionnaire's design and development.
2. Primary source which is related to data collection through the development and design of an initial questionnaire that was distributed to a sample of 40 Jordanian customers of commercial banks in order to determine the appropriateness of the instrument and limit and identify the most relevant items to be included in the final questionnaire. Based on the pre-test results, the final survey instrument was examined by a consulting panel of marketing, banking and information systems experts in order to assess the validity of the items within each constructs. At that point, the survey instrument was developed and pilot tested on a small sample. Following these procedures, the final version of the questionnaire comprised 16 items to measure the major constructs of the study.

*b) The scale and Dimension*

The process of scaling is an essential tool in almost every marketing research situation (Malhotra et al., 2004) and is most commonly used for assessing how people feel or think about objects or constructs (Neuman, 2003). Having taking into consideration the criteria for selecting a scaling technique, for example, information needed by the study and the characteristics of the respondents as well as the mode of administration (Alvin et al, 2003), the five point Likert scale was chosen for the current study. Therefore, all the focal constructs of the current study were measured on a five point Likert scale ranging from "To a very great extent" to "To a small extent".

In addition, this study was divided into five dimensions relating to the different components of the model of the study.

- Dimension (1): The E-Banking services quality.
- Dimension (2): The personal factors.
- Dimension (3): The perceived usefulness.
- Dimension (4): The customers' satisfaction.
- Dimension (5): The continuity of dealing.

*c) Analyzing method*

Several statistic techniques were used including Cronbach's alpha, frequency analysis, descriptive analysis, one-simple t-test. The t-test was used to accept /reject the hypotheses (group) through testing the average mean of single sample, based on the value of scale midpoint, the higher the value the more favorable the attitude, and the vice versa.

A midpoint equal to 3 was chosen by adding the lower coded value of the Likert scale (1) and the upper code (5) of the Likert scale all were used the

spearman's correlation coefficient for testing the hypotheses (groups). The question Nance includes (16) question, and by using a Likert scale

## VII. LITERATURE REVIEW

As an aim of the current research is to understand the factors that influence customer satisfaction as well as continuity to deal with e banking services, the literature related to service quality and customer satisfaction relating to online and offline services was reviewed. Service quality, in particular, in the context of offline and online banking services, has received considerable attention within the literature. This revision revealed that there is a strong relationship between service quality and perceived value with customer satisfaction and loyalty ( Grönroos, 1998, 2001; Dabholkar, Shepherd, & Thorpe, 2000). Indeed, it was found that the relationship between quality of service and customer satisfaction was very strong (Parasuraman et al, 1985; 1988). That is, the higher level of perceived service quality leads to higher customer satisfaction (Jain and Gupta, 2004). For example, Josee (1998) identified a strong relationship between reliability of the banking services and customer satisfaction. It was also found that empathy and customer contacts have an indirect effect on loyalty via satisfaction and service quality. Similarly, Nadiri et al. (2009) confirmed the previous findings and determined that the higher levels of bank service quality may satisfy and develop attitudinal loyalty which ultimately retains valued customers.

In a similar vein, and moving to the online context, several studies found that there is a strong relationship between e banking service quality and customer satisfaction with such service ( Pham, 2010; Khalifa & Liu, 2002; 2003; Khalifa & Shen, 2005; Shneiderman, 1998; Saha & Zhao, 2006; Chou & You, 2005). For example, a number of researchers found that specific website e-services can positively affect customer satisfaction with website and online purchasing in the long run ( Khalifa & Liu 2002, 2003; Khalifa & Shen, 2005). Moreover, Shneiderman (1998) found a positive relationship between the subjective satisfactions of a user from the use of information technology. That is, a user's subjective satisfaction is influenced by different perceived quality characteristics of the technology, such as ease of use and perceived usefulness. In addition, a research conducted by Feinberg, Khalifa & Liu (2002) and the research on Internet banking by Saha & Zhao (2006) clearly concluded that some dimensions of e service quality are positively correlated with e customer satisfaction. In particular, security and site aesthetics of e service quality were positively correlated with the e customer satisfaction (Chou & You (2005). Such findings have been extended by Saha & Zhao's (2006) study whereby

other e service quality dimensions such as efficiency, reliability, responsiveness, fulfillment, privacy, technology update and technical support were found to have a strong impact on customer satisfaction within the Internet banking context. Alternatively, in another study conducted by Khan & Mahapatra (2009) for the purpose of exploring the service quality of e banking from the perspective of Indian customers; it was observed that customers are satisfied with the quality of the service on four dimensions including reliability, accessibility, privacy/security, responsiveness and fulfillment but least satisfied with the user-friendliness dimension.

Many other researchers have focused on the customer's perception and acceptance of internet banking services (Broderick & Vachirapornpuk, 2002 Joseph & Stone, 2003; Lang & Colgate, 2003; Xin & Li, 2009) identifying customer perception of the impact of technology on service delivery in the banking sector as an important determinant of customer satisfaction. For example, Joseph & Stone (2003) contended that "...high scores on the ability to deliver service via technology appear to be correlated with high satisfaction with services deemed most important to customers". Therefore, availability of online banking services seems to be very important for banks for customer satisfaction and retention ( Mols, 2000; Jun & Cai 2001; Polatoglu & Ekin, 2001; Shih & Fang 2004). However, Lang and Colgate (2003) mention that availability of internet banking services itself is not a sufficient factor to increase customer satisfaction as they found that user friendliness of the internet banking services plays a stronger motivational role for customers to use these services which in turn has been disconfirmed by Khan & Mahapatra (2009). Similarly, Xin & Li (2009) demonstrated that customers' perceptions of both technological attributes and service attributes of an Internet banking services have impacts on their intention to use the service. Beh & Faziharudean (2010) found that trust, habit and reputation have a significant influence on customer loyalty. They also found that service quality was considered as an important factor in influencing the adoption of online banking services.

In conclusion, the perceived service quality can be viewed as a concept for the understanding of how to develop services; whereas customer satisfaction is a concept for the evaluation of how successfully these services are fulfilling the needs and desires of customers" (Grönroos, 1998). For this reason, and based on the above discussion, e-service quality, personal factors including (personal experience, knowledge, habit, trust), perceived usefulness were determined as major factors affecting customer satisfaction and continuity to deal with e banking services in Jordan.

## VIII. RESULTS

### a) Test of reliability

A reliability coefficient of (Cronbach's' Alpha) 70% or higher is considered "acceptable "in most social science research. The result of this test in the current study is 86% as table (1).

N of cases	Cronbach's 'Alpha	N of items
441	.86	16

Table 1 : Reliability coefficients

### b) The characteristics of the study sample.

The table (2) describes the characteristics of the study sample according to the indicators of gender, age, scientific, qualification, and job.

Characteristics		Frequency	Percent
Gender	Male	229	51.9
	Female	212	48.1
Age	18-24	151	34.2
	25- 31	178	40.4
	32- 38	98	22.2
	39-45	13	2.9
	46 and more	1	.2
Social	Unmarried	286	64.9
	Married	149	33.8
	Other	6	1.4
ED	Baccalaureate	182	41.3
	191		43.3
	B.A	53	12
	Diploma	15	3.4
	Post-graduated		
Prof	Free business	67	15.2
	92		20.9
	Public sector	182	41.3
	employees		
	A private sector	91	20.6
	employee	9	2.0
	Student		
	Out of work		

Table 2 : The characteristics of the study sample

### c) Results general

By using descriptive analysis it was determined that the mean of all questions are over the midpoint (3) except for the questions ( 1,5,9,10 ) this results show in the table ( 3 ) .

Questions	Mean	Std. Dev.	T	Sig. (2-tailed)
First dimension: the E-banking services quality	---	--	--	--
1-. To what extent do	2.73	1.29	-4.27	0.000

tangibles affect your dealing with e banking services				
2- To what extent does reliability affect your dealing with e banking services	3.53	1.06	10.54	0.000
3- To what extent does responsiveness affect your dealing with e banking services	3.47	1.23	8.104	0.000
4- To what extent does assurance affect your dealing with e banking services	3.41	1.20	7.17	0.000
5- To what extent does empathy affect your dealing with e banking services	2.70	1.19	-5.19	0.000
Second dimension: Personal factors				
6- To what extent does your personal needs affect your dealing with e banking services	3.72	1.14	13.27	0.000
7- To what extent does your personal experience affect your dealing with e banking services	3.85	1.04	17.16	0.000
8- To what extent does trust affect your dealing with e banking services	3.43	1.23	7.33	0.000
9- To what extent does habit affect your dealing with e banking services	2.32	1.29	-10.98	0.000
10- To what extent does your personal knowledge about e banking services affect your dealing with such services	2.85	1.34	-2.30	0.002
Third dimension: Perceived Usefulness				
11- To what extent does perceived usefulness affect your satisfaction to deal with e banking services	3.54	1.05	10.90	0.000
12- To what extent does perceived usefulness affect your dealing with e banking services	3.3	1.15	6.56	0.000
Fourth dimension:				

Customer satisfaction				
13- To what extent is your satisfaction with e banking services	3.67	1.19	11.82	0.000
14- To what extent does your satisfaction with e banking services influence your intention to continue to use e banking services	3.22	1.20	3.95	
Fifth dimension: Continue to use				
15- is your continuity to deal with e banking services a result of their ease of use	3.20	1.46	2.92	0.04
16- is your continuity to deal with e banking services a result of you being loyal to e banking services	3.47	1.32	7.56	0.000

*Table 3:* Descriptive statistics and one-sample t-test*d) Testing Hypothesis*

The first category : test results of first set of hypothesis of the study are shown in table (4) statistical analysis of this table illustrates the overall mean score of respondent which measures the dimensions (D1, D2, D3, D4, and D5) that correspond to the first hypotheses .The mean values of these are ( H1=4.31, H2= 6.67 , H3 10.66, H4=9.15 and H5 = 6.33 ) . These values are above the scale midpoint (3) with the standard deviation showing small dispersion this mean moreover.

These result were further validated by one-sample t-test, which revealed that the overall mean difference for these dimensions as whole was statistically significant ( N=0.000 ) at ( Ns=0.05 ) with height T-value ( H1=4.31 , H2= 6.67 , H3 10.66, H4=9.15 and H5 = 6.33 ) these scores are bigger than tabular (tabular t= 1.96) . As a result of the five hypotheses are accepted, this results show in the table (4)

		Test value =3			
The hypothesis		Mean score	std. dev	T value	s.g N
H1: Different e service quality dimensions have an influence on perceived usefulness, customer satisfaction and continuity to deal with e banking services		3.17	.84	4.31	0.000
H2: The personal factors have an influence on perceived usefulness, customer satisfaction and continuity to deal with e banking services		3.23	.74	6.67	.000
H3: Perceived usefulness has an influence on customer's satisfaction and continuity to deal with e banking services		3.46	.89	10.66	0.000
H4: Customer satisfaction has an influence on customers' continuity to deal with e banking services		3.45	1.03	9.15	0.000
H5: Continuity to deal with e banking services is influenced with both e service ease of use as well as the saving in cost and time as a result of using e banking services		3.34	1.13	6.33	0.000

Table 4 : Testing hypothesis first category

The second category: It test the constructs of the study model .In order to test the relationship between the components of the study model, Spearman' correlation coefficient was adopted and hypothesis (H6) was developed .There is a significant relationship between the constructs of study' model ( E-service quality ,personal factors , perceived usefulness, customer satisfaction, and continuity to deal with banking services), results of the analysis of Spearman's correlation coefficient are shown in the table ( 5)

Dimensions	Dim.1	Dim. 2	Dim. 3	Dim. 4	Dim.5
Dim.1 E-	1.0	.430	.351	.385	.391

banking services quality					
Dim. 2 Personal factors	.430	1.0	.237	.195	.267
Dim. 3 Perceived Usefulness	.351	.237	1.0	.310	.334
Dim. 4 Customer satisfaction	.385	.195	.310	1.0	.462
Dim. 5 Continue to use	.391	.267	.334	.402	1.0

Table 5 : Spearman's correlation coefficient

- Correlation is signification at the .01 level ( 2-tailed)
- In table ( 5) Spearman's correlation coefficient indicates a correlation between the constructs of study 's model . Thus, hypothesis (6) is accepted.

## IX. DISCUSSION AND CONCLUSION

The current study seeks to determine the factors influencing the customer's satisfaction, to continue dealing with the e-banking services. For this purpose, a study model was developed which included several factors which were divided into five dimension including: e-banking service quality, personal factors, perceived usefulness, customer satisfaction and continuity to deal with e-banking services. Two categories of the hypotheses were developed based on the literature review and a pre-test study; the first category includes five hypotheses in which each one covers a dimension included in the study's model, where it represents the factors that affect the continuity to deal with e-banking services, according to the survey of the sample under study.

The analysis of the data was mainly based on conducting "Descriptive statistics" to extract the means and the standard Deviation. This was followed by using a one sample T-test analysis to examine the first categories of hypotheses. As for the second category of the research hypotheses (the sixth hypothesis), that was mainly developed to examine the relationship between the different components (constructs) of the study's model, Spearman's correlation coefficient was used to test this hypothesis.

The most important results of this study were: The responses of the study's sample to the survey questions (16 questions), was all positive, except for four questions (questions 1, 5, 9 and 10), as the means for these questions were less than three (Midpoint =3).

The data analysis of the first dimension of the study (e-banking service quality) showed, that the tangibles aspect, which is related to the physical facilities and appearance of the website to provide the service, and the empathy aspect, that is related to the caring and individualized attention of the service provider, have little positive influence on customers' satisfaction to continue dealing with e-banking services. Whereas the reliability aspect was shown to have the highest value with an average (3.53), indicating its positive influence on the customers' satisfaction. This result is consistent with the findings of Mohammad & Said's (2009) study. Overall, the results of the current study indicated that e-service quality with its five dimensions has an influence on customers' satisfaction and their continuity to deal with such services, which was previously, confirmed by Zhilin & Xiang (2004) findings.

Regarding the second dimension, which is related to the personal factors, it was found that the personal needs, trust and experiences have a positive impact on the customers' satisfaction and their continuity to deal with e-banking service, which is consistent with previous research conducted by Beh et al. (2010) & Malek (2011). As for the habit factor, the result of the current study found that the respondents have considered such factor to have no positive influence on their satisfaction and continuity to deal with e-banking services, which is inconsistent with Beh et al (2010) findings. That is, Beh et al. (2010) found that the habit factor has a positive influence on customers' satisfaction. Finally and regarding the personal experience of the sample, the results of the current study found that it has a positive impact on customers' satisfaction and continuity to deal with e-banking services. To the best of our knowledge, no previous research has examined the influence of personal experience on customers' satisfaction and continuity to deal with e-services in Jordanian banks.

The current study also found that the perceived usefulness has a positive impact on the customers' satisfaction and their continuity to deal with e-banking services, and this result is consistent with Manarajan et al (2011) assertions. Moreover, customers' satisfaction was found to have a positive influence on consumers' continuity to deal with e-banking services and this is consistent with Saeideh Forouzandeh et al (2010) and Josee et al (1998) studies.

The findings of the current study showed that the continuity to deal with e-banking services is a result of the customer's satisfaction with the banks as well as the ease of use and minimizing the time and efforts which result from using e-banking services. Moreover, all the hypotheses of the current study, which are related to the five dimensions, were accepted and this indicates that the factors that were chosen in this study have a significant influence on the continuity of the customer dealing with e-banking services. Additionally, the

current study confirmed that there is a significant correlation between the components of the study's model, in which consumers' satisfaction and continuity to deal had the highest correlation value, which will accordingly lead to loyalty to e-banking services.

In conclusion, this study is considered valuable to the Jordanian banking sector as it provides a unique and significant managerial and practical contribution as it has not only focused on the quality of services of e-banking as the only factor influencing customer satisfaction and continuation to deal with such services, but it also incorporated different personal factors including knowledge, needs, trust, habit and the personal experience as well as perceived usefulness as major factors influencing Jordanian consumers' satisfaction and continuity to deal with Jordanian e-banking services.

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# Consumerism - Consequences of Ethics Absence )

By Zdenek Dytrt & Milan Přibyl

**Abstract** - The consuming development of a company and various forms of crises are usually explained by economic causes or by failure of management individuals. To overcome the resulting crises there are some methods and financial injections recommended, which cannot definitively solve the problem. The main change of the development is seen as a preventive orientation of a company with respect to ethical postulates, providing of education in terms of ethics in accordance to appropriate legislation and a good example of public personalities and cultures. It is an innovation, which requires new attitudes, adaptation of content (Philosophy), new strategic targets of management suitable for time-evolving needs of the company. First of all, there is an importance of harmonizing the management theory with the dynamic technical development. There is a need to develop a positive and creative innovation to overcome the consuming management, which affects the thinking of people who use it in business and public organizations. The consuming management is, however, comfortable for many people, because it allows a work routine without increasing labour efforts. The management should not focus only on still dominant development of quantitative values without a proportional development of quality content. This allows the controlled subjects to manifest their behaviour as completely closed systems, when in fact there are only relatively closed systems that cannot exist without their surroundings.

**Keywords** : management, ethics, non-ethics, consumption, consuming environment, management philosophies.

**GJMBR-C Classification: JEL Code: M00**



*Strictly as per the compliance and regulations of:*



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## I. INTRODUCTION

The current pace of technical development should stimulate even greater responsibility for an internal content and management theory development. The content and the management theory is a part of the innovation process and its ethics. The connection of ethics and an innovative theory reflects the option of development. If we want to overcome the consequences of the current crisis, we cannot look only into economics but also into the possible lack of ethics.

It is no longer enough to maximize the fast and short-term profit of companies, which was emphasized during the eighteenth century. A globalized company needs to focus on creating a responsible and ethical business environment, which respects the sustainable development. Hence, there is a necessity to change the

content, respectively management philosophy, because the original philosophy that was suitable for the company conditions is no longer suitable in terms of technical and science development.

The innovation of management philosophy should reflect the scientific and social development, not only in terms of development of management techniques but also management instruments. It is about respecting all the consequences that were brought by technical development. It is necessary to enrich the ideas of the founders of management theories through experience and new demands that have been increasing the development of science, politics and practice since the Second World War.

## II. ETHICS IN MANAGEMENT

The application of ethics in management is overpowered by dynamic development of attitudes and demands of the company that is reflected in growing demands of remuneration without increasing the productivity. This causes a maximization of fast profit to satisfy the ambitions and requirements of employees and shareholders. Efforts to maximize and accelerate profits of producers and workers are not based on efficiency of work productivity; there is a spiral of different effects and intensity in the company climate. From the following figure it is visible to what extent the decisions on the revenue growth of the world investment banks were consuming.

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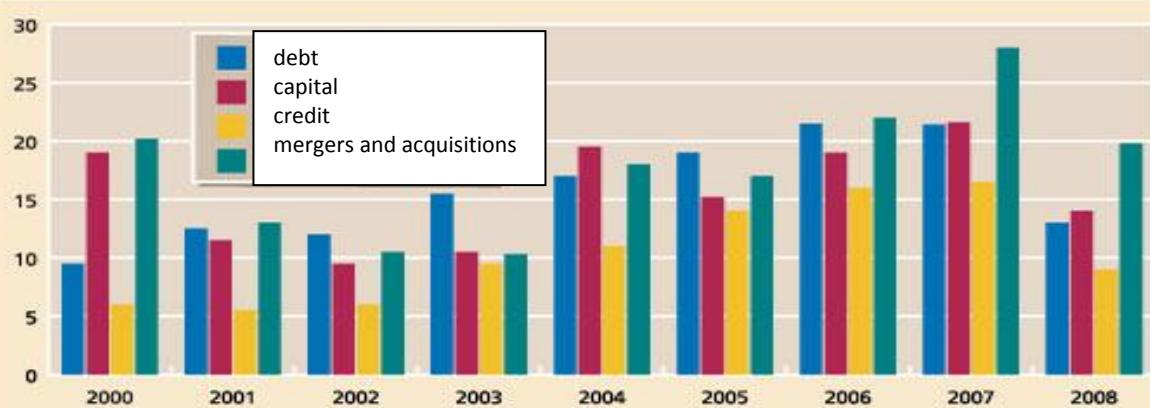
The order of the world's banks according to net earnings for the year 2008 and the contribution of individual products

order	bank	net earnings (mil. USD)	business			mergers and acquisitions	change 2008/ 2007 (%)
			debt (%)	capital (%)	credit (%)		
1.	JP Morgan	5052	20	32	11	37	-34
2.	Goldman Sachs	3712	13	35	3	49	-38
3.	Merrill Lynch	3440	21	34	2	43	-33
4.	Citi	3192	27	31	7	35	-46
5.	UBS	3098	20	30	2	48	-40
6.	Morgan Stanley	2883	19	30	4	47	-45
7.	Credit Suisse	2717	22	28	6	44	-40
8.	Deutsche Bank	2405	25	21	9	45	-46
9.	Barclays Capital	2266	37	29	11	23	-42
10.	Bank of America	2025	32	32	27	9	-27

ZDROJ: FT.COM, DEALOGIC

## Graph

## Development of global net earnings of investments banks in terms of products

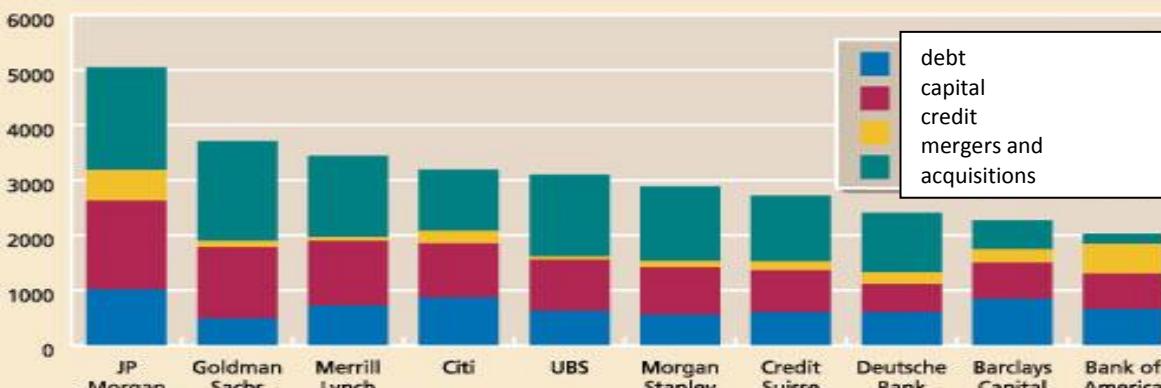


ZDROJ: FT.COM, DEALOGIC

## Graph

## Net earnings of chosen investment banks in 2008 and their structure

8



ZDROJ: FT.COM, DEALOGIC

Taken from: Ing Miroslav Šulaj, MBA, Bankovnictví.ihned, 19th of March 2009

Managerial ethics can be seen as an innovation of methods and management work, in the field of corporate governance and public administration. We expect from the managerial ethics that it will contribute to management improvement, alignment with European Union and the evolving development needs of this century. This is mainly to prevent adverse effects

that undermine the development of responsible business climate and the social stability of a company.

Managerial ethics is currently regarded as a desirable prerequisite of theory development and management practice. During discussions on this issue, we can usually discover different views on the content and form of managerial ethics, which slows down the implantation into the current practice.

System of managerial ethics, structure of subsystems and components:

Subsystems of managerial ethics	Ability of subsystems	Benefits for a manager
Ethics - Creativity	Character ethics	Moral disposition of a manager
Erudition - Qualification	Ethics of work disposition	Professional disposition of a manager
Application - Implementation	Professional ethics of a worker	Management effectiveness

#### Subsystem elements **Ethics - Creativity**

1. General principles of morality
2. The inner belief in the importance of morality
3. Self-education and improvement of moral positions
4. Using morality and creativity in everyday work

#### Subsystem elements **Erudition - Qualification**

1. Theoretical and practical knowledge and experience
2. Life education
3. Knowledge and respect for the uniqueness of managed object
4. Creative thinking - an ambitious innovation
5. Application of synthesis and synergy

#### Subsystem elements **Application - Implementation**

1. Systematic application of subsystems and elements of managerial ethics
2. Stimulation of ethical attitudes
3. Stimulation of creative work and motivation of employees
4. Continued promotion of ethics and management creativity
5. Analysis of ethics benefits in management

To overcome the adverse impact of consumerism on a company, the managerial ethics requires from the management a systematic approach and a respect to manage the object as a whole. The practice shows that managers consider a company as a system, but it appears to be a totally closed system. Such behaviour does not correspond with the company interest and needs of the surroundings, because it leads to a deepening of consumerism in thinking and behaviour of the whole company.

A company needs to be seen as a relatively isolated system that has the legal personality but in its actions respects the needs and interests of its surroundings, because not only corporate, but also

other types of organizations are dependent on its surroundings, they cannot exist without them or even establish without them.

The bearers of ethical values are people. The ethical maturity of workers constitutes an important base of the corporate culture and structure of values that can be divided into:

1. Values that a worker needs for his existence, professional work and meeting his living needs. It is obvious that the essential human needs are individual, unique and very different.
2. Values forming the superstructure of the essential needs that are linked to personal happiness and satisfaction. They are very important for managers and workers because they create a balance between the managers' stimulation and workers' motivation. These are classed as superfluous needs that are unique and different according to various criteria.

Science and technology development is increasing demands on social development and the "above standard" that is linked to individual necessities. It often happens that the requirements for "above standard" do not correspond with the workers' productivity and participation in the strategic target of a company. Efforts, undertaken to satisfy their luxury needs by a different way other than by creative and productive work, increase their aggression and for some people it acts like a drug. Consuming thinking is reflected not only in a company's management, but also in private life. There is no need to stop the dynamics of input and output, but it is necessary that both quantities evolve within desirable proportions and ethics. It can be said that consuming thinking and behaviour begins when workers' demands are higher than their productivity. The moment, when the consumption



growth is greater than the productivity, is a critical point in the life of individuals and society.

To measure the value of inputs and outputs of a company there are practical indicators that reflect the extent and depth values in physical units.

Complications for the management lie in the fact that the phenomena displayed by indicators include only the measurable quantitative value. The part of a company's activities is also a qualitative value that the indicators are not able to show. We need to know both values to be able to completely understand and evaluate the system. To improve the indicators we need to systematically supplement their explanatory power with the help of analyses of ethical practices and attitudes, by which the measurable characteristics of a company's activities were achieved and to what extent their measurable value.

Consuming thinking of people and consuming behaviour of companies can be prevented by ethics, creativity in management and implementation of positive innovations. Managerial ethics considers company's management as a key of the innovation process. The problem is that lots of managers pay more attention to managing the sub-processes of internal structures rather than to systematic managing of a company as a whole.

In terms of influencing the managers' behaviour, shareholders play an essential role, because they create intolerable pressure on management by their high demands. As a consequence of their demands there is disrespect for systematic management of the company. It is non-ethical when the management starts to behave as an absolutely isolated system. This type of management is known under the term of "shareholder management". The motivation of managers of large companies or corporations is then just only focused on delivering impossible targets. Top managers delegate their targets to other subsidiary companies and organizations. Maximization of efforts to meet the targets at any costs, usually leads to a breach of ethical rules and the rules of responsible management. The qualitative indicators are moved to the background or are not taken into account at all.

The management level cannot be judged by short or past accomplishments, but by dynamics of ethical strategies that would ensure development, stability and long-term prosperity of the company. Managers cannot pay more attention to sub-process of internal structures rather than to a systematic management of a company as a whole.

Non-ethics and consumerism in people's thinking are the two ends of a stick. Consuming thinking of managers is a consequence of an inadequate application of ethical attitudes in management managing verticals of the company as a whole. Creativity and ethics manifested by positive innovations in management depend on mutual respect and

connection of qualitative and quantitative values of the strategy, which a manager wants to implement in the future, and also on the tactics that a manager and his team will use to fulfil the strategy.

We still see the application of ethics in management of companies and administration subjects as something that is "extra", something we can do without in the market economy and something that only "ties hands" in terms of business. Systematic application of ethics in management is an important innovation of current managerial practice, which in a globalized world is continuing to increase credit of the company. It is important to keep the company's development going, so consumerism is prevented.

1. The consuming thinking has become a drug for companies in that part of the world where high standards of living allows profligacy on one side and on the other an uneven relationship between the aspirations of a man and his efforts to realize his targets to work ethically and creatively.
2. The application of ethics in management is not fashion, but revitalization of a solid business, with which we can sustain in a competitive environment by the help of creative thinking and quality work.
3. Managerial ethics increases management transparency and helps to overcome the non-complexity in decisions about a strategy of economic and social phenomena development.
4. To overcome the consuming character of a company, we need to do more than just change the system of management and business; we also need to respect the differences between "consumption and consumerism".

### III. NON-ETHICS IN MANAGEMENT CREATE CONSUMERISM IN A COMPANY

Management of companies does not develop systematically if the attention is paid only to subsystems and components. A non-systemic approach of management is often covered. In large companies by raising the prices and in smaller ones by requiring grants that should cover the lack of creativity and routine in managerial work. Even the employees then require an increase of payment without an adequate creative collaboration with the management and their work productivity.

Ethics and responsibility are two sides of the same coin, which in terms of management success is dependent on creativity and ethical thinking of people, who direct but also those who implement their decisions. Non-ethics are in a business environment harmful and undesirable, as well as in personal relationships. We can see daily that non-ethics are not the way to a stable well-being, but to a lax fulfilment of duties with maximum demands that creates space for consuming life and business.

It is true that many people know what they should not do, but they still do it anyway. The reason is simple, ethical thinking and behaviour is harder than the irresponsible one. Although ethical thinking and behaviour is more difficult and complicated, it is worth it in the future. Disregard and disrespect of ethics shows that we are accustomed to think in the short-term and that we do not realize the consequences of our irresponsibility, which always comes out later. The current crises convince us of errors, which we have previously committed by disrespecting the ethical principles in personal relationships and also in management and business. The absence of ethics creates a non-ethical environment, consuming thinking and behaviour.

The lack of belief in benefits of ethics in management and business creates a space for consuming thinking, which is the opposite of ethical decisions. Penetration of consuming thinking into management and business distorts the market environment and behaviour of the company.

There is a need for revision and simplification of many legal norms, so they contribute more to building long-term security and ethical attitudes in the market environment, in partners' relationships and also in relationships between managers and stakeholders. We should require prevention from the legislative norms, to prevent adverse effects that enable consuming thinking, especially among young people. Ethical thinking as a precondition of ethical behaviour is a matter of people. It depends only on them how the companies are managed and how they behave in a competitive environment.

#### IV. CONCLUSION

We still see the application of ethics in management of companies and administrative subjects as something that complicates the work of managers, something we could do without in the market economy and something that "ties hands" in business. It is necessary to identify with the needs of a systematic application of ethics in management and to treat it as an innovation of current managerial practice. In a globalized world the need for ethics increases its importance, because it affects the credit of a company and ensures sustainable development of a company and business environment.

Competitive environment of domestic and foreign market requires from management to review the efforts in terms of short-term profits and to concentrate on strategic prosperity and business stability. We are aware of the risk of deepening consumerism and our lack of ability to see the final image of a consuming society. Therefore, we see the way in ethical, creative, strategic and responsible management of future based on promotion of ethics in our private and social life.

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# Corporate Social Responsibility Disclosure in Bangladesh

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CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE IN BANGLADESH

*Strictly as per the compliance and regulations of:*



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## I. INTRODUCTION

Bangladesh got her independence in 1971 from West Pakistan with small area of 147570 square kilometer and heavy population of 70 million. Now she has a large population of 140 million with high growth rate of 1.34 per cent (2011 census). Besides, about 25.1% of total population lies under poverty line (Economic Review 2011, GOB). Bangladesh is trying to develop economically through industrialization since her inception. A number of industries have been established at an accelerated rate to meet the increasing demand of population. Accordingly, the demand for performing social activities termed Corporate Social Responsibility (CSR) by the firms is increasing rapidly. In general, CSR embraces all organizational activities relating to the organization and society. So, it is the contribution of firms to the social being in the all sphere of society. Once firms would recognize the expenditures for CSR as expenses, now these are considered as social assets. It is also called strategic social investment of firms. It is seen that firms are doing CSR in order to have good impression of regulatory bodies, potential investors and stakeholders in the capital market. So, Corporate Social Responsibility (CSR) has become an eye-catching issue that has increasingly attracted the

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attention of the businesses, political persons, academicians and researchers. Prior studies of Chiong et al. (1993), Garry et al. (1995), Carroll, (1999), Cetindamar and Husoy, (2007), Webb et al. (2009), Kamal et al. (2012) etc. have reported that the initiatives of CSR by the firms are generated from the economic theory, political theory, agency theory, stakeholder theory, legitimacy theory and ethical theory. Private pressure group and government regulatory bodies which enforce the laws and guidelines of corporate social responsibility can intensify the CSR for firms. In Bangladesh there is no private and government pressure group either to enforce or to monitor the CSR activities of listed firms. Here, firms are practicing CSR voluntarily from the social point of view. The central bank of Bangladesh, Bangladesh Bank has issued mainly three circulars from the Department of Off-site Supervision due to maintain a separate CSR desk, a separate statement on CSR initiatives and to give an outline of social activities for banks only. On the other hand, the Department of Environment of the People's Republic of Bangladesh has issued an Effluent Treatment Plants (ETPs) guideline for industrial establishment to protect the environment as a part of CSR. As there is no mandatory requirement for firms to disclose CSR in their annual report or elsewhere, they do this with an intention that the doing good is always lead to doing better. Firms also seek a recognition and profile of its own from the perspective of international and local investors. Furthermore, by practicing better CSR they want to involve with the overall national agenda of our country like Vision 2021 and Millennium Development Goals (MDG). Corporation can practice CSR from different dimensions. These include CSR on employees support ( health safety, job security, profit sharing, employee participation, treating employees fairly and equitably etc.), community support (activity involved in education, health and housing related supportive activities, philanthropic activities), product/services support (product/service quality, product safety, delivery, research and development etc.), and environmental support such as; sustaining the eco-friendly environment, producing environmentally friendly products, waste management, recycling etc. (Sen and Bhattacharya, 2001). Although some firms have been practicing Corporate Social Responsibility Disclosure (CSRD) pro-actively in this green field, it is considered infant in Bangladesh. To be good corporate

citizens and to have some competitive advantages such reduction of tax and VAT etc. corporations are practicing CSR sporadically. From the prior studies it is seen that most of the research works on this field have been conducted in the developed countries like UK, USA, Australia and Canada and the rate of disclosure is also high. A study by Guthrie and Parker (1990) showed a disclosure rate 98% for UK companies, 85% for US companies, and 56% for Australian companies in the year 1983. On the contrary, a few studies are prevailed at Bangladesh and reported low and poor disclosure rate. The study of Belal (1999) and Islam et al. (2005) revealed that only 6% and 16% companies disclosed environmental information in their annual reports. The studies carried on CSR by Rahman and Azim (2009) and Karim et al. (2012) are conceptual, and conducted with a view to analyzing the CSR items of listed companies. The proposed study will be carried to examine the present scenario of CSR disclosures made by listed companies in their annual reports, and also to see whether there is an association between CSR disclosure and various corporate characteristics. This study would be of immense value for the primary and secondary stakeholders, financial analysts, academicians and researchers. As the most of the studies on corporate social responsibility disclosure belong to developed countries and no extensive research work in this field has been done in an emerging economy of Bangladesh. In this context the proposed study is very justified.

The rest of the paper is organized as follows. Section 2 states a review of the literature and hypothesis development of this study. The research method is outlined in section 3. Section 4 reports results and discussion and finally, the conclusion is presented in section 5.

## II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This section provides some insights and understanding of prior studies done by different authors in the same field. This helps us to develop hypothesis in one hand and to compare the findings of proposed research. The research of Ismail and Koh (1999) on Corporate Social Responsibility Disclosure (CSRD) in Singapore have done to examine the relationship between corporate characteristics and the extent of CSRD, and trend of CSRD of listed corporations on the Stock Exchange in Singapore. The major findings are: first, their study has failed to show any relationship between CSRD and corporate characteristics i.e., size and industry type while there is positive relationship between profitability and CSRD. Second, they have found a significant increasing trend of CSRD from the earlier period (1980-1984) and later period (1990-1994). The purpose of the study of Rahman and Azim (2009)

was to focus on corporate social reporting by pharmaceutical companies operating in a least developed country, Bangladesh. Analysis of annual reports published in 2007-2008 revealed that 33.33% of listed pharmaceutical companies made some kind of CSR disclosures.

A longitudinal study undertaken by Saleh (2009) on Corporate Social Responsibility Disclosure (CSRD) practices in Malaysia revealed that companies generally disclosed the four categories of CSRD such as employee relations, product, community involvement and environmental disclosures in their annual reports on the Bursa Malaysia. The study also reported that employee relations were the highest disclosed, followed by product, community involvement. Furthermore, it stated that only 22 out of 200 Malaysian companies reported consistently about their CSR activities in their annual reports.

From the past researches it is seen that some studies are carried on disclosure of Human Resource and Environment as a part of CSRD. The considerable researches of these field are the research of Hossain et al. (2004); Islam et al. (2005); Hossain et al. (2006) and Alam and Deb (2010).

Hossain et al. (2004) investigated 40 annual reports of sample companies for financial year 2002 with aiming to identifying the nature of voluntary human resource disclosure by Bangladeshi Companies have concluded that Bangladeshi Companies are making some human resource disclosures voluntarily as these kinds of disclosures are not mandatory from any regularity authority.

A study of 48 companies done by Islam et al. (2005) on Corporate Environmental Disclosure in Bangladeshi Public Limited Companies revealed that only 40% of companies surveyed have made environmental information, more general and descriptive in nature in their annual reports for the year 2003. Only 16% companies have disclosed environment disclosure under a separate heading in the annual reports.

Hossain et al. (2006) have conducted a study on Corporate Social and Environmental Disclosure in Developing Countries; Evidence from Bangladesh with a view to achieving two objectives are (a) to see the nature of the voluntary environmental disclosure in Bangladesh; (b) to measure the association between firms' attributes and extent of disclosure. They have taken 82 listed companies from Bangladesh and they have used regression and correlation analysis to investigate the results. Findings of the study are (i) Environment reporting is found in Bangladesh but it is done voluntarily; (ii) seven explanatory variables i.e. total sales , total assets, industry type , rate of return on total assets, net profit margin, international link of auditing firms and subsidiary of a multinational companies have been considered for determining the extent of environmental disclosure. The study revealed that only

one variable is significant in determining disclosure levels is subsidiary of a multinational company.

The objectives of study done by Alam and Deb (2010) were to identify, quantify and report investment made in human resources of an organization as well as to investigate some corporate attitudes such as corporation size and profitability that influence human resource accounting disclosure in Bangladesh. A regression model has been used to analyze the data of 58 sample companies listed either with Dhaka Stock Exchange or Chittagong Stock Exchange in 2009. Their paper revealed that none of the companies disclose all the human resource accounting information items. From the study it has also been found that the level of human resource reporting of listed companies of Bangladesh is very poor.

Dependent Variable is affected by the manipulation of independent (predictor) variables. The dependent variable used in this study is Corporate Social Responsibility Disclosure (CSRD) and a number of firm characteristics have been considered as explanatory variables to explain the variation of CSRD. In this study five corporate attributes market capitalization, asset size, profitability, multinational affiliation and listing age are considered as explanatory variables to examine the relationship between firm characteristics and the level of CSRD. All of them are taken from the previous studies undertaken by researchers Ahmed and Nicholls (1994), Ismail and Koh (1999) Hossain et al. (2004), Akhteruddin (2005), Islam et al. (2005), Hossain et al. 2006 and Alam and Deb (2010). These variables are explained here to develop hypotheses and to fit regression model.

Size of the firm: The size of the reporting firm has either a positive or a negative impact on the variability of disclosure. Several measures of size have been used by different researchers such as turnover, total assets, fixed assets, paid up capital, shareholders equity, capital employed, number of employees and the market value of the firm as proxies of size. In the present study total assets and market capitalization value have been taken as explanatory variables. Company size (market capitalization) is computed by multiplying the market value per share with the number of outstanding ordinary share represents the capitalization position in the market. So, it is expected that a large firm want to disclose more in its annual report because it wants to have increased external funds from stock markets and the costs of preparing and disseminating highly-detailed corporate annual reports is less burdensome for large firm. Ismail and Koh (1999) have found a negative significant relationship between the firm size and the extent of disclosure but most of the researchers such as Ahmed and Nicholls (1994), Akhteruddin (2005), Alam and Deb (2010), have found a significant positive relationship between the firm size and the extent of

disclosure. Therefore hypotheses can be drawn in alternative form as follows:

$H_{1a}$  there is a positive relationship between asset size and CSRD.

$H_{1b}$  there is a positive relationship between market capitalization and CSRD

Profitability: Profitability may affect the firm's CSRD. The various variables regarding profitability such as net profit to sales, earnings growth, dividend growth and dividend stability, rate of return and earning margin, return on assets, return on capital employed and profit margin have been used in previous researches. The empirical results from these researches are mixed. Ismail et al. (1999) and Alam and Deb (2010) have found positive association between profitability and the level of disclosure. On the other hand, the finding of akhteruddin (2005) was a low association between corporate disclosure and profitability In this study profitability will be measured by net earnings of firm. It is said that profitable firm spends more on CSR activities. So, it is expected that there is a positive association between profitability and CSRD. Now, a hypothesis can be drawn in alternative form as follows:

$H_2$  there is a positive association between firm's net earnings and CSRD.

MNC Affiliation: Multinational Corporation's (MNC) affiliation is considered an important determinant of disclosure level, i.e., firms, which have MNC affiliation, are likely to disclose more information for two reasons. Firstly MNC influenced companies are likely to disclose more information because they have to comply with the more stringent requirements of parent company as well as the host country requirements. Secondly, Companies which have MNC affiliation are therefore likely to have sophisticated CSR reporting systems that facilitate greater disclosure in their corporate annual reports. So, it is argued that the subsidiaries of MNCs operating in Bangladesh are expected to disclose more information than the domestic companies and it can be hypothesized in alternative form as follows:

$H_3$  Firms listed on DSE that have MNC affiliation tend to disclose more financial information than firms that do not have MNC affiliation.

Listing Age: Company age is an important factor for affecting the level of disclosure. Age of company is the length of listing in capital market as a public limited company. It also represents the years of operation in the market as a listed public limited company. The study of Alam and Deb (2010) has revealed a positive association between the level of disclosure and company age while the counter result has been got by Akhteruddin (2005). It is expected that company which is operating for many years is likely to

disclose more CSR information. Now, a hypothesis in alternative form is made as follows:

$H_4$  there is a positive relationship between company age and CSRD.

From the above discussion it is clear that the dependent variable CSRD depends on the above independent variables such as corporate size, profitability, MNC affiliation and age. By considering these variables the following regression model can be constructed to test the above hypotheses:

$$\text{CSRD} = \alpha + \beta_1 \text{ASSET} + \beta_2 \text{MCAPITA} + \beta_3 \text{PROFIT} + \beta_4 \text{MNC} + \beta_5 \text{AGE} + \epsilon$$

Expected sign (+) (+) (+) (+) (+)

Where

CSRD = Total score for each company each year under CSR index

$\alpha$  = The constant

$\epsilon$  = The error term

MNC = Dummy variable, taking a value of 1 for firms with MNC affiliation, and 0 otherwise.

### III. METHODOLOGY OF THE STUDY

A total of 254 Companies were listed on the Dhaka Stock Exchange up to December, 2010. Among them companies under Bank, Financial Institutions, Insurance, Services and Real Estate, Mutual Fund and Travel & Leisure categories are initially excluded from the study as sample. As the study is limited to non financial companies, thus the number of companies is reduced to 130. From this sample frame, annual reports of seventy companies have been selected purposively. Companies usually disclose CSR information in a number of ways, such as through annual reports, advertisements or articles published detailing a company's activities, corporate websites, interim and quarterly reports, booklets or leaflets to address the social activities of the company, employee reports, environmental reports, special announcement and press releases. As the study is mainly based on data collected from secondary published sources, annual reports audited by the professional auditors have been selected for the validity of data. The study of Islam et al. (2005), Hossain et al. (2006), Rahman and Azim (2009) and a circular vide DFIM Circular No. 02 dated 9 January 2012 issued by Bangladesh Bank has been considered to select the items of CSRD index. A list of overall disclosure information can be found as Appendix- A. There are two widely used approaches to developing disclosure scoring scheme to determine the disclosure level of a corporate annual report i.e., weighted and unweighted approach. Unweighted approach has been used in the study to score items included in index by considering the equal important for all items of information. Under this approach, a

dichotomous procedure is adopted in which an item scores one if it disclosed and zero if it is not disclosed. In this way, we can add up all the items disclosed by the company. The following formula is used to measure the total CSRD score for a company:

$$TDS = \sum_{i=1}^n d_i$$

Where  $d = 1$  if a disclose able item is disclosed, 0 if that item is not disclosed

$n$  = number of disclose able items

### IV. RESULTS AND DISCUSSION

#### a) Descriptive statistics

The descriptive results and the result of regression analysis have been obtained by using the Statistical Package for the Social Sciences, SPSS.

As a starting point of analysis, different descriptive statistics i.e. mean, median, standard deviation and quartiles have been obtained for dependent and independent variables are reported in table 1. The average value of total assets is Tk. 7898.3 million while that for net profit is Tk. 730.36 million. The data also reveals that the average market capitalization of sample firms is Tk. 18391 million. The mean scores of operating year (Age) as listing company, CSRD and multinational affiliation for sample firms are 16 years, 5 items and 11.43% respectively. The table indicates that on average, the sample firms disclose only 5 CSR items in their annual reports. First quartile indicates that only 25% sample firms have 2 disclosure items while third quartile implies that 75% sample firms have 7 disclosure items in their annual reports. From the critical examination of annual reports it is seen that only two companies (Bata & Grameenphone) have maximum disclosure score of 16 while seven companies have minimum disclosure score of 1. The most of the disclosure items are seen in the section of Directors' Report, statement of the Chairman, company profile and notes to the financial statements. It is also seen that these disclosure items are related with employees' welfare and development. In general, more than 50% companies disclose less than five items of CSR

#### b) Regression analysis

Ordinary Least Square (OLS) regression analysis has been used to examine the association among corporate characteristics and corporate social responsibility disclosure.

Table 2 provides the estimated coefficient of regression analysis in column 1 and the t-statistics of null hypotheses that is reported in parentheses. The column 1 in table 2 shows the results have been obtained by regressing CSRD for the five corporate characteristics i.e. assets, market capitalization, profitability, MNC affiliation and age. The coefficients of

assets, profitability and age are negative while the coefficients of market capitalization and MNC affiliation are positive. The P values of four variables i.e., assets, profitability, MNC affiliation and age are showed in column 2 indicate no significant association with CSRD. But the variable, market capitalization has statistically significant effect on the CSRD at .05 level. So, it rejects the null hypothesis and strongly supports the  $H_{1b}$  i.e., companies with large capital in the market disclose

more CSR items in their annual reports. Alam and Deb (2010) and Ismail and Koh (1999) have found the same result in their studies on disclosure. The explanatory power of the OLS model as indicated by the adjusted R<sup>2</sup>, is 17.5% which reveals that the model is capable of explaining of variability of dependent variable i.e., CSRD. The F statistics indicates that the model employed to explain the variation of internal fund is significant at .01 level ( $p < .01$ ).

Table 1

Variables	Minimum	Maximum	Mean	Std. Deviation	Q1	Q3
Net Earnings After Tax	-9570887.00	1.07E10	7.3036E8	1.74555E9	2.1083E7	6.2071E8
Total Assets of Corporation	72250645.00	1.10E11	7.8983E9	1.64784E10	6.7702E8	6.3560E9
Total Market Capitalization	3548800.00	3.32E11	1.8391E10	4.32336E10	1.2088E9	1.9607E10
Company Age	1.00	35.00	15.7714	10.55170	5.0000	24.2500
Multinational Affiliation	.00	1.00	.1143	n/a	n/a	n/a
Corporate Social Responsibility Disclosure Items	1	16	5.00	3.526	2.00	7.00

Note : N/A means not applicable

Table 2

	CSRD	Significance
Adjusted R <sup>2</sup>	.176	
F Statistics	3.947	.004*
Intercept	6.096	.000*
Independent Variables:		
Total Market Capitalization	2.549 (.613)	.013**
Total Assets of Corporation	-.949 (-.235)	.346
Net Earnings After Tax	-.201 (-.049)	.842
Company Age	-.876 (-.103)	.384
Multinational Affiliation = 1 If firm has MNC	1.335 (.155)	.187

Note : Statistically significant at 1% (\*) and 5% (\*\*)

## V. CONCLUSION

This research work has been conducted based on two main research objectives. First, the examination of the present scenario of CSR disclosures made by listed companies in their annual reports, second, whether there is an association between CSR disclosure and various corporate characteristics. To outline 35 disclosure items the annual reports of 70 listed non financial companies for the financial year 2010 are studied critically. The descriptive result shows that the mean score of CSRD is five and 75 percent companies

disclose 7 items voluntarily which is 20 percent of total disclose-able items listed in Appendix-A. This result is very poor comparing to other developed and developing countries. A study on disclosure in the developed country reported 98% disclosure rate for UK companies, 85% for US companies, and 56% for Australian companies in the year 1983. A developing country perspective study of Saleh (2009) reported that only 22 out of 200 Malaysian companies reported consistently about their CSR activities in their annual reports. The study of Belal (1999) and Islam et al. (2005) in Bangladesh perspective revealed that only 6% and 16%

companies disclosed environmental information in their annual reports. Hence, the result of this research is consistent with prior studies. The multivariate analysis shows that the market capitalization of firm has a positive association with CSRD. This study does not find any association of other corporate characteristics such as total assets, net profit, multinational affiliation and listing age on CSRD. The major limitation of this study is that it is one year study of 70 non-financial companies listed with DSE. Moreover, it only examines annual reports of firms to make disclosure index although it is known that firms use other mass communication mechanisms such as advertisements or articles published detailing a company's activities corporate websites, interim and quarterly reports, booklets or leaflets to address the social activities of the company, employee reports, environmental reports, special announcement and press releases. So, a longitudinal study can be done by examining more corporate characteristics of large number of sample firms in the avenue of further research in this area.

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## APPENDIX A

*Disclosure Index*

1. Pollution control or voice for the prevention or repair of environmental damage
2. Tree Plantation
3. Conservation of natural resources
4. Energy Conservation
5. Energy efficiency of products
6. Water discharge information
7. Solid waste disposal information
8. Recycling plant of waste products
9. Installation of biomass processing plants
10. Installation of Effluent Treatment Plants (ETPs)
11. Employment of minorities
12. Equality to all races, gender and religions.
13. Creation of on-farm /off-farm employment for the Manga afflicted Northern districts
14. Socially responsible practices abroad
15. Employee health and safety
16. Employee training and education
17. Employee benefits / welfare / recreation
18. Share option for employee
19. Award program for employee or scholarship for child of workers
20. Profiles of employees
21. Employee and management relation
22. Charity program
23. Scholarship program
24. Supporting national pride
25. Public Health related activities
26. Education facilities for general people
27. Support to organization working with autistic and physically challenged children
28. Sponsor for Sport, Art & Cultural program
29. Cash donation program for disaster people
30. Beautification activities
31. Transferring technology and information related to social awareness
32. Product Safety
33. Reducing pollution from product use
34. Product quality disclosure
35. Product development or research and development



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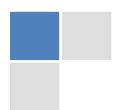
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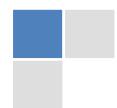
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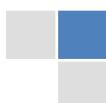
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the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

**2. Evaluators are human:** First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

**3. Think Like Evaluators:** If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

**4. Make blueprints of paper:** The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**5. Ask your Guides:** If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

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**7. Use right software:** Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

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**10. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

**11. Revise what you wrote:** When you write anything, always read it, summarize it and then finalize it.

**12. Make all efforts:** Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

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**15. Use of direct quotes:** When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

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**17. Never use online paper:** If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

**18. Pick a good study spot:** To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

**19. Know what you know:** Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

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**21. Arrangement of information:** Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

**22. Never start in last minute:** Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

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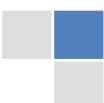
**27. Refresh your mind after intervals:** Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

**28. Make colleagues:** Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

**29. Think technically:** Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

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**33. Report concluded results:** Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

**34. After conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

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### Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

### Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

### General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page

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- Submitting a manuscript with pages out of sequence

In every sections of your document

- Use standard writing style including articles ("a", "the," etc.)
- Keep on paying attention on the research topic of the paper
- Use paragraphs to split each significant point (excluding for the abstract)
- Align the primary line of each section
- Present your points in sound order
- Use present tense to report well accepted
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shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

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- Center on shortening results - bound background information to a verdict or two, if completely necessary
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- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

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- Explain materials individually only if the study is so complex that it saves liberty this way.
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- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

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- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

#### Approach:

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- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

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- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

#### Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

#### What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.

- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

#### Approach

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- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

#### Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
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- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

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- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

#### Approach:

- When you refer to information, differentiate data generated by your own studies from available information
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Topics	Grades		
	A-B	C-D	E-F
<b>Abstract</b>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<b>Introduction</b>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<b>Methods and Procedures</b>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<b>Result</b>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<b>Discussion</b>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<b>References</b>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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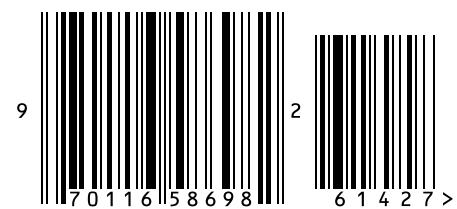


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