Online ISSN : 2249-4588
Print ISSN : 0975-5853
DOI : 10.17406/GJMBR

# Global Journal of Management and Business Research: C

## Finance

Movement of PE Ratio

Green Banking Initiatives

Highlights

Role of Risk Management

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Discovering Thoughts, Inventing Future

VOLUME 17 ISSUE 1 VERSION 1.0

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Volume 17 Issue 1 (Ver. 1.0)

Open Association of Research Society

**Incorporation No.: 0423089**
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**Import-Export Code: 1109007027**
**Employer Identification Number (EIN):**
**USA Tax ID: 98-0673427**

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Global Journals Incorporated
2nd, Lansdowne, Lansdowne Rd., Croydon-Surrey,
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*For Authors:*

22 USD (B/W) & 50 USD (Color)

*Yearly Subscription (Personal & Institutional):*

200 USD (B/W) & 250 USD (Color)

# Contents of the Issue

Global Journal of Management and Business Research: C
Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Green Banking Initiatives of Islamic Bank Bangladesh Limited

By Nushrat Nahida Afroz
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*Keywords: green banking, sustainable banking, ecological, internet.*

*GJMBR-C Classification: JEL Code: E59*

GREENBANKINGINITIATIVESOFISLAMICBANKBANGLADESHLIMITED

*Strictly as per the compliance and regulations of:*

# Green Banking Initiatives of Islamic Bank Bangladesh Limited

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## I. Introduction

Now-a-days "sustainability "is the most uttered word in the world. Agriculture, Tourism, Technology, Manufacturing, Packaging every sector is concerned about the sustainability. Environmental degradation, rising global temperature, melting of glaciers and ice-berg in the polar region, rising sea level will affect Bangladesh .A bank is a financial institution, where people secure their money and use this institution as a source of possible finance. Banking in the form in which it exists nowadays is comparatively of recent origin. Before the advent of modern banking, direct finance, where the owner of capital deals directly with the user of capital, was the customary mode of transference of funds from savers to investors. Nowadays, banks are organizations engaged in any or various functions i.e., receiving, collecting, transferring, paying, lending, investing, dealing, exchanging, and servicing money and claims to money both locally and internationally.

Bangladesh is a country suffering from immense social, political, economic and environmental issues and these issues need to be addressed for the overall development of this country. However, we all know that the peoples of the whole world are concerned about the environmental degradation, especially the rising of global temperature and thereby melting of glaciers and ice-berg in the polar region and consequently rising of sea level, which will directly affect the low lying countries of the world like Bangladesh. The world conscious people are also concerned about the increase of Green House Gases and Chlorofluorocarbons (CFCs) and thereby depletion of Ozone layer. As such, every person and especially the professionals must have greater role to check the environmental degradation. The contribution of the banking sector is playing significant role to save the environment through their CSR, investment or other activities.

To save the environment Green Banking is the great initiative which is taken by bank all over the world. Bankers are the important professional group who has interaction with the other groups of people and also with general masses. They can adopt different green activities within their in-house environment and also can initiate the protection of the air pollution, water pollution by their clients. Bankers can finance the green projects, which are environmental friendly and discourage the projects that damage the environment. The role of IBBL seems to be magnificently surpassed for saving the environment among all the Banks in Bangladesh during last one decade.

## II. Literature Review

Ullah.,(2013) concluded that only PCBs, FCBs have adopted green banking guideline and financed some of green banking based projects on the other hand SCBs and SDBs initiatives are not remarkable. Rahman, et al.(2011)*wrote* IBBL insists on going green banking to help the environment that promote its online banking, Mobile Banking or the idea of socially responsible investment funds for sustainable project finance activities. Its Green Banking practices are connected with both in internal operation and in product ecology. Rahman and Barua (2016) examined 42 of total 54 scheduled banks of Bangladesh, that most banks are trapped in the lower boundaries of the performance greed. The state owned banks rank low in performance while the foreign banks have considerably better achievements.

Pal and Russel (2015) in their study showed that the upward trend and the models how a bank or NBFI is going to be green. The in-house practices can give a dramatically changes to the financial sector. Malliga and Revathy (2016) defined green banking as a form of banking taking into account the social and environmental impacts and its main motive is to protect and preserve environment. Faruque (2016) green

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banking refers to the banking business conducted in selected area and technique that helps the reduction of carbon emission surround the world. To aid the reduction of carbon emission bank should finance green technology and pollution reducing sector. Rahman, et.al.,(2013) Green banking is the operation of the banking activities giving especial attention upon the social, ecological and environmental factors aiming at the conservation of nature and natural resources. Banks can be green through bringing changes in six main spheres of banking activities. Those are Change in Investment Management, Change in Deposit Management, Change in House Keeping, Change in the Process of Recruitment and Development of Human Capital, Corporate Social Responsibility (CSR), and Making Consciousness Among Clients and General Mass. Such an initiation can ensure a safe residence for upcoming generation.

Masukuzzaman and Akter (2013) concluded that Bangladesh is far behind their counterparts from the developed countries. But the general picture presents a transition to green banking in a consistent manner for most banks. By taking care of its infrastructure development and accelerating its existing green movements, banks can ensure sustainability for itself and greener world for communities. Rahman and Pervez(2016) Green keeping money practices will be helpful for environment as well as lead to cost reductions in managing an account exercises. Pal and Russel (2015)Green Banking is the practice of eco-supportive products innovation as well as the breeding of consciousness to human mind as part of economic spillover to a nation. Islam and Kamruzzaman (2015) stated that Green Banking is a modern concept of the banking business through considering the corporate social responsibility (CSR) as well as environmental issue. Nowadays, it is the most acceptable and popular practices of the green banking by banks because leads to competition of globally. On an average, bank is allocated Tk.2 billion for green banking in 2012. The concept of green Banking is relatively new in Bangladesh and yet to get momentum, but in the developing countries it is passing through a mature stage. They also concludes that green banking practices in Bangladesh is not satisfactory at all A green bank is a bank that promotes environmental and social responsibility but operates as a traditional community bank and provides excellent services to investors and clients. Its progressive approach to the community and the earth sets it apart from other banks in March 2009, Congressman Chris Van Hollen introduced a Green Bank Act with the aim of establishing a green bank under the ownership of the US government. Its objective was to offer financial support to efforts to increase efficient energy usage, and reduce carbon emissions and environmental pollution resulting from energy creation. Its aim is to provide good environmental and social business practices. One would be awarded a loan only when all environmental safety standards are followed, Mamun Rashid,(2010).

*a) Definition of Green Banking*

Green Banking means the eco-friendly or environment-friendly banking and it also refers to ethical banking or sustainable banking. The term Green Banking is now popular worldwide now-a-days. It is for stopping the environmental degradation and making this planet habitable. The concept of Green Banking developed in the western countries, which has been replicated by many developing countries. We all know that the peoples of the whole world are concerned about the environmental degradation, especially the rising of global temperature and thereby melting of glaciers and ice-berg in the polar region and consequently rising of sea level, which will directly affect the low lying countries of the world. The world conscious people are also concerned about the increase of Green House Gases and Chlorofluorocarbons (CFCs) and thereby depletion of Ozone layer. As such, every person and especially the professionals must have greater role to check the environmental degradation. That's why this new idea of green banking comes to the banking industry.

Bankers are the important professional group who has interaction with the other groups of people and also with general masses. They can adopt different green activities within their in-house environment and also can initiate the protection of the air pollution, water pollution by their clients. Bankers can finance the green projects, which are environmental friendly and discourage the projects that damage the environment. Green banking can benefit the environment either by reducing the carbon footprint of consumers or banks. Either a bank or a consumer can conserve paper and benefit the environment. Ideally, a green banking initiative will involve both. Online banking is an example of this. When a bank's customer goes online, the environmental benefits work both ways.

Banks can do Green Banking by

- ✓ Green credit cards,
- ✓ Green checking accounts(converting checking accounts to online banking),
- ✓ Green CDs (bonus rates for online banking),
- ✓ Green savings accounts,
- ✓ Green money market accounts (converting savings accounts to online banking),
- ✓ Green loans( better rates for energy-efficiency projects) and
- ✓ Green mortgages (better rates for energy-efficient houses).

Banks can also covers online banking news and mobile banking innovations including banking applications for iPhones, iPads and Android phones. Besides green banking can be done by using online banking instead of branch banking. Paying bills online instead of mailing them. Opening up CDs and money market accounts at online banks, instead of large multi-branch banks. Or finding the local bank in customer's area that is taking the biggest steps to support local green initiatives.

b) *Benefits of Practicing Green Banking*

1) Bangladesh Bank will award points to Banks on Management Component while computing CAMELS rating where there will ultimately be a positive impact on overall rating of a Bank.
2) Bangladesh bank will declare the name of Top Ten Bank for overall performance in green banking activities in the BB website.
3) Bangladesh bank will actively consider green banking activities/practices of a Bank while according permission for opening their new branch.

Human Resources Division of IBBL advises to head of all branches to go through the contents of this Circular Letter and give the whole matter to the knowledge of all employees working under branch manager for information and creating their awareness about Green Banking in IBBL. By keeping this circular in mind every branches of IBBL try to comply Green Banking activities in their house and also outside their house.

## III. Green Banking Policy of Bangladesh Bank

The broad objectives of the Banks are using their resources with responsibility to grow trade, commerce, service, industry, income, employment generation, business and other economic activities. A Bank which is socially responsible, environmentally cognizant and follows a path of sustainability with automation and efficiency is called Green Bank. Observing the global warming, increasing trend of carbon footprint, other environmental pollutions and overall global environment adversities and hence perceiving the urgency to protect the globe for probable environmental calamities and to ensure continuous supply of the scarce natural resources for future generation, a new approach for Green Banking activities has been prescribed by Bangladesh Bank through recently circulated "Policy Guidelines for Green Banking" vide BRPD Circular No. 02 dated 27 February, 2011. The Green Banking Road Map of the regulators of Bangladesh has been segregated into three phases which are to be adopted by the Banks within 2013. The following activities are to be undertaken in 2012 as compliance of the Phase-II of the policy.

## IV. Objective

- To evaluate the present condition of the bank regarding to the using solar energy, green banking culture and ecological balancing of different department.
- To understand and analyze the social responsibility of IBBL and also environmental contribution to the economy.
- To show the Green Banking performance of IBBL through it's different initiatives.

## V. Methodology

Source of data of this article can be divided into two parts:

*Primary Sources:* Face to Face conversation with 4 officers, staffs, and sharing practical knowledge to officials.

*Secondary Sources:* Annual Report of IBBL of last 5years Audit reports, website research papers, Newspaper, Journal, Internet and various studies from selected reports.

*Methods of data Analysis:* This research report was done by analyzing the data in both qualitative and quantitative way. The analysis was made by doing Individual company analysis, Graphical analysis, and by Comparative analysis.

## VI. Limitations of the Study

- Green banking Initiatives is a new topic in Bangladesh. Phase-II is just going on to the banking industry.
- Implementation time of following Green Banking by all scheduled banks is not over yet. That's why information is not available of banks.
- Information of green banking activities of IBBL is not available.
- Until now many officials and employees of the bank don't have good knowledge about Green Banking, that's why taking interview was not effective.

## VII. Implementation of Green Banking by IBBL

a) *Green Banking Governance of IBBL*

IBBL has been operating all of its activities with due consideration of total welfare, ethics, environmental cognizance, economic justice, shariah rulings etc. since inception. It was looking forward for a national policy to shape its activities and to make its welfare efforts a success because it feels that combined efforts are needed to bring the total welfare arid to make the earth green. After recent circulation of the "Policy Guidelines for Green Banking" vide Bangladesh Bank's BRPD Circular No. 02 dated 27 February, 2011, the Green Banking activities of Islami Bank Bangladesh got a new embodiment and it has introduced the followings for proper & effective governance of the Green Banking activities of IBBL:

- ✓ Establishment of separate Green Banking Department under the Bank's Risk Management Unit;
- ✓ The Executive Committee has been assigned to supervise the Green Banking activities;
- ✓ Formulation of a broad Green Banking Policy for the Bank
- ✓ Incorporation of Environment Risk Management in the Bank's Investment Risk Management Guideline

## VIII. Spectrum of Green Banking Activities of IBBL

In terms of the Green Banking Policy of Bangladesh Bank (Phase-I), the Green Banking activities of IBBL has been concentrated in the following region/sectors of its day to day activities:

- ✓ Investment Operations
- ✓ Internal Operation & Environment
- ✓ CSR activities
- ✓ Adoption of Green Technology
- ✓ Product & Market ecology

## IX. Investment Operations

The investment policy of IBBL has been prepared not only considering the profit goal but also considering the following ethical aspects:

- ✓ Islamic Sharia'h
- ✓ Social Desire
- ✓ National Investment, Finance Plan, Perspective plan etc.
- ✓ Economic Justice
- ✓ Environment protection
- ✓ Green Banking Policy of Bangladesh Bank
- ✓ Protection of haram/socially undesired goods production
- ✓ Preference for investment to lower income group
- ✓ Products invention by market segmentation
- ✓ Diversification of investment by giving preference to special/least economic zone
- ✓ Product invention for preferential sector
- ✓ Bringing non-earning group of people into earning process etc.

As such, IBBL should not extend any facilities against any speculative, health hazardous, detrimental products. IBBL gives emphasis the investment clients to install water treatment plants where needed, effluent treatment plants, or hazardous waste treatment plants to qualify for the investments. IBBL should give high preference to environmental infrastructure projects like renewable energy plant, clean water supply project, waste-water treatment plant, bio-gas plant, bio-fertilizer plant etc. In addition to environmental infrastructure projects, it also gives preference to energy saving and environ friendly product manufacturing projects. IBBL should also ensure that its investments are made through rigorous evaluations of overall environmental impact of the project so that no damage is done on the environment using their investments. IBBL gives special attention on the following matters at the time of financing:

- ✓ Ensuring maximum recycling/processing of waste/detrimental by-products;
- ✓ Environment friendly projects
- ✓ Brick Field (Zig-Zag)
- ✓ CNG Re-fuelling projects
- ✓ Energy Savings Bulb Projects
- ✓ Organic Fertilizer
- ✓ Jute Project instead of Poly
- ✓ Tree Plantation etc.

## X. Internal Operations & Environment

- ✓ IBBL is trying to be as much conservative as possible in use of resources like fuel, electricity, paper and even water. It is ensuring maximum efficiency while using resources.
- ✓ It tries to avoid printing and print on both sides of a paper when needed.
- ✓ Reusing envelopes, folders, papers clips and using e-mail instead of paper correspondences, ceramic cup/glass instead of disposable ones, CFL bulbs/tubes instead of the normal ones, scrap papers as notepads, less fuel consuming cars.
- ✓ It will try to use energy saving bulbs, and ensure that there is sufficient arrangement for using day light and air circulation.

### a) *Technologies in Internal Operations*

IBBL is always pioneer in technology adoption. IBBL has developed an in-house built integrated banking system namely eIBS (electronic Integrated Banking System) in between 2001-2004 and implemented the same covering all of its business aspects like:

- ✓ Customer Information
- ✓ General Banking
- ✓ Investment
- ✓ Foreign Exchange
- ✓ BASEL-II
- ✓ Remittance (Foreign & Local)
- ✓ SWIFT
- ✓ Internet Banking
- ✓ SMS Banking

for its in-house day to day to business management and to ensure better & prompt customer Services through acquainting the customers with *automation & paperless banking* system.

### b) *Technologies for Better Customer Services*

All of its branches are online. It has introduced SMS & Internet Banking, ATM Services for its Customers. Moreover, it is going to adopt Mobile Banking Service, Point of Sale (POS), Khidmah (Credit

Card), Travelers Card, Automation of all scheduled Telegram, Automation of all types of statement, implementation of Investment HUB, Document/Content management, work flow management, data archive etc. to enhance its own efficiency and to facilitate its customers & make its customers acquainted with the technology based paperless Banking System.

c) *Special Technologies*

IBBL has its own online Data Center, Disaster Recovery Site, Distributed BACH system, Central MIS system developed by itself for its own. It is using intranet, own mail server for internal communication instead of paper based correspondences.

## XI. CSR Activities

CSR activities or the Bank are concentrated in the following points of view:

- ✓ Responsibility towards shareholders
- ✓ Responsibility towards employees
- ✓ Responsibility towards customers
- ✓ Responsibility towards community
- ✓ Responsibility towards environment
- ✓ Responsibility towards suppliers

The Bank is enhancing its customer services and adopting modern but green technologies where needed. IBBL contributes to a great extent in inclusion of the small untapped deposits an channeling the same in the regular economic activities through opening account the lowest initial deposit from Tk. 10/- to Tk. 500 considering the categories of products. Moreover, IBBL provides Quard (without any profit/interest) for sanitation and establishment of tube-well to ensure supply of pure drinking water. IBBL established many hospitals to provide health services to the people at the lowest cost, organizes various health camps, established many institutions (including technical) to ensure better education for the people at the lowest cost and through Islami Bank Foundation (IBF).

IBBL also arranges scholarship programs, academic award, tree plantation programs, arranges training/seminars etc. for women empowerment program, mobilizes charitable fund & contributes in relief and rehabilitation, takes measures for mitigating environmental risks for its community and stakeholders. The FaKhair Agro-Inputs Program (EKAIP) has been operated in 23 upazilas under 12 districts.

## XII. Product & Market Ecology

IBBL always introduce its product considering the environment affects. Some of the examples of such products are as under:

- ✓ Solar Panel Investment Scheme
- ✓ Agricultural Implements Investment Scheme
- ✓ Rural Development Investment Scheme
- ✓ Micro-Enterprise Investment Scheme
- ✓ Mudarabah Savings Account for Farmers
- ✓ Mudarahab Savings Account for Students
- ✓ Women Entrepreneurs' Investment Scheme
- ✓ Mudarabah Waqf Cash Deposit Account
- ✓ Small Business Investment Scheme etc.

More emphasis is given on Small & Medium Enterprises instead of large scale industries and rural areas instead of urban areas to ensure equity, justice, decentralization and balanced growth of the economy while financing. It also gives emphasis in utilization of the hazardous toxics/by products that are emitted from the industry and conversion of the same into hygienic products and thus making those projects as the complete ones. IBBL itself always tries to promote its products & services through counseling or by electronic media like its websites, television, radio etc. rather than using paper based media. It also encourages its customers to promote their products & services in an environment friendly way

## XIII. Some Investment Project of IBBL which is Directly or Indirectly Related to Green Banking

Green Investments (finance) implies the financial services to the businesses and projects that help prevent deterioration of the environment as well as which are not harmful to the environment. Green Investments combine both *Direct* and *Indirect* green investments.

As per Bank's principles of giving preferences for eco-friendly business activities and energy efficient industries, it takes different steps for enhancing the green investment. Bank's green finance exposures were taka 54,751.12 million in 2014. The performances of some major areas of green investments were as follows



(Amount Million in Taka)

| Particulars | No.of Units | Amount disbursed |
|---|---|---|
| a.Direct Green Investment | 1064 | 629.24 |
| i. Bio gas | 09 | 0.89 |
| ii. Solar system | 18 | 131.08 |
| iii. Bio fertilizer plant | 02 | 0.20 |
| iv. Environment friendly brick fields | 31 | 125.97 |
| v. Energy saving bulbs production plant | 03 | 29.16 |

| | | |
|---|---|---|
| vi. Waste and hazardous disposal plant | 06 | 2001.77 |
| vii. Waste paper recycling plant | 12 | 394.64 |
| viii. Pet bottle recycling plant | 12 | 370.05 |
| ix. Waste recycling plant | 11 | 510.46 |
| x.Clear water supply project | 14 | 4.12 |
| xi. others | 4018 | 23.46 |
| b. Indirect green finance | 696 | 51156.02 |
| i. Project having ETP | 219 | 48352.51 |
| ii. Project having Zigzag kiln& Tunnel kiln | 477 | 2803.51 |
| Total(a+b) | 4832 | 54751.12 |

## XIV. Automation of IBBL for the Purpose of Green Banking

The Bank has a good number of products which are automated and time savings for the customers. Advanced technologies are being used to provide prompt and environment friendly customer services.

Various continuous processes have been there to minimize the banks direct operational impact on the environment in Bangladesh:

1. Soft archival of customer documents for electronic access and retrieval is enabling us to reduce consumption of paper
2. Majority of internal memos, process notes and records are in electronic form
3. Internal communications are done through emails. Most of the staffs have dedicated email IDs for office use.
4. Customer communications are being done through emails, SMS or ATM display instead of letter communication (except for regulatory requirements)
5. Video conferencing with offices & branches has reduced the need for physical travel associated with carbon emission.
6. Most of Foreign Trade Services of the Bank are handled through Centralized Trade Processing. Besides, all circulars, notices, memoranda and queries are issued through Intranet. Employment notices, moreover, are given on website and online applications are invited & entertained.
7. The Centralized Investment Proposal Processing System of the Bank has been introduced for efficient and prompt disposal of the investment proposals and to make the whole process of investment system more transparent which is running as a Pilot operation.

## XV. Some Problems of Implementing Green Banking in Bangladesh

For bank it is not easy to be truly green. It requires a through appraisal of all aspects of the business in order to be truly green. Refusing to lend to 'dirty' industries is one thing and making a commitment to clean up one's own act is even harder. Sometimes it is difficult for the banks to balance environmental concerns and business demands. There are two common standpoints related to the product ecology. The first one is that the banks should be 100 percent liable for the use of their products. The other extreme is that the user should be made fully liable to use the product not the bank. There are arguments for both however these extreme stands do not seem to be practicable. The right way lies somewhere in between. Finding the right way is one of the major challenges of sustainable banking.

One crucial debatable issue is 'how should banks govern the environment?' It is argued that a major barrier posed to open governance is incorrectly generalizing bank behavior.

- Response of business is slow and consumer remains unaware
- Environmental responsibility comes as part of CSR practices among business in Bangladesh. Studies on the area covering Bangladesh businesses are very limited.
- Green banking practices are not among the priorities of banks in Bangladesh

'Environmentally responsible practices' or green banking practices is generally seen as a part of CSR practices in the banking sector of Bangladesh. Most financial institutions in Bangladesh have not integrated CSR in their routine operation; rather they are in the form of occasional charity or promotional activities. Bangladesh Bank (BB) had taken initiatives in respect of formalizing CSR and issued an elaborate directive to the banks on June 01, 2008. BB had introduced Tk. 2.0 billion refinance line in FY 10 against bank loans for environment friendly investments in solar energy, biogas plants and effluent treatment plants. A new refinance facility had also been introduced to capacitate jute sector and solar powered lighting. Though BB guidance circular suggested embracing of CSR with decision taken at the highest corporate level and to choose action programs and performance targets, only 12 PCBs and 3 FCBs reported to have embraced CSR with decision at the highest corporate level, and none of the government controlled banks and specialized banks reported to have done anything in this regard. The philanthropic activities of banks generally cover education, health, disaster relief, sports, art and culture, environment etc. according to the BB (2010) , only one local private commercial bank and one foreign commercial bank have direct interventions on environmental issues

## XVI. Conclusion and Recommendations

- Development of environmentally responsible practices by banks or green banking is the result of a collective effort of all stakeholders. Government should take necessary steps to enforce existing environmental regulations and formulate appropriate rules to ensure 'Pollute Pays Principle' in the country. The Central Bank of Bangladesh can play a pro-active role in formulating a national level 'Green Credit Policy' and creating a sound incentive structure for performing Environmental Risk practices by banks. A discount window may encourage banks to undertake green financing. Much more is expected from civil society organizations in the form of awareness development, research activities, and business monitoring. 'Consumer Awareness' is the area where Bangladesh needs remarkable change, because green banking is largely driven by consumer behavior and consumption patterns. This study brings to a closed that in-spite of a lot of prospect in green banking, IBBL is doing very well for ensuring the social responsibility by making ecological balance of different department and by maintaining a culture of green banking. IBBL's green banking performance is very much satisfactory. For rapid change among consumers and businesses, a collective endeavor of government, media, NGOs, and Banks will be required. An isolated effort by banking communities may not bring much. The success of the proposed framework would depend upon the pro-active role of all stakeholders and a sound incentive structure.

Major stakeholders need to play active roles for the development of GB practices in Bangladesh covering environmental management and governance, environmental risk management, in-house environmental performance, voluntary and leadership activities, and environmental reporting. The paper prescribes the following recommendations:

- Banks should formulate and adopt broad Environmental or Green Banking Policy and Strategy approved by their Board of Directors.
- A separate Green Banking Unit or Cell should be established and assigned with the responsibility of designing, evaluating, and administering related issues of the bank. Employee awareness and training on environmental and social risk and the relevant issue should be a continuous process as part of the bank's human resource development.
- Bank should formulate strategies to design specific policies for different environmentally sensitive sectors in the country like agriculture, leather, fisheries, forestry, mining, mgas, power generation, pharmaceuticals, constructions, textiles, jute etc. in this connection, published materials of environmental NGOs might offer valuable guidelines.
- It is time to incorporate 'Environmental Risk' as part of the existing risks prescribed to asses a prospective borrower by a bank in the Credit Risk Management Manual for granting big loans. Bangladesh Bank may play an important role in this connection.
- As a starting point, a bank should prepare an inventory of the consumption of water, paper, electricity, energy etc by its offices and branches in different places for in-house environmental management A 'Green Office Guide' may be introduced for the employees for efficient use of electricity, water and paper and reuse of equipments.
- Environmental infrastructures such as clean water supply and wastewater treatment as well as solid and hazardous waste disposal should be encouraged and financed by banks. Eco-friendly business initiatives and energy efficient industries may be preferred in financing activities
- Converting to online banking is the easiest way to help environment by a bank. Introducing online banking and e statement help saving papers and trees.
- The crucial task of awareness development among consumers and clients should be a continuous job of a bank under its public relation department. For this, banks may have alliance with environmental NGOs and media. Banks may also support public green events like campaign, sponsoring educative programs on environment, sponsoring tree plantations, celebration of Earth Day etc. Success of consumer awareness is an important determinant of the success of green marketing in Bangladesh.
- Cooperation among environmental NGOs with banks may help bringing a congenial atmosphere for green businesses, products and activities. Banks may support environmental initiatives and research activities through green financial products.
- Banks should create disclosure policies and practices that would require clients to make information about environmental and social impacts available to affected communities. Social and environmental disclosure should not be avoided through the claim of client confidentiality. At this stage online reporting and at least a section in the annual reports should cover environmental activities

of banks. In the long run banks should make plan to publish independent environmental annual report following internationally accepted format.

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Global Journal of Management and Business Research: C Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Project Financing, Implementation and Control Practice: A Study on Selected Business Organizations in Ethiopia

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*Abstract-* Once a project is selected after going through rigorous appraisal process, promoters must also decide the way in which the capital projects will be financed. Project delay is common problem especially in developing countries like Ethiopia mainly because of problems in the implementation and control. The main objective of this study is to examine how capital projects in Ethiopia are financed, implemented and monitored. To achieve this objective, primary data was collected using self administered questionnaire from 109 large private and public owned business organizations found in Addis Ababa, Ethiopia. The finding of the survey indicated that most projects are financed using either internal sources or borrowing from banks. The use of stock and bond to finance capital projects is very much limited because of absence of capital market. Further, the main reason for project delay includes lack of foreign exchange and not properly making project design at the beginning. Most firms use traditional methods to schedule, monitor and control capital projects. Modern project scheduling and monitoring techniques such as CPM and PERT are rarely used in Ethiopian firms.

*Keywords: capital projects, financing, implementation, monitoring and control.*

*GJMBR-C Classification: JEL Code: D92*

PROJECTFINANCINGIMPLEMENTATIONANDCONTROLPRACTICEASTUDYONSELECTEDBUSINESSORGANIZATIONSINETHIOPIA

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## I. Introduction

Identifying and selecting viable project is not the end by itself. Once a project is selected after going through rigorous appraisal process, promoters must also decide the way in which the capital projects will be financed. Projects can be financed using either owner's equity or debt. After securing the finance, the implementation plan should be prepared and the implementation of the project should be undertaken. During implementations, continuous monitoring and evaluation should start side by side and post implementation audit should be undertaken at the end.

Given the capital budgeting decision of firms, they must also decide the way in which the capital projects will be financed. When a firm makes an investment decision, it is concurrently making a financing decision also. For instance, a decision to build a new plant, to buy new equipment or new machine requires specific way of financing that project. Therefore, capital budgeting and financing decisions are very much related and they can be said "different faces of the same coin".

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UNIDO (1991) advices that detail feasibility study should be carried out only if the necessary financing facilities can be identified with a fair degree of accuracy. The feasibility study will be useless if adequate source of finance is not available for its implementation. For that reason, possible project financing must be considered at early stage of investment, because financing alternatives have a direct effect on total costs and thus on the financial feasibility of the project.

Project implementation and monitoring are the next jobs after projects passed the selection stage. If the project is accepted and endorsed, its implementation can start. But this is not the end of the capital budgeting process. The project should be monitored with periodic reviews to ensure that it is performing as expected. Monitoring of both cash inflows and outflows is very important because, in the most difficult situation, even possibility of terminating the projects can be considered.

Project delay is one of the basic problems in developing countries like Ethiopia. Most of the causes for not completing projects on time are associated to financing, implementation and controlling issues. Therefore, the purpose of this study is to investigate problems associated to financing, implementation and controlling of capital projects taking evidence from Ethiopia.

## II. Research Problem and Objectives

Chandra (2009) argued that capital budgeting is a crucial decision for the firm's success for the following reasons. First, capital investment typically account for large amount of funds of the organization. Second, capital investments normally have a fundamental effect on the future cash flows of the organization once an investment decision has been taken. Third, it is often not possible to reverse it, or it is very costly to do so, once the funds have been committed and funds are normally tied up for a considerable period of time. Fourth, since capital budgeting decisions are long term and infrequent, it does not give chance to CFO's to learn from experience and finally, capital investments affect the profitability and long-term strategy of the organizations. These reasons call to make proper capital budgeting analysis and project management techniques before committing their cash to capital investments.

Capital budgeting is the process of planning, forecasting cash flow, appraisal, selecting, implementing and controlling of capital investment (Dayananda, et al, 2002). Although all theses stages are important for achieving firms goal through capital investment, most previous studies highly emphasis on the appraisal and selection stages of capital budgeting phases. To the researcher's knowledge, there are very few studies that studied particularly the financing, implementation and controlling aspects of capital projects taking evidence from least developed country like Ethiopia. Therefore, the main objective of this study is to investigate the financing, implementation and controlling aspects of capital projects taking evidence from Ethiopia. Specifically, this study is aimed at answering the following basic questions:

- How do firms in Ethiopia finance their capital projects?
- What are the problems associated to implementing capital projects in Ethiopia?
- Do firms in Ethiopia undertake continuous monitoring and evaluation of capital projects?

## III. Literature Review

### a) *Project Financing*

The two main source of finance available to a firm are shareholders fund and loan funds. Stockholders fund come mainly in the form of equity capital and retained earnings and in the form of preference capital. Loan funds come in a variety of forms like debenture capital, term loan, deferred credit, fixed deposit and working advance. When should a project use more equity and when should a project use more debt?

Chandra (2009) recommends that a firm should use more equity under each of the following conditions; the tax rate applicable is negative, business risk exposure is higher, dilution of control is not an important issue, the assets of the project are mostly intangible and the projects have many valuable growth options. He further recommend that a firm should use more debt under the following condition; the tax rate applicable is high, business risk exposure is low, dilution of control is an issue, the assets of the projects are mostly tangible and the project has few growth options..

In addition to the above standard source of finance, leasing, venture capitalist, international market, international organization, local government and other miscellaneous sources can be used.

### b) *Implementation*

The implementation phase for industrial projects which involves setting up of manufacturing facilities consists of several stages. These include establishing the financial, organizational and legal basis for the implementation of the project, technology acquisition and transfer, including basic engineering, detailed engineering design and contracting, including tendering, appraisal of bids & negotiations and Acquisition of land (UNIDO, 1991).

Then construction, personnel recruitment, promotion and starting operation should be undertaken. The construction stage involves site preparation, construction of buildings and other civil works, together with the erection and installation of equipment in accordance with proper programming and scheduling. The personnel recruitment and training stage, which should proceed side by side with the construction stage, may prove very crucial for the expected growth of productivity and efficiency in plant operations. Of particular relevance is the timely initiation of promotion to prepare the market for the new products and secure critical supplies. Plant commissioning and start-up is usually a short but technically important span in project implementation. It links the preceding construction phase and the following operational phase. The success achieved at this point demonstrates the effectiveness of implementation planning and the execution of the project (UNIDO, 1991).

Translating an investment proposal in to a project is complex, time consuming and risk taking activity. Delays in implementation can lead to substantial cost and time overrun. For speedy implementation at a reasonable cost, the following are helpful. First, the major reasons for the delay of projects are insufficient formulation of projects. If the necessary home work in terms of preliminary studies and comprehensive and detailed formulation of the project is not done in advance, many surprise and shocks are likely to spring on the way. The second solution is assigning specific responsibility to project managers for completing the project within the defined time frame and cost limit and finally use of network technique like PERT and CPM will enhance the monitoring and follow up easier (Chandra, 2009).

### c) *Tools for Project Scheduling*

The necessary activities for establishing a factory, including: construction, delivery and assembly of the equipment, recruitment and training of the operating personnel and the delivery of all production inputs, should be undertaken timely before operation start-up by making good project planning at the beginning and efficient project implementation. Any delay on one of the above mentioned stages would have a negative effect on the successful completion of the project, especially during the start-up phase. In order to avoid this, effective planning and balanced organization of the various activities are necessary, and can be achieved only by careful planning and scheduling.

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The viability, quality and dependability of the project are more important than the time factor during pre implementation phase. However, while in the implementation phase, the time and cost factors is more critical in order to keep the project within the estimate made in the feasibility study. Project implementation schedule play a great role in avoiding time and cost overrun during implementation phase. Project implementation schedule requires the following activities to be done in advance. List of all possible activities from project planning to commencement of production, the time required for performing various activities, the sequence in which various activities are performed, the resources required for performing various activities, the implication of putting more resource or less resources than are normally required on time.

There are several tools used to plan and schedule activities in a project. For small projects with few activities, a bar chart showing when a particular activity would begin and when it would end is fairly simple tool for drawing up the implementation schedule. For most complex projects which consist of numerous activities and are fairly large, networking techniques are required. Networking techniques are the most sophisticated than the traditional Gantt charts. In these techniques, the activities, events and their interrelationship are represented by a network diagram also called arrow diagram. There are two basic networking techniques. The first one is program evaluation and review technique (PERT). This is usually suitable for projects under risk and uncertainty such as research and development, projects involving new technology, aerospace etc. Hence, the orientation of PERT is probabilistic. The second one is Critical Path Method (CPM). This was developed by Dupont Company in USA to solve scheduling problems in industrial setting. CPM is primarily concerned with the trade off between cost and time. It has been applied mostly to projects that employee fairly stable technology and are relatively risk free. Hence its orientation is deterministic (Chandra, 2009).

In line with project implementation scheduling techniques discussed above, it is important to make periodic review of the original timetable in the course of project implementation. This will help to identify any discrepancies that may have occurred during construction work and to take into account their effects on time and costs. That means, the feasibility study prepared at the beginning should describe all the critical activities that can serve as valuable guidelines in revising the timetable. A continuous comparison of the forecasts made in the feasibility study with the actual investment and production cost data accruing during the implementation phase is required in order to monitor and control the resultant changes in the overall profitability of the project, which may in turn require adjustments in the short-term loan and equity financing of the project.

*d) Monitoring and Control*

Making careful evaluation before selecting an investment is only the first step. As situations change, new variables come out and fresh opportunities may arise. The organization need to modify its original plan and incorporate new development, and alter the course of action necessary to attain the best result. Therefore, as soon as implementation begins; control should become the dominant concern of the project manager. Project control involves a regular comparison of performance against targets, a search for the cause of deviation and a commitment to check adverse variances. It serves two major purposes. First it ensures regular monitoring of performance and second it motivates project personnel to strive for achieving project objective on time using the allocated resource (Chandra, 2009).

Monitoring of projects is done at the implementation stage as well as at the operation stage. There are numerous monitoring and control techniques each having their own merits and demerit. Therefore the choice of these techniques should be based on the balance between the advantages and disadvantages of having a given project control system.

In practice, Azzone & Maccarrone (2001) found out that shareholders value performance is greatly affected by frequency of project monitoring and evaluation. According to their finding, projects which will be evaluated on weekly and monthly basis are less vulnerable than those that are evaluated annually. The same finding was also obtained by Akalu (2002a) in his study in UK and Netherland. In this connection, it was found that the higher the frequency of monitoring, the narrower will be the expected discrepancy. That means, by making frequent monitoring, the project manager can quickly correct problems that could increase the likelihood of discrepancy. Akalu adopted *multinomial logit* regression model and found out that discrepancies ranging from 0% to 10% are mostly associated with weekly or quarterly project assessments. On the other hand, those infrequent evaluation experiences are associated with higher discrepancy rate ranging from 11 – 20%. From this, he concluded that value discrepancy follows the frequency of project evaluation. He also found that projects are monitored more frequently in high performing than in low performing companies. This implies frequent monitoring enhances shareholders value performance.

*e) Post Implementation Audit*

Post implementation audit is the control process aimed at making an overall revision of all those activities concerning the management of an investment proposal, from its initial stage, to its implementation up to the end of its life. Post audit is different from a simple project

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monitoring in terms of scope and degree of completeness. Its main objective is to learn what worked and did not work in a project and more importantly, transfer this knowledge to future projects. Post project audit should be viewed as proactive events that can both improve future project management endeavours as well as help to identify new opportunity and markets (Azzone & Maccarrone, 2001).

## IV. Research Methodology

As the objective of the study is to investigate the financing, implementation and control practice in Ethiopia, the research design adopted in this study was descriptive in nature. Data were collected mainly from primary sources. Survey questionnaire were developed and distributed to sample firms in Addis Ababa, Ethiopia. Stratified random sampling method was used in selecting the sample firms. First, about 900 large firms were identified from the data base of ministry of trade of Ethiopia, then using statistical model, 180 firms were selected for the survey. Questionnaires were distributed to finance managers or planning officers of these 180 sampled business organizations out of which 109 usable questionnaires were collected back. These 109 samples firms were categorized in two ways for analysis purpose. 55 of these firms are engaged in industry sector such as manufacturing, construction, mining, agribusiness etc and the remaining 54 firms are engaged in service sector including finance, hotel and catering, education, transport and communication, etc. Based on ownership, again the organizations are categorized as private which includes 71 firms and state owned which include 38 firms. The data gathered were processed using Statistical Package for Social Science (SPSS 20) and MS excel. Descriptive statistical tools and tables were used in the analysis and presentation. In order to support the result obtained using survey, interviews were conducted with six key informants from different organizations.

## V. Result and Discussion

### a) *Financing Projects in Ethiopia*

The survey result and experts interviewed indicated that the followings are main sources of financing capital projects in Ethiopia; internal source, borrowing from banks, industry development fund, and initial public offering. In addition, as a strategy to encourage investment, Ethiopian government also gives incentives in the form of tax exemption and provide land and industry zone for free or at a lower lease price

Since most firms in Ethiopia are small in size, they do not qualify for bank borrowing. Therefore, they try to finance their project from their own internal sources including; portion of net income from operation, sale of another non usable property, using traditional saving called "Iqub" or contribution from families and relatives. Kidane (2010) in his research on Ethiopian firms found that firms in Ethiopia prefer to use internal source than going to bank as banks are expensive. In addition, State owned enterprises are permitted to finance replacement and purchase of ordinary fixed assets using their own internal cash flow which they deducted in the form of depreciation from their income statement. With the poor performance of the firms which results in insufficient internally generated cash, searching other source of finance is a must.

Therefore, if the amount required is significant and the organization qualifies the requirement, capital investments can be financed by borrowing from banks as there is no alternative formal capital market in the country. Especially development bank of Ethiopia specializes in the provision of capital for big industrial and agriculture projects. Commercial bank of Ethiopia provides all kinds of loan including long term loan to finance projects. In addition to the government owned banks, private banks also give loan for capital projects. The use of bank financing is similar with the finding in Kuwait firms. In Kuwait, Al Mutairi et.al. (2008) reported the fact that there are underdeveloped and inactive bond and mutual funds markets leaves room for banks to play an important role in financing firms listed on Kuwait Stock Exchange.

However, the process of securing bank loan is procedural and officious. Most of the banks have very strict requirement which seeks elaborate details of the various aspects of the borrowing company and about the project. For instance, development bank of Ethiopia will finance only 70% of a given project if and only if the borrower has 30% of the total required amount and the firm has adequate collateral. Bank loan are hard to get as banks require strong collateral ranging from 125% to 400% of the amount of loan requested. Currently, the only acceptable collateral properties are buildings under municipalities and vehicles registered by Road and Transport Authority of Ethiopia. So, any investor who wants to get bank loan should have such properties. There is a problem of underestimation of collaterals by banks. This makes it difficult for those firms which are young and have no asset in place to be used as collateral for the bank loan. There is also a problem of elongating medium to long-term loans; banks are very unwilling to extend loans for long and medium term capital investments and they tend to eliminate small borrowers and concentrate on their well-to-do clients that are creditworthy. The high interest rate charged by banks is another discouraging factor.

Some of the problems of banks are attributed to external factors. The different regulatory and administrative controls limit capacity of banks to provide financial service to investors. One of the notable factors that the currently existing banks are complaining is the 27% mandatory bond purchase regulation set by national bank of Ethiopia. The dominance of state owned banks and the strict supervision of NBE are often cited as causes for the inability of firms to have access to bank loan. However, if the current trend in bank branch expansion and the increase in private banks persist in the years ahead, it is hoped that firms will have access to cheaper and attractive bank loan.

Another source of finance especially for state owned firms is Industry development Fund (IDF) which is part of net income of every government enterprise. Every government enterprise will contribute 40% of its annual net income to IDF and the remaining will be paid in the form of dividend to the state. When a specific government enterprise plans to undertake expansion or new project, the project may be financed form IDF given that it satisfies certain formalities and obtained approval of ministry of public enterprise and other higher government bodies such as ministry of trade, ministry of industry and ministry of finance and economic cooperation.

Another recently introduced form of financing by Proclamation No 103/1998 (as amended by Pro. 807/2013) was Capital Goods Leasing. This form of financing was introduced for those investors who have the desire, knowledge and profession to participate in various investment activities but could not act due to lack of capital. The objective is to create enabling environment for the establishment of alternative source of finance believing that lessors of capital goods can fill existing gap which is not addressed by the existing financial institution. Accordingly, companies have entered in to the business and they are leasing long term equipments, machines and construction materials to investors.

In addition, to the above direct financial sources, the government of Ethiopia will give other incentives so as to encourage investment in the country. These incentives include exemption from income tax and custom duty and provision of industry zone & land at a lesser lease price. These are indirect form of financing from the investors' point of view.

*b) Implementation of Projects*

The implementation of capital projects starts with timely accept reject decision by the concerned authority. After accept reject decision, implementation and control schedule should be prepared and project managers should be assigned for the capital investment. Of course these activities may not be necessary for all projects. Respondents were asked to what extent theses pre- implementation activities are undertaken in their organization and the result indicates that, above 74% of the firms make timely accept reject decision, prepare implementation plan and assign project manager on time.

Respondents were asked to indicate who is responsible to implement the project after approval is obtained. Although the implementation will depend on the size and nature of the capital investment, respondents have indicated that above 92% of the capital investments are implemented by the firm itself or both the firm and external contractor. Very small portion of the capital investments are totally left to external contractor alone. The proportion is almost the same under both private and state owned firms. But most firms in the industry sector implement capital investment projects by themselves as compared to Service giving firms.

*c) Monitoring and Control*

Monitoring and control of capital investments is an important step in capital budgeting. Respondents were asked the extent of undertaking regular monitoring and control. The result of the survey indicated that above 78% of the respondents undertake monitoring and control either most of the times or always. This percentage will increase significantly when those who responded sometimes is added to it. In addition, respondents were again asked as to who is responsible for monitoring and control of capital investment projects in their firms and the result indicates that in most of the firms, managers at different level are responsible for monitoring and control of investment projects. Board of directors, concerned employee and external consultants are also involved moderately. In addition, per the interview with an expert from Ethiopian investment commission, the commission is responsible to provide, support and monitoring service to those that obtained investment permit from its office. Specifically, the commission is responsible for pre implementation and implementation stage of the investment projects. After operation was started, the responsibility of follow-up and control would be transferred to ministry of trade and ministry of industry whichever is appropriate. If the firms are unable to start operation, the commission recollects their investment permit.

With respect to ownership, government will closely monitor and control state owned enterprises more closely as compared to private firms. In addition, board of directors make monitoring and control in state owned enterprises more as compared to the private once. With respect to sector wise classification, managers at different level are more involved in monitoring and control in industry as compared to service sector. Question was posed to respondents about the tools used in project scheduling, monitoring and control and their response is summarized in table 1 as follows.

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*Table 1:* Tools for Project Scheduling and Monitoring

| Tools | Total | |
|---|---|---|
| | No | % |
| Gant Chart | 38 | 34.9 |
| Critical Path Model (CPM) | 8 | 7.3 |
| PERT Model | 8 | 7.3 |
| Variance Analysis | 1 | 0.9 |
| Progress Reporting | 65 | 59.6 |
| Field Visit | 20 | 18.3 |
| Missing Items | 11 | 10.1 |
| Total | 109 | 100 |

*Source: Survey Data Analysis*

It is apparent from table 1 that Progress reporting is the main tool of controlling projects in Ethiopia. Gant chart is also used moderately. Field visit is the third popular means of project monitoring and evaluation. Modern management science techniques such as critical path method (CPM) and Project Evaluation and Review techniques (PERT) are not widely used. In addition, the more complex mathematical models, such as linear programming and option models receive no corporate acceptance.

*d) Causes for Project Delay*

Respondents were also asked whether there is project delay in their organization and the reasons behind if there is any. The result indicated that almost all organizations encounter project delay at least some times. An expert from ministry of Public Enterprises also confirmed that delay of projects in government owned firms is common. According to him, it is great achievement if 50% of a project is completed within the scheduled time. The reasons for the delay were summarized in table 2 as follows.

*Table 2:* Reasons for Project Delay

| The reasons for delay? | Frequency | % |
|---|---|---|
| Lack of foreign currency | 55 | 50.5 |
| Lack of finance | 43 | 39.4 |
| Lack of raw material | 26 | 23.9 |
| Lack of skilled man power | 23 | 21.1 |
| Government decision | 20 | 18.3 |
| Inflation | 11 | 10.1 |
| Legal causes | 8 | 7.3 |
| Contractors problem | 6 | 5.5 |
| Missing | 9 | 8.3 |
| Total | 109 | 100 |

*Source: Survey Data Analysis*

The two dominant reasons for project delay are lack of foreign currency and lack of finance. Especially lack of foreign currency seems logical in Ethiopia where getting foreign currency is very difficult. If the capital investment involves the purchase of machinery or other assets from oversees, National bank of Ethiopia plays a key role in sanctioning any such investment by controlling the availability of foreign currency. Table 2 also indicated that Lack of raw material, lack of skilled man power, government decision has also moderate contribution. Inflation, legal causes and contractor's capacity problems are also other reasons for project delay although their contribution is minimal. The causes for project delay are almost uniform among the different classification of business organizations under study.

*e) Post Implementation Audit*

After capital investments have been implemented, it is desirable to examine periodically how closely projects' actual initial investments and subsequent cash flows correspond to their previously estimated amounts. The objective of doing this is to identify any inefficiency in the past and taking care not to make the same error in the future. In this regard respondents were requested to indicate the practice of undertaking post implementation audit and the extent of use of the feedback from post implementation audit.

The result indicated that about 50% of the respondents undertake regular post implementation audit and use the feedback for future capital budgeting process either most of the times or always. When some times is added, the percentages goes up to 80%. This result coincides with the finding in Jordanian companies by Khamees et al. (2010) which showed 84 % carry out post-audit procedures. The finding by Dangol et al. (2010) in Nepal firms and Arnold & Hatzopoulos (2000) in UK firms also showed that majority of the firms under study conduct post implementation audit at least some times.

In addition, the respondents were asked to give opinion on the extent of use of information technology in project analysis, implementation and control process and the result of the survey showed that only about one-third of them replied that they will use information technology either most of the times or always. The use of computer is better in state owned enterprises as compared to private business and in Industry sector as compared to Service giving organizations.

## VI. Conclusion

In Ethiopia, firms heavily depend on internal source and borrowing from banks to finance capital project. Tax exemption and provision of some facilities by the government can also be taken as source of finance. The use of bond and stock market except some initial public offering is not known in Ethiopia as there is no organized capital market. This implies that Ethiopian firms have limited menu to finance their capital project which in turn lead to high cost of financing.

Most projects in the selected firms are implemented by the firms themselves or in collaboration with external contractor. Almost all firms confessed that, project delay is common in their company. The major reasons for the delay are lack of foreign currency and lack of finance. This might be because firms are not doing their homework like planning the financial schema and scheduling their activity using modern management science models such as CPM and PERT before entering in to implementation phase.

Ethiopian firms use traditional control tools mainly periodic report and the use of ICT in capital budgeting is limited. The study showed that, the majority of the firms carry out monitoring, control and post-implementation audit for capital budgeting decisions. The most popular controlling techniques in the selected firms include traditional methods like progress report, Gant Chart and field visit. Although significant number of firms use ICT in project analysis phase, its application in implementation and control phase is rare.

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Global Journal of Management and Business Research: C Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Analysis of Financial Statements for Prediction of Business Sustainability in Rwanda: A Case of Banque Populaire Du Rwanda Ltd

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*Abstract-* Banks are the company which serve the society on the financial services. Banque populaire du Rwanda (BPR) is the one in providing such activity in Rwanda. Different means are provided to consider BPR activities. The main aim to this study is to analyze the financial indicators and business sustainability determinant of predicting future outlook of BPR Ltd during the period 2011 to 2015. BPR improves its services if it is aware of the sustainability index and the financial indicators as well as the relationship between financial indicators and factors of BPR business sustainability. After the employment of techniques in collecting both primary and secondary data on the sample of 83 out of 1606 total population, the financial indicators and business sustainability were analyzed using Bank Analysis Fact sheet (BAFs) and Statistical Package for Social Sciences (SPSS).

*Keywords: financial statement analysis, predicting, business sustainability, banquepopulaire du rwanda.*

*GJMBR-C Classification: JEL Code: E60*

*Strictly as per the compliance and regulations of:*

# Analysis of Financial Statements for Prediction of Business Sustainability in Rwanda: A Case of Banque Populaire Du Rwanda Ltd

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*Abstract-* Banks are the company which serve the society on the financial services. Banque populaire du Rwanda (BPR) is the one in providing such activity in Rwanda. Different means are provided to consider BPR activities. The main aim to this study is to analyze the financial indicators and business sustainability determinant of predicting future outlook of BPR Ltd during the period 2011 to 2015. BPR improves its services if it is aware of the sustainability index and the financial indicators as well as the relationship between financial indicators and factors of BPR business sustainability. After the employment of techniques in collecting both primary and secondary data on the sample of 83 out of 1606 total population, the financial indicators and business sustainability were analyzed using Bank Analysis Fact sheet (BAFs) and Statistical Package for Social Sciences (SPSS). The results indicate there are indications that the positive relationship is only true for low and moderate sustainability performers. The recommendation such as BPR recapitalization, cost cut-off for unnecessary expenditure and more were suggested as strategies for business sustainability.

*Keywords: financial statement analysis, predicting, business sustainability, banquepopulaire du rwanda.*

## I. Background

The main objective of financial statements is to provide information about the financial position, sustainability and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions for business sustainability or going concern, (IASB, 2001). But the information as is provided in the financial statements is not adequately helpful in drawing a meaningful conclusion regarding to the business sustainability, i.e. whether a business is performing, or Not. Thus, an effective analysis and interpretation of financial statements is required. For that reason, after preparation of the financial statements, one may be interested in analyzing the financial statements with the help of different tools such as comparative statement, common size statement, ratio analysis, trend analysis, fund flow analysis, cash flow analysis, etc, (Gopinathan, 2009).

Analyzis of a financial is important to various parties (Internal and external users) such as shareholders, Government, tax authorities, creditors, potential investors, and regulatory agencies, and others… because the business sustainability can be detected from its financial analysis. This means that, a sustained success will depend on how well business is performing based on the analysis of financial statements, (Neely *et al.,* 2000).

Financial indicators have long been the foundation for business sustainability measurement and there is a meaningful relationship between analysis of financial indicators and predicting its business performance. Ofley (2003) argues that financial measure of performance is very crucial as it serves as a tool of financial management, a major objective of a business organization, and a mechanism for motivation and control within an organization. The main difficulty is that many companies do not carry out their financial statements, or others do not analyze it. The problem associated with this, is that business strategies drawn by the decision makers are based on the poor measurement of financial indicators. The companies fail to perform due to the fact that they do not pay attention to the company financial statements for forecasting its business performance, (Chartered Institute of Management Accountants, 2008).

A financial institution like BPR Ltd has to analyse its financial statements, to be able to monitor and control their specific activities; to predict future internal and external states; to monitor state and behaviour relative to its goals; to make decisions within needed time frames; and to alter the firm's overall orientation and/or behaviour.

According to BNR (2013), BPR is ranked on the second by assets, second by deposit and 3 by loans portfolios. It is also a leading retail bank in Rwanda, but this is not the case for the sustainability of its business. Because, having reviewed the BPR financial statements which are prepared in accordance with International Financial Reporting Standards and Law No. 7/2009 relating to companies, since 2008 while BPR became a commercial bank, it didn't divided the dividends to the shareholders anymore. In additional to, it's net incomes are yet below to those of other commercial banks which has lower assets, loans, and deposits than the BPR Ltd. This has been affected the BPR business strategies while planned the recapitalization scenario in 2014. According to prior-study made by the research to the BPR, this bank has been suspended to loan in the

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Global Journal of Management and Business Research ( C ) Volume XVII Issue I Version I Year 2017

ended 2013. It was subjected a number of customers to run out of the BPR. Add that, a prior survey on the BPR financial report revealed that the company is counting three (3) years without making a profit, nor distributing dividend to the shareholders. Prior survey showed that BPR is not adequately capitalized to meet its obligations. According to the CEO's declaration through the BPR strategic plan, stated that in 2008, BPR had 25% Rwanda's market share in loans and local currency deposits. But due to the adequately capitalized bank such as BK, due also to the new entrants into market competitively experienced bank including KCB and Equity Bank (both from Kenya), again from the introduction of a new cooperatives umbrella of SACCOs which targeting SMEs and individuals which have been traditionally BPR core markets, that market share has shrunk down to 14% (as at 30 June 2013), and it is still dropping down (TURAHIRWA, 2014). Many of BPR branches are located far away from business areas, hence BPR has also been losing customers through poor service delivery that fails to meet their expectations.

Those are the serious issues affect negatively the performance of a business. It could also lead the BPR to run out the banking business, also to the inadequate resources allocation which the final results being the poor performance of the Business organization. In these state of affairs, it is suspicious to ensure on BPR outlook of its business performance. Analysis and interpretation of financial statements is an important tool in assessing the prediction of business performance in BPR. This research will assess whether there is a relationship between financial indicators and the determinants of predicting business sustainability in BPR Ltd.

The study is focused on the following hypothesis:

a. Profitability ratios, Liquidity Ratios, efficiency ratios, leverage ratios and market value ratios are the indicators of financial analysis of BPR Ltd.
b. Payout ratio, retention ratio, internal growth rate and sustainable growth rate are the factors of the BPR business sustainability.
c. The financial analysis indicators explain positively the prediction of business sustainability determinants in BPR Ltd.

## II. Objectives

In general, the research is to analyze the financial statement for prediction of business sustainability in Rwanda. The study will emphasis and ensure that the highlighting specific objectives are achieved.

1. To determine the financial analysis indicators of the BPR Ltd;
2. To analyze the determinants of the business sustainability of BPR Ltd;
3. To measure the relationship between financial indicators and business sustainability determinants of the BPR.

## III. Literature Review

Financial indicators are statistics extensively used to monitor the soundness, stability and performance of various sectors of the economy, (Jane *et al.,* 2008). Their usefulness lies in their ability to provide insight into the relationships among economic and financial statistics such as debt, assets, liabilities, net worth, incomes and output, in other words, enhancing the analytical content of these statistics taken individual.

A financial statement is a written report which quantitatively describes the financial health, strength, performance and liquidity of a company. Bashir (1999), defines a financial statement (or financial report) as a formal record of the financial activities and position of a business, person, or other entity. Relevant financial information is presented in a structured manner and in a form easy to understand. A balance sheet, also referred to as a statement of financial position, reports on a company's assets, liabilities, and owners' equity at a given point in time, (Gibson & Charles, 2013). This includes a statement of comprehensive income, referred to as a statement of profit or loss, and often also includes a statement cash flow and a statement of changes in equity. Financial Statements reflect the financial effects of business data, transactions and events on the entity, (Muchemi, 2012).

Financial data consists of pieces or sets of information related to the financial health of a business. The pieces of data are used by internal management to analyse business performance and determine whether tactics and strategies must be altered, (Gibson & Charles, 2013).

Financial statement analysis (or financial analysis) is the process of reviewing and analysing a company's financial statements to make better economic decisions. Financial statement analysis is likely to evaluate the financial status of a company. An accountant will perform several duties, like profit and loss analysis, oversee management practices, and prepare financial statements, (Gaurav, 2011).

A financial ratio or accounting ratio is a relative magnitude of two selected numerical values taken from an enterprise's financial statements. Financial ratios are mathematical comparisons of financial statement accounts or categories, (Audrey J., 2011). These relationships between the financial statement accounts help investors, creditors, and internal company management understand how well a business is performing and areas of needing improvement (Audrey J., 2011). According to Wozniewska, G. (2008), Ratio analysis is a useful management tool that will improve your understanding of financial results and trends over time, and provide key indicators of organizational performance. The following are the types of financial ratios analysis:

*Profitability*

Bhole & Jitendra (2010) a profitability ratio is a measure of profitability, which is a way to measure a company's performance. Common profitability measures include the Net Income Margin (NIM), which is the ratio of net income to sales, and Gross Profit Margin (GPM), which is the ratio of gross profit to sales. Others profitability ratios used in analysing a company's financial include gross operating margin (OM), return on assets (ROA), return on equity (ROE), return on sales (ROS) and return on investment (ROI).

*Liquidity*

In accounting, the term liquidity is defined as the ability of a company to meet its financial obligations as they come due, Bhole & Jitendra (2010). Liquidity refers to an enterprise's ability to pay short-term obligations; the term also refers to its capability to sell assets quickly to raise cash. On other hand, Solvency refers to an enterprise's capacity to meet its long-term financial commitments. Moreover, the solvency ratio quantifies the size of a company's after tax income, not counting non-cash depreciation expenses, as contrasted to the total debt obligations of the firm.

*Efficiency*

Gibson & Charles (2013) the efficiency ratio, a ratio that typically applies to banks, in simple terms is defined as expenses as a percentage of revenue (expenses / revenue), with a few variations. The most common efficiency ratios include: Total Asset Turnover and Inventory Turnover (BNR, 2013).

*Leverage*

Robinson (2001), states a leverage ratio as any one of several financial measurements that look at how much capital comes in the form of debt (loans), or assesses the ability of a company to meet financial obligations. The most common leverage ratios include; Debt Ratio, and Debt to Equity Ratio (Abbas, *et al.*, 2012).

*Market value*

According to Abbas et al., (2012), Market value ratios are used to evaluate the current share price of a publicly-held company's stock. Market ratios allow the analyst to understand how other investors feel about owning a share of a company's stock

According to Hakensen (2010), Business sustainability is often defined as managing the triple bottom line, as a process by which companies manage their financial, social and environmental risks, obligations and opportunities. These three impacts are sometimes referred to as profits, people and planet. Sustainability is broadly defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

*Pay-out ratio*

The payout ratio is the percentage of net income that a company pays out as dividends to common shareholders (Fischer *et al.* 2013).

*Retention ratio*

According to BNR, (2013), the retention ratio refers to the percentage of net income that is retained to grow the business, rather than being paid out as dividends.

*Internal growth rate*

An economist James Tobin (1918), of Yale University states that an internal growth rate is the highest level of growth achievable for a business without obtaining outside financing, and a firm's maximum internal growth rate is the level of business operations that can continue to fund and grow the company.

*Sustainable growth rate*

According to James Tobin (1918), Sustainable growth is defined as the annual percentage of increase in sales that is consistent with a defined financial policy.

Various studies have been carried out on financial indicators and determinants for predicting business sustainability; here is some review of them.

Saleem & Rehman (2011), sought to reveal the relationship between financial indicators and sustainability for long run. He has acquired the Liquidity ratios and Profitability ratios calculated from financial statement as independent variable and dividend pay out to the shareholder as dependent variable. The main results of the study demonstrate that each ratio (variable) has a significant effect on the sustainability of business with differing amounts and that along with the liquidity ratios in the first place. He has concluded that Liquidity and Profitability ratios play an important role for forecasting the sustainability of a business.

Al-Tamimi & Obeidat (2013) identified the most important variables which affect the Capital Adequacy of Commercial Banks of Jordan in Amman Stock Exchange for the period from 2000 –2008. The study shows that there is a statistically significant positive correlation between the degree of capital adequacy in commercial banks and the factors of internal growth, and the return on share, and there is an inverse relationship not statistically significant between the degree of capital adequacy in commercial banks and factors of the capital risk, credit risk, and the rate of force- revenue. In his conclusion, he stated that the size of capital contribute on the sustainability of business in current and in future.

Almazari (2011) in his study attempted basically to predicting the sustainability of business of seven Jordanian commercial banks on the basis of financial information of the period of 2005-2009, by using simple regression in order to estimate the impact of independent variable represented by; the deposits, credits, assets, profit and operational efficiency and took dependent variable as sustainability growth and internal growth calculated from net income. It was found that banks with higher the deposits, credits, assets, profit are mostly sustainable in business, than bank with low the deposits, credits, assets, profit. Also found that there exists a positive correlation between financial ratio and its sustainability on market and competition, which was also confirmed with regression analysis that sustainability of bank is greatly influenced by these independent factors.

By this time, this study would concentrated financial line for analysis of financial statements for predicting business sustainability in Rwanda, with empirical study of BPR Ltd, 2011-2015. With support from financial line sustainability measures and majority of previous empirical findings, we hypothesize that: *Ceteris paribus,* there is a positive relationship between …financial statements and financial indicators for predicting business sustainability of BPR Ltd.

## IV. Methodology

The research is exploratory and explanatory in nature. The methology regarding this study is based on different method, qualitative and quantitative methods, among which various sources of information on financial statement and and financial indicators for predicting the business sustainability were compared and analyzed. Both primary and secondary data were collected and then analyzed through BAFs and SPSS. A structured questionnaire were designed for 83 from 1606 total population under this study.

*a) Data collection and analysis*

Data was collected from a field using questionnaires, semi structured interviews, observation and documentation by 83 personnel and board of director's members of BPR. The total population under this study is 1606 where a sample of 83 personnel of BPR Ltd was calculated using Alain Bouchard formula as cited by Sabiti. F (2004).

*b) Instruments*

The collected data was used to achieve the research purpose. Data was changed into meaningful information for easy interpretation and understanding. It was done through various forms such as texts, tables, and figures. The different techniques were used such as editing, coding, tabulation. The main techniques to be used are the techniques of financial statements analysis for, such as Ratio Analysis, Trend Percentages; common-size statements, mathematic data comparison as vertical and horizontal analysis. Company financial statement is analyzed to assess if the is any relationship between financial soundness indicators of BPR and its business performance. The variables have to be analyzed as well to test the hypothesis. The detailed definitions and the expected signs of their impact are given in literature review. The data collected have been checked for any errors and omissions. After the checking, the data have been coded and analyzed using Bank Analysis Factsheet (BAFs) and Statistical Package for Social Sciences (SPSS). The indicators of financial analysis of BPR were Profitability ratios, Liquidity Ratios; efficiency ratios, leverage ratios and market value ratios.

*Table 1:* Treatment of Indicators of financial analysis of BPR Ltd

| INDICATORS OF FINANCIAL ANALYSIS OF BPR | | | |
|---|---|---|---|
| | Financial Indicators | Significant of determinant | Formula |
| 1 | Profitability ratios | The ability of a business to earn a profit. It is a measure of profitability, which is a way to measure a company's performance | 1. Gross Margin = Gross Profit/Net Sales * 100 GM = GP / NS * 100<br>2. Operating Margin = Operating Profit / Net Sales * 100 OM = OP / NS * 100<br>3. Return on Assets = Net Income / Assets * 100 ROA = NI/A * 100<br>4. Return on Equity = Net Income / Shareholder Investment * 100 ROE = NI / SI * 100 |
| 2 | Liquidity Ratio | Enterprise's ability to pay short-term obligations; the term also refers to its capability to sell assets quickly to raise cash | 1. Current Ratio = Current Assets ÷ Current Liabilities CR=CA/CL*100<br>2. Acid Ratio = (Cash & Cash Equivalents + Short-Term Investments + Accounts Receivable) ÷ Current Liabilities AR= (CCE+STI+AR)/CL*100<br>3. Total loans to Total Asset Ratio (TLTA)= TLTA = Total Loans/Total Assets<br>4. Liquid Assets to Total Deposit Ratio (LATD) = LATD = Liquid |

| | | | |
|---|---|---|---|
| | | | Asset/Customer Deposit<br>5. Total Loans to Deposit Ratio (TLTD) = TLTD = Total Loans/Total Deposit |
| 3 | Efficiency ratio | Company's ability to use its assets and manage its liabilities effectively. Expenses as a percentage of revenue (expenses / revenue), with a few variations | Efficiency Ratio = Expenses (E) / Revenue (R).<br>Total operating expenses/ Total operational income<br>1. Net Interest Income = Interest Expenses /Interest Income<br>2. Accounts Receivable Turnover= Revenue (R) / Average Accounts Receivable (AAR)<br>3. Accounts Payable Turnover = Interest Expenses (IE) /Average Accounts Payable (AAP)<br>4. Total Asset Turnover = Revenue (R) / Average Total Assets (ATA) |
| 4 | Leverage ratio | Assesses the ability of a company to meet financial obligations, Both long-term and short-term creditors are concerned. It indicates the firm's risk exposure in meeting its debt obligations. | 1. Debt Ratio (DR) = Total Liabilities (TL) /Total Assets (TA)<br>2. Debt-to-Equity (DtE) = Total Liabilities (TL) /Total Equity (TE)<br>3. Equity Ratio (ER) OR Equity to Asset Ratio (EQTA)= Total Equity (TE) / Total Assets (TA)<br>4. Equity to Loan Ratio (EQL) = EQL = Total Equity/Total Loans<br>5. Non- performing Loans to Total Loan Ratio (NPTL) = NPTL = Non-performing Loans/Total Loans |
| 5 | Market value ratios | Demonstrate the relationship between the price per share and its earnings, growth and assets | 1. **Price-Earnings Ratio (P/E Ratio)** = Price per share or Market Value Price per share/ Earnings per share<br>**Whereas:**<br>Earnings per share = Net Income/ Number of Shares Outstanding<br>2. **Market-to-Book Ratio** = Price per share or Market Value Price per share/ Book Value per share<br>**Whereas:**<br>Book Value per share = Total Owners' Equity/ Number of Shares Outstanding |

*Source: Designed by the researcher, November 2016*

The prediction of business performance of BPR Ltd has been based of interpretation and analysis of financial statements and financial sustainability indicators provided automatically by Factsheet BRS in figures or in graphic. Those BPR business sustainability determinants are grouped into four categories: Pay-out ratio, retention ratio, internal growth rate and sustainable growth, and each category of indicator have sub indicators named ratio.

*Table 2:* BPR Ltd business sustainability determinants

| BPR BUSINESS sustainability DETERMINANTS | | | |
|---|---|---|---|
| | Business sustainability determinant | Significant of determinant | Formula |
| 1 | **Dividend Pay-out Ratio** | The percentage of net income that a company pays out as dividends to common shareholders | Pay-out Ratio = (Total Dividends Paid)/(Net Income)<br>Pay-out Ratio = (Total Dividends (Common and Preferred) per Share)/(Earnings per Share) |
| 2 | **Retention Rate or plowback ratio** | The percentage of income that a company reinvests into its own operations. In other words, it is the percentage of net income that a company does not pay-out as dividends. | Retention Rate= (Net Income - Dividends Distributed)/ Net Income<br>Earnings Retention Ratio or Plowback ratio= = Plowed back gross profits / total gross profits = Total Gross Profits – Pay-out ratio = (Total Net Profit / Number of Total share) - (Dividend / Share) |
| 3 | **Internal Growth Rate** | Internal Growth Rate (IGR) is the highest growth rate a firm can achieve without considering or taking in to account of any external | 1. Internal Growth rate (IGR) = ROA x Retention Ratio/ (1-(ROA x Re<br>**Whereas:**<br>ROA= Net Profit / Total of Assets of the firm<br>Retention Ratio = 1 - Dividend payout of the firm |

| | | | |
|---|---|---|---|
| | | sources or financing Funds | |
| 4 | Sustainable Growth Rate | The sustainable growth rate represents how quickly a company can expand using only its own sources of funding. | SGR = Return in Equity * (1 – Dividend Payout Ratio) |

*Source: Designed by the researcher, November 2016*

c) *Models and techniques*

The regression analysis was used in this study to measure the relationship between financial indicators and business sustainability of BPR Ltd. The correlation matrix was extracted using SPSS version 18.0 to show the correlation between roles of financial statement to forecasting sustainability of BPR Ltd as its determinants were shown in the conceptual framework. The regression analysis was used to establish the relationship between the variables of the study. The following regression model was used: $y = \beta_0 + \beta_1 x_1 + \ldots + \beta_\infty x_\infty + \epsilon$ *where* $y$ *represents the dependent variable means Business sustainability deteminants such as Payout ratio, retention ratio, internal growth rate and sustainable growth rate, and* $\beta_0$ *is the constant term represent the model parameters of coefficients* $x_1$ *is the profitability ratios, liquidity ratios, efficiency ratios, leverage and* $x_5$ *market value ratio and epsilon is the error terms.*

## V. Data Analysis, Presentation and Interpretation

The personnel under BPR Ltd financial sector is predominated by male with the percentage of 77% while female has only 23% of ownership of 83 respondent including employees daily involving in finance, Executive Management Team and board members' shareholders representatives (as owners) selected from the Banque Populaire du Rwanda Limited according to table 18 above.

a) *The role of analysing financial statement for forecasting sustainability of BPR Ltd*

In the literature, for predicting sustainable business requires effective and deep analysis of financial management. The BPR Ratio analysis is a useful management tool that will improve shareholders and staff understanding of financial results and trends over time, and provide key indicators of business sustainability. Decision makers should use ratio analysis to pinpoint strengths and weaknesses from which strategies for forecasting BPR sustainability. Shareholders and investors may use ratio analysis to anticipate their earning and its shares' growth in the future. Thus, to further ascertain the role of analyzing financial statement for forecasting sustainability of BPR Ltd, respondents were asked to indicate the role of analyzing financial indicators for BPR sustainability determinants.

The major reasons for why analyzing financial statement in forecasting sustainability, the respondents were to determine dividend to be distributed (89%) Improve Sustainable Growth (88%), Determine Retention on market price per share (81%), Improve Internal Growth /self-financing (75%) and Supporting in decision making and goal realization (64%), attracting current and new potential investors (64%), Efficiency utilization of resource to generate Profit (61%) ,and Effective planning (47%) as asserted by different literatures in every organization the overall aim is to make profit (Salemi 2012; chary, 2008).

b) *Financial indicators analysis of BPR Ltd*

Financial indicators which were analyzed in this research was to evaluate various aspects of BPR's operating and financial performance such as its profitability, liquidity, profitability, efficiency, Leverage and market value ratio.

i. *Profitability ratios*

Profitability ratios indicate the ability of the BPR Ltd to earn a profit. It is a measure of profitability, which is a way to measure a company's performance. Secondary data was used for the period of 4 years ended 31 December 2015 for analyzing the profitability ratios of the BPR Ltd.

*Table 3:* Profitability ratios of the BPR Ltd

| Profitability ratios | Formula | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|
| Operating Margin | OM = OP / NS * 100 | 122.58 | 124.58 | 126.63 | 129.23 | 136.45 |
| Gross Margin | GM = GP / NS * 100 | (6.01) | 9.19 | (42.02) | (1.16) | 12.78 |
| Return on Assets | ROA = NI/A * 100 | (1.15) | 0.58 | (3.28) | (0.47) | 1.05 |
| Return on Equity | ROE = NI / SI * 100 | (11.97) | 5.51 | (33.77) | (4.98) | 10.74 |

Source: BPR, *Annual financial report 2011-2015,* November 2016

In computing Operating Margin ratio, tabulated data above shows a positive results. On Gross Margin, the tabulated data shows a negative results, especially in year 2015, 2013 and 2012, where ratios are -6.01%, -42.02%, and -1.16% respectively. This means that BPR Ltd was recognized gross loss for these years. On Return on Assets, the tabulated data shows a negative results, especially in year 2015, 2013 and 2012. This means that, there were no any return recognized on the Assets, hence loss for these years. Return on Equity, the tabulated data 23 above shows a negative results, especially in year 2015, 2013 and 2012, where ratios are -11.97%, -33.77% and -4.98% respectively. This means that, there were no any return recognized on the Shareholder's Equity, hence loss for these years. For other remaining years of 2014 and 2011, the table revealed that a positive Gross Margin was recognized by BPR respectively as 5.55 % and 10.74 %.

ii. *Liquidity Ratios*

Liquidity Ratios indicate BPR's ability to pay short-term obligations; the term also refers to its capability to sell assets quickly to raise cash. A normal and BNR required rate are: maximum 80% on Total Loans to Deposit Ratio, and minimum of 20% for Liquid Assets to Total Deposit Ratio, (BNR, 2013).

*Table 4:* Liquidity Ratios of the BPR Ltd for the period of 5 years ended 31/12/2015

| Liquidity Ratios | Formula | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|
| Current Ratio | CR= CA/CL*100 | 24.31 | 26.00 | 33.71 | 22.41 | 31.84 |
| Acid Ratio | AR= (CCE+STI+AR)/CL*100 | 98.94 | 100.0 | 98.33 | 103.4 | 103.3 |
| Total loans to Total Asset Ratio (TLTA) | TLTA = Total Loans/Total Assets | 69.83 | 68.18 | 63.74 | 74.49 | 65.38 |
| Liquid Assets to Total Deposit Ratio (LATD) | LATD = Liquid Asset/Customer Deposit | 28.35 | 29.31 | 38.45 | 26.13 | 35.58 |
| Total Loans to Deposit | TLTD = Total Loans/customer Deposit | 88.59 | 85.47 | 79.67 | 98.26 | 83.66 |

*Source: BPR, Annual financial report 2011-2015, November 2016*

iii. *Efficiency ratios*

Efficiency ratios indicate the company's ability to use its assets and manage its liabilities effectively. Expenses as a percentage of revenue (expenses / revenue), with a few variations. A normal and BNR required rate is a maximum of 75% on the total expenses to revenues (BNR, 2013).

*Table 4:* Efficiency ratios of the BPR Ltd for the period of 5 years ended 31/12/2015

| Efficiency ratios | Formula | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|
| Efficiency Ratio | Total operating expenses/ Total operational income | 81.88 | 67.85 | 91.43 | 83.34 | 85.66 |
| Net Interest Income | Interest Expenses /InterestIncome | 16.35 | 18.29 | 18.58 | 12.68 | 5.37 |
| Net Fee and Commission Income | Fee and Commission Expense/ Fee and Commission Income | 27.66 | 34.88 | 44.84 | 29.70 | 32.28 |
| Accounts Payable Turnover | Interest Expenses/Average Accounts Payable | 1.83 | 1.94 | 2.24 | 2.30 | 2.89 |
| Total Asset Turnover | Revenue (R) /Average Total Assets (ATA) | (0.01) | 0.01 | (0.03) | (0.00) | 0.01 |
| Accounts Receivable Turnover | Revenue / (Average Accounts Receivable) | (0.09) | 0.05 | (0.16) | (0.04) | 0.05 |

*Source: BPR, Annual financial report 2011-2015, November 2016*

iv. *Leverage ratios*

Analysis of Leverage ratio for BPR Ltd is to assess its ability to meet financial obligations, both long-term and short-term creditors are concerned. It indicates the firm's risk exposure in meeting its debt obligations. A normal and BNR required rate is a maximum of 5% on Non-Performing Loans ratio (BNR, 2013)

*Table 5:* Leverage ratios of the BPR Ltd for the period of 5 years ended 31/12/2015

| Leverage ratios | Formula | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|
| Debt Ratio (DR) | Total Liabilities (TL) /Total Assets (TA) | 0.92 | 0.90 | 0.91 | 0.88 | 0.87 |
| Debt-to-Equity (DtE) | Total Liabilities (TL) /Total Equity (TE) | 11.38 | 8.93 | 10.42 | 7.61 | 6.89 |
| Equity Ratio (ER) | Total Equity (TE) / Total Assets (TA) | 8.08 | 10.07 | 8.75 | 11.61 | 12.67 |
| Equity to Loan Ratio (EQL) | EQL = Total Equity/Total Loans | 11.57 | 14.77 | 13.73 | 15.59 | 19.38 |
| Non- performing Loans to Total Loan Ratio (NPTL) | NPTL = Non-performing Loans/Total Loans | 5.01 | 7.65 | 12.79 | 7.05 | 7.17 |

*Source: BPR, Annual financial report 2011-2015, November 2016*

v. *Market value ratios*

Market value ratios indicate the relationship between the price per share and its earnings, growth and assets for the BPR Ltd.

*Table 6:* Market value ratios of the BPR Ltd for the period of 5 years ended 31/12/2015

| Market value ratios | Formula | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|
| Price-Earnings Ratio (P/E Ratio) | Price per share or Market Value Price per share/ Earnings per share *Whereas, (Earnings per share = Net Income/ Number of Shares Outstanding)* | (8.35) | 18.15 | (2.96) | (20.07) | 9.31 |
| Market-to-Book Ratio | Price per share or Market Value Price per share/ Book Value per share *Whereas, Book Value per share = Total Owners' Equity/ Number of Shares Outstanding* | 1.19 | 1.04 | 1.11 | 0.81 | 0.77 |

*Source: BPR Ltd, Annual financial report 2011-2015, November 2016*

vi. *Capital adjustments ratios*

The BNR as regulators track a bank's Capital Adequacy to ensure that it can absorb a reasonable amount of loss and complies with statutory Capital requirements. It is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process. The criteria for the stress tests on assets quality used two capital measures as the relevant metric:

i. Regulatory capital (Total capital) divided by risk weighted assets (RWA) - CAR
ii. Core capital (Tier 1) to risk weighted assets (RWA).

*Table 8:* Capital adjustments ratios for the period of 5 years ended 31/12/2015

| Ratios | Computation | BNR Requirement | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|---|
| Capital Adequacy Ratio | Total capital / Total risk weighted assets | Min 15% | 2.96% | 1.57% | 1.13% | 2.05% | 4.36% |
| Core capital to risk weighted assets (RWA) | Core capital / Total risk weighted assets | Min 10% | 3.52% | 1.64% | 1.25% | 1.65% | 3.37% |

*Source: BPR, Annual financial report 2011-2015, November 2016*

By Business sustainability is often determined by as managing the triple bottom line a process by which companies manage their financial, social and environmental risks, obligations and opportunities. These three impacts are sometimes referred to as profits, people and planet. To analysis the BPR business sustainability in line of how company manages its financial opportunities, we focused on: Dividend Pay-out Ratio, Retention Rate or plowback ratio, Internal Growth Rate and Sustainable Growth Rate.

*Table 9:* Analysis determinants of business sustainability of BPR Ltd

| | | | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|---|---|
| Dividend Pay-out Ratio | Pay-out Ratio | Total Dividends Paid/Net Income | - | - | - | - | - |
| Retention Rate or plowback ratio | Retention Rate= | (Net Income - Dividends Distributed)/ Net Income | (1.00) | 1.00 | (1.00) | (1.00) | 1.00 |
| Internal Growth Rate | Internal Growth rate (IGR) | ROA x Retention Ratio/ (1-(ROA x Retention Ratio) Whereas: ROA= Net Profit / Total of Assets of the firm Retention Ratio = 1 - Dividend pay-out of the firm | (7.62) | 1.36 | (1.44) | 0.88 | (20.63) |
| Sustainable Growth Rate | Sustainable Growth Rate | SGR = Return in Equity * (1 – Dividend Pay-out Ratio) | (11.97) | 5.51 | (33.77) | (4.98) | 10.74 |

*Source: BPR, Annual financial report 2011-2015, November 2016*

From the table above, the results revealed that ddividends Pay-out Ratio for BPR were 0% as no any dividend was distributed to the customer. In additional to, the result BPR Retention Ratio were negative as at -1.00% for year 2015, 2013 and 2012, this indicated the percentage of a BPR's loss that are incurred in share value. For year 2014 and 2011, retention Ratio were 1.00%.The results also showed that BPR internal growth rate were (7.62), 1.36, (1.44), 0.88 and (20.63) respectively for year 2015, 2014, 2013, 2012 and 2011 as the ratio expressing the maximum growth rate a firm can achieve without resorting to external financing. Sustainable growth for BPR as the annual percentage of increase in revenue that are inconsistent in accordance with a BPR defined financial policy.

According to the BPR sustainable growth rate as per research results were in (11.97), 5.51, (33.77), (4.98) and 10.74 respectively for year 2015, 2014, 2013, 2012 and 2011 as a determinant of the BPR’s maximum growth rate in revenue using internal financial resources and without having to increase debt or issue new equity. About 60% of the scope under study, the BPR has recognized losses. The shareholders does not earn dividends anymore. The calculated sustainability growth for BPR is critically and need other advance strategies to improve this situation and safeguard BPR public image such as capital adjustment and found other external resources.

*c) Analysis of Financial indicators and sustainability determinants of BPR*

The efforts in this space are looked to scientific and statistically sound methods to demonstrate correlations between financial indicators for predicting sustainability determinants of BPR. With this, the analysis begann with correlation testing of financial indicators against sustainability determinants followed by statistical hypothesis testing to see if we can definitively point to the most appropriate indicators.

The *F*-test was carried out to test the significance of the regression model in predicting the dependent variable (business sustainability). From the results, it was found that the five independent variables (Profitability ratios, Liquidity Ratios; Efficiency ratios, Leverage ratios and Market value ratios) as financial indicators of BPR Ltd (adjusted *R* squared = .726). That means the model explains 72.6% the variance in the business sustainability of BPR Ltd (27.4%) of variations are brought about by factors not captured in the objectives. Therefore, further research should be conducted to analyze the other factors (27.4%) that affect prediction of business sustainability of the BPR Ltd. The regression equation appears to be very useful for making predictions since the value of $R^2$ is close to 1.

The findings shows that the linear regression F-test results (F = 8.741; and 5df) are significant at $p < 0.05$, therefore, the hypothesis was positive for the researcher. But counting that BPR is earning, instead of a complete positive relationship, there are indications that the positive relationship is only true for low and moderate sustainability of business. Therefore, the hypothesis concluded that the regression model linearly explains the determinants for prediction of business sustainability of the BPR Ltd. Therefore, the study accepted the alternative hypothesis.

- Profitability ratios, Liquidity Ratios; efficiency ratios, leverage ratios and market value ratios are the indicators of financial analysis of BPR.

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- Pay-out ratio, retention ratio, internal growth rate and sustainable growth rate are the factors of the BPR business sustainability.
- The financial indicators explain positively the prediction of business sustainability in BPR Ltd.

The study conducted a multiple regression analysis so as to determine the regression coefficients (β) which shows that $\beta_0 = 1.238$ and which means that all the independent variables such as Profitability ratios $(X_1)$, Liquidity Ratios $(X_2)$; Efficiency ratios $(X_3)$, Leverage ratios $(X_4)$ and Market value ratios $(X_5)$have an a significant contribution in prediction of business sustainability even if the x variable equal to zero means Y= 1.238 and the model equation become $Y = 1.238 + 0.258X_1 + 0.367X_2 + 0.423X_3 + 0.157X_4 + 0.345X_5$.

Hence, β0 = Constant term β (1-5) = represent the model parameters or coefficients; 0.258 as contribution of profitability ratios, .367 as contribution from Liquidity Ratios, .423 contribution of Efficiency ratios, .157 contribution of Leverage ratios and .345 as Market value ratios contribution.

*d) Prediction of financial statement of BPR Ltd for three years (2016-2018)*

The BPR Ltd has started to re-capitalize its Share capital for competitiveness with other commercial bank, and some change in management and shareholders structure was made, (BPR, 2013). While developing the financial predictions, the following was the considered rationale for the predictions:

1. The key driver of the growth will be the deposits. The bank endeavours to grow its deposit annually initially by 10% and stabilise at 12.5% by 2018.
2. The deposits should make available funds that are key to the growth of the loan portfolio. These will be based on the assumption of a stable economic growth averaging 7.5% and a steady inflation rate of 7.5% and/or below throughout the plan period.
3. The interest on loans should be a key revenue source. The current base interest rate is 19%. We have prudently predicted the rate to reduce to 17.5% in 2018 due to declining treasury bills rate.
4. The commission income has been derived as a factor of number of active customer accounts currently standing at 400,000. The growth of the active accounts is expected to grow in line with deposits growth.
5. The efficiency rate will be expected to move from 81.88% in 2015 to 76% by 2018. This will mainly be triggered by faster income growth rate as compared to costs growth rate. Implementation of IT systems will increase efficiency hence operational costs will increase relative to the inflationary rate.
6. Personnel costs should got up due to competition with market for best talent. The staff costs is predicted to grow at 5% annually while the training expense should grow up 50% this especially related to automation of systems as now BPR was upgraded from T12 to R12 as per the interview with the Board of directors.
7. We predicted the new investment in assets of over 12 billion spread over the plan period. Intangible assets amount to 3.7 billion. The remaining amount will be used to purchase fixed assets. Over 5.8 billion of the investment will be on buildings (New head office building and refurbishment/relocation of branches). New Head Office building construction will be undertaken from 2013 to 2016 while payments will be spread from 2016 to 2018.
8. Nonperforming loans was predicted to remain within 5.01% mainly through growing the loan book, enhancing recovery and improving the quality of loan book. Provisions for impairment loss on NPLs should set at 55% of the NPLs from 2015 up to 2018.
9. Dividends should be introduced in 2016 and calculated based on 25% of profits, and remain as reserves and

Base on the financial current financial information, the prediction of financial statement of BPR Ltd should look like as follows:

The BPR Ltd should recognize the net comprehensive income of Frw1,768,009 in 2016, Frw2,754,138 in 2017, and Frw4,062,098. This comprehensive income was predicted after the distribution of dividend payout ratios and tax expenses. The gross operating income with move at Frw26,139,939, Frw28,323,593, and Frw31,197,637 respectively in year of 2016, 2017, and 2018. And as well the Total operating expenses should be as Frw23,772,303, 23,077,615, and Frw23,460,308 respectively with year of 2016, 2017 and 2018. This should improve the BPR Ltd's efficiency, and profitability ratios and also improve the sustainability of the BPR Ltd of market.

The BPR Ltd also should recognize the total liabilities and equity of Frw219,910,083 in 2016, Frw239,778,902 in 2017, and Frw265,496,753 as well as the same figure for total asset as the financial position might balance. The liquidity and leverage ratios might be improved from the new injected capital, as well as new management. Now, the BPR has recapitalized from frw16,491,238 to Frw43,519,181 after injecting the new investor "Atalasmara", the prediction was done with assumption that the share capital is constant. The BPR Ltd should recognize the Total liabilities and equity of Frw3,942,067 in 2016, Frw6,696,205 in 2017, and Frw10,758,302 for 2018. The upgrading of reserves may positively impact the BPR internal growth and sustainability growth.

# VI. Conclusion and Recommendations

*a) Conclusions*

The analysis done so far has been related to the financial statement for prediction of business sustainability in Rwanda with a case of Banquepopulaire du Rwanda (BPR). BPR is the bank whose target market is the grassroots and maintains the lead in the segment. The bank was transformed to a commercial bank in 2008 with a vision "To be the leading retail bank in Rwanda". It is in competition with other commercial banks which have more than 30 year in this sector of commercial bank. The findings from analysis of financial statements for prediction of business sustainability of BPR Ltd were concentrated on Profitability ratios, Liquidity Ratios; efficiency ratios, leverage ratios and market value ratios as indicators of financial analysis of BPR; Pay-out ratio, retention ratio, internal growth rate and sustainable growth rate as determinants of the BPR business sustainability. The financial analysis indicators explain positively the prediction of business sustainability determinants in BPR Ltd.

The profitability ratios have indicated that the ability of BPR to earn profit is on low level where 3 to 5 years with 60% BPR made a loss. BPR to pay short term obligations are not sufficient comparing the minimum and maximum requirements rate of BNR. BPR Ltd was sometimes unable to use its assets and manage its liabilities effectively. The ability of BPR to meet financial obligations, both long-term and short-term creditors are insignificant, the NPL rate of over rate 5% obliged by the BNR and finally the Market value ratios were indicated an adverse relationship between the price per share and its earnings, growth and assets for the BPR Ltd. The Capital Adequacy of BPR cannot absorb a reasonable amount of loss and is not complied with statutory capital requirements by the BNR. The result revealed that BPR is exposed on the risks from taking excess leverage and becoming insolvent in the process.

The results revealed that dividends Pay-out Ratio for BPR were 0% as no any dividend was distributed to the customer. In additional to, the result BPR Retention Ratio were negative as at -1.00% for year 2015, 2013 and 2012, this indicated the percentage of a BPR's loss that are incurred in share value. For year 2014 and 2011, retention Ratio were 1.00%.The results also showed that BPR internal growth rate were (7.62), 1.36, (1.44), 0.88 and (20.63) respectively for year 2015, 2014, 2013, 2012 and 2011 as the ratio expressing the maximum growth rate a firm can achieve without resorting to external financing. Sustainable growth for BPR as the annual percentage of increase in revenue that are inconsistent in accordance with a BPR defined financial policy.

According to the BPR sustainable growth rate as per research results were in (11.97), 5.51, (33.77), (4.98) and 10.74 respectively for year 2015, 2014, 2013, 2012 and 2011 as a determinant of the BPR's maximum growth rate in revenue using internal financial resources and without having to increase debt or issue new equity.

About 60% of the scope under study, the BPR has recognized losses. The shareholders does not earn dividends anymore. The calculated sustainability growth for BPR is critically and need other advance strategies to improve this situation and safeguard BPR public image such as capital adjustment and found other external resources.

To measure the realtionship between financial indicators for prediction sustainability, the hypothesis was positive for the researcher. Therefore, the hypothesis concluded that the regression model linearly explains the determinants for prediction of business sustainability of the BPR Ltd. The alternative hypothesis was accepted.

To summarize, financial statement analysis was concerned with analysing the financial position and the income statement of the BPR to interpret the business and financial ratios of a business for financial representations, business evaluation, and give a recommendation for forecasting its business sustainability.

*b) Recommendations*

From the above analysis it is recommended that BPR should start the recapitalization processes from Frw15,300billion to Frw16,491 billion, and now Frw43.519 billion. But till now this capital is not yet adequate for competing with other commercial bank with a total Shareholders' equity more than 60.3 billion, such as BK, KCB, and others with more than Frw45 billion such as GT-Bank and I&M Bank. It is better for recapitalization of BPR Ltd Frw43.519 billion to Frw63.519 billion from potential local and/or foreign investors who share the same vision with BPR. Cost cut-off of unnecessary expenses and reduce high fixed costs related to extensive network. BPR has to centralise management of loans recovery to enhance efficiency.

BPR must grow in net revenues from loans and advances to customer, Net assets and profits. Continuing growth means increasing loan portfolio quality and therefore taking advantage to reduce per unit cost thereby increasing profits. Revamping the IT systems to better serve its mass customers on high satisfactory level and for better management and controls; Developing new competitive products to for customer need and profit realization; To continue growing its channels such growth in the Agency Banking, ATMs, internet and mobile banking channels; Restoration its public image by constructing a new head office, refurbishing rundown branches and relocating branches that are far from business areas and outside strategic business areas.

BPR should extend its reach to mass market through strategic partnerships with telecommunications companies, electronic transfer agencies. It should introduce mobile powered products in the market in order to tap into the power of the more than 6 million mobile phone users in the Rwandan market. Partnership with Government/Development partners that focus on the bottom of the pyramid. BPR should attract, develop and retain the best talent staff in the market for quality service delivery; and controls and operational efficiency by fully automation of payment processes. BPR's product lines have real growth potential and our strategy is to concentrate the available resources on growth both in reach and depth of BPR operations to ensure that they continue to be successful

The Government of Rwanda through BNR as financial regulator should conduct a continuous assessment of potential systemic risks to the Rwandan financial system and the development of policies to mitigate those risks. Government of Rwanda should be directly involved to help eliminate the financing gap faced by BPR through direct government interventions through public banks, credit guarantee schemes and other forms of subsidized financing.

The BNR should enhance a stable financial system which creates a favourable environment for savers and investors, encourages efficient financial intermediation and the effective functioning of markets, and hence, promotes investment and economic growth.

Further research should look on other variables rather than financial indicators and the business sustainability determinats. In addition, a researcher should put emphasis on analysis of financial statements for all financial system stability in Rwanda.

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Global Journal of Management and Business Research: C Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# The Role of Risk Management on Financial Performance of Banking Institutions in Rwanda

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*Abstract-* The aim of this study is to assess the role of risk management on financial performance in Rwanda institutions: Case study of UNGUKA Bank Ltd undertaken within period 2012-2016. The data was collected through a questionnaire designed for 30 staffs members of Unguka Bank Ltd where both quantitative and qualitative techniques were employed. The interviews were conducted with key informants from like the Unguka bank ltd staffs. Findings shows that the determinants of risk management in Unguka bank Ltd are credit risk, operational risk, interest rate and liquidity risk are the determinants of risk management. The results shows that Unguka bank Ltd is profitable during the covered period because the standard ratio of return on asset is 1% may factors are the cause of that profitability but the quality service are the main cause of the increase of its profitability. The researcher also found out that there is a very strong relationship between risk management and financial performance.

*Keywords: risk management, financial performance.*

*GJMBR-C Classification: JEL Code: E50*

THEROLEOFRISKMANAGEMENTONFINANCIALPERFORMANCEOFBANKINGINSTITUTIONSINRWANDA

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*Keywords: risk management, financial performance.*

## I. Introduction and Background

In Rwanda, the path of financial activity, which concerns banking, insurance, savings and loans associations, etc, had always been paved with numerous contingencies after the genocide of 1994 that destroyed the big part of the national wealth.

Contingencies are referred to here as risks that symbolize a situation that cannot be controlled or perfectly foreseen Diacon (1984). These risks cannot be predicted accurately and this therefore gives rise to the involvement of a careful management. The Rwandan financial framework, as any other financial system in the world, deals highly with risks in its every day management. As a reason for this, we can mention the fact that there are factors that are not under the control of managers such as globalization, world changes or market variables like price changes or stock exchange trends.

Historically the banking and finance management in Rwanda has always been subject to some major risks, the careful management of which has always led to survival in the financial sector. Many Rwandan financial houses handle these risks on a daily basis in order to grow and encounter rapid changes. Therefore, risks must be understood and carefully managed for a proper decision making in the Rwanda financial system.

Risk management is of a big importance in the management decision making in financial institutions because risk management must meet certain objectives to keep your business running efficiently (Gallati, 2003 ).

Rwanda is growing up with a vision of being a business country, knowing that the Bank is very useful to the majority of Rwanda and this is a gate of economic growth of Rwandan citizens (www.dbs.com, private bank assessed on 25th July 2014). In the past few years the banking institutions were experiencing a problem of ineffectiveness and inefficiency of loans portfolios. This has led to poor performance of the banking sector as very high proportion of fund as locked up into no performing assets which deprives the economy of continuous flow of funds that would be used to finance investment projects (BNR, 2007).

The analysis of risk management is very important within the department of the management of the risk within any Bank to maintain an increasing profitability of risk management lot of credits that are granted by the Rwandan Banks are not repaid efficiently, what constitutes a danger to their profitability (BNR, 2007).

In 2006, some of Banks were found to be in a bad standing and some of them were stopped. This information highlights the problem of liquidity risks encountered by much Banks in Rwanda. The explanation of this fact is in the recovery of the big amount of credits they encounter and the failure of their recovery. This is the case exists in Rwanda. For example of Microfinance such as Igisubizo, Ongera, Urumuri, etc

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An analysis of this case implies that the standing of Unguka bank Ltd that is still serving its client was based on the minimization of credit risks and has increased the amount in savings accounts. For the year 2007, the members of the micro finances Unguka have saved 68873461 frws, either 16,9%. In 2008, the totals of savings were 136.629.946 Frws, that is 33.16% and in 2009 the members of the Bank Ltd saved 199.690.233 Frws 49.3 % (www.unguka.com/consulted on May 2014).

According to Sundharam and Varshney (2002), said that the most profitable activity of finance institutions is lending and every institution strives to optimize its net profit by employing its surplus cash into different activities. However, non-performing loans impair the finance institution profitability rendering it unable to meet obligations of customers and they may end up losing their reputations in the market.

It is well known that perform well are those with less or no loan problems. And it is also known that loan portfolio is the major source of profit, also it is the major source of risk. The risk is born at the time of a loan debtor failing to meet his/her contractual obligations. The unpaid loans are the assets of Bank that have not been recovered which result into losses, and losses can drive the Unguka bank Ltd to bankruptcy and subsequent closure.

On the other hand, efforts to recover these assets involve a lot of legal costs which aggregates the situation. Even some measures including improvement of risk management techniques analysis and evaluation have been carried out to reduce or completely prevent non-performance loans, but the problem still persists. In fact, risk management helps unguka bank ltd to performing well.

A hypothesis is a research's anticipated explanation or opinion; consist of either a suggested explanation or for an observable phenomenon or a reasoned proposal predicting causal correlation among a multiple phenomenon.

The study will focus on the following objectives:

1. Credit risk, interest rate risk, liquidity risk, operational risks are the determinants of risk management in Unguka bank Ltd.
2. Return on asset, Return on equity, Net profit margin and Sustainable growth rate are the indicators of financial performance of Unguka bank Ltd.
3. The determinants of risk management explain positively the financial performance indicators in Unguka bank Ltd.

## II. Objectives

The general objective of this study is to assess the role of risk management on financial performance in banking institutions in Rwanda, Specifically:

1. To assess the determinants of risk management in Unguka bank Ltd.
2. To analyze the indicators of financial performance of Unguka bank Ltd.
3. To measure the relationship between determinants of risk management and indicators of financial performance in Unguka bank Ltd.

## III. Literature Review

According to Gallati (2003), risk is defined as a condition in which there exists an exposure to adversity, or a condition in which there exists a possibility of deviation from a desired outcome that is expected or hoped for. Risk management is a process that identifies loss exposure faced by an organization and selects the most appropriate techniques for treating such exposures. Because the term" risk "is ambiguous and has different meanings, many risk managers use the term "loss exposure" to identify potential losses(Gallati, 2003).

Performance can be defined as an approach determining the extent to which set objectives of an organization are achieved in a particular period of time. The objectives or goals can be in financial or non-financial terms. Performance may be determined by macro and micro-factors. According to Williamson (2000), macro-economic factors are those pertinent to a broad economy at the regional or national level and affect a large population rather than a few select individuals. Macro factors include GDP growth, inflation, unemployment, interest rates, exchange rate and level of competition. Micro factors include individual risk exposure, operating strategies and degree of management strategies. Any of many different mathematical measures to evaluate how well a company is using its resources to make a profit. Common examples of financial performance include operating income, earnings before interest and taxes, and net asset value. It is important to note that no one measure of financial performance should be taken on its own. Rather, a thorough assessment of a company's performance should take into account many different measures. Evaluating the financial performance of a business allows decision-makers to judge the results of business strategies and activities in objective monetary terms (Greenfield, 2001). A company financial performance is directly influenced by its market position.

Profitability can be split into its main components; net turnover and net profit margin. Ross, Westerfield and Jatte (1996), argue that both components influence profitability. High turnover means better use of assets owned by the company and therefore better efficiency while a higher profit margin means that the entity has a substantial market power.

Risk and growth influences a firm's financial performance. Since market value is conditioned by company's results, the level of risk exposure can cause changes in its market value. High risk business should have high returns. Economic growth helps a firm to achieve a better position on the financial markets, because market value also takes into consideration expected future profits.

Several studies have been carriout on the rôle of risk management on financial performance. In his study, John (2015), entitled the "role of risk management on financial performance in banking institutions" with the objectives of assessing the determinants of risk management and analyzing the indicators of financial performance of banking sector. He found that risk management has a significant effect on organizational effectiveness among the construction of bank institutions. The study found that good management of risk management enhances performance of banking institutions. The study also found that risk management leads to good financial reports and also leading to better decision- making of the investors.

The study entitled 'The contribution of risk management to the growth of financial report in Microfinance' was carried out by Bahir (2013). The main obejective of the study was to analyze credit risk management practices employed by banking, cause of operation ling of borrowers and propose the corrective measures in order to reduce the level of credit risk, exposed that because of the many clients that are borrowers with computerized accounting System more importantly its ability to produce and present relevant and faithful representative financial reports to end users. The government of Rwanda is assisting microfinance to transfer into a common computerized Accounting System. This is going to serve as a platform in which all the rural microfinance in the country are going to be networked to each other to facilitate faster and efficient banking. He concluded that risk management is necessary to identifying, analyzing, assessing, treating, monitoring and communicating of organization. Risk management therefore plays six main functions in an organization.

Narwal and Jindal (2015) examined the impact of corporate governance on the profitability of Indian textile sectors. They collected data from annual reports of textiles companies for the period of five year ranging of 2009 to 2014. They found a strong positive association between director's remuneration and profitability. The Audit Committee members is observed negative associated with the profitability.

Ojulari (2014) explores the relationships that exist between corporate governance and the profitability of financial institutions. He selected twenty five companies listed in the Nigerian stock exchange. The results show that the two variables (i.e. corporate governance and financial profitability) are more positively related on an individual proxy basis than on an overall proxy basis. The overall impact of corporate governance on the profitability is also negative so also are the result of the regression models. The results show that although there is a relationship between the two variables, the predictive power of corporate governance on companies' profitability is too low to be meaningful.

## IV. Methodology

In this section tools and techniques were used to achieve the study objectives discussed above. Both primary and secondary data were used in collection of data and then analysed through SPSS.

### *a) Data collection*

Data was collected through documentary sources, observation, questionnaires and structure and unstructured interviews where both quantitative and qualitative data were used. The data were collected from the population size that covered all population of Unguka bank Ltd. The sample size is equal to the populations of Unguka bank whose are 30 staffs. After the data collected were organized, edited and coded, quantitative data were entered into Statistical Package for Social Science (SPSS) and were analyzed using descriptive statistics.

### *b) Models and techniques*

To measure the relationship between the variables, multiple regression model was used to determine this relationship. In doing so, the regression model below was used:

$$y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x4 + \varepsilon.$$

Where $y$ = dependent variable (Financial Performance of financial institution) such as Sustainable growth rate, return on asset, return on equity, Net income; $\beta 0 - \beta 4$ = model parameters or coefficients; $x_1 - x_4$ = independent variables(risk management) like credit risk ,operational risk, liquidity risk ,interest rate risk and $\varepsilon$ = error term.

The relationship between risk management and financial performance of financial institution, multiple regression analysis was used to determine this relationship. The SPSS program 16.0 version was used to analyze the data. Correlation and regression analysis were utilized to the role of risk management on financial performance of financial institution in Rwanda.

## V. Finds and Results

### *a) Analysis of the determinants of risk management*

Credit risk, liquidity risk, operational risk and interest rate risk are the detrminant of risk management. Respondents indicate more than one source of information, it can be seen that Unguka bank ltd most sources are analysis of financial statements as indicated by 33 % of respondents. This implies that bank' sources are misleading in case of unclear or biased statements.

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However 27% of respondents revealed the use of bank records, 17% confirmed the use of interview and inspection respectively. External sources of credit information represent 13% of responses, inspection of applicant's business has been revealed as used method on 7%. While only 3% of respondents indicated the use of others means.

*b) Impact of risk management of credit portfolio quality of credit*

Management of credit risk expressed by the Unguka bank ltd had a positive impact to the growth during the period 2011 to 2015. The data show periodic satisfactory achievements.

*Table 1:* Portifolio Quality

| Indicator | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Portofolioatrisk | | | | | |
| 1-30 days | 0,0% | 0,0% | 2,4% | 4,2% | 0,3% |
| 31-60 days | 0,7% | 0,1% | 1,4% | 0,6% | 0,1% |
| 61-90 days | 0,0% | 0,0% | 0,0% | 0,0% | 0,3% |
| 91-180 days | 0,5% | 1,3% | 1,3% | 0,4% | 0,0% |
| 181-365 days | 1,0% | 0,7% | 0,3% | 1,6% | 1,9% |
| + 365 days | 0,1% | 3,0% | 0,0% | 0,0% | 0,0% |
| Re-phased (not currently in arrears) | 0,0% | 0,0% | 0,0% | 3,0% | 2,1% |
| Total > 1 day (PAR1) | 2,3% | 5,1% | 5,4% | 6,8% | 2,6% |
| Total > 30 days (PAR30) | 2,3% | 5,1% | 3,0% | 2,7% | 2,3% |
| Total > 30 days + rescheduling | 2,3% | 5,1% | 3,0% | 5,7% | 4,4% |
| Protection | | | | | |
| Ratio of reserves for loan losses | 1,3% | 4,5% | 2,0% | 2,0% | 2,0% |
| Coverage of risk (PAR30 rescheduling +) | 58% | 88% | 68% | 35% | 45% |
| Ratio in provisions | | 5,9% | 2,9% | 2,6% | 2,3% |
| Debt forgiveness | | | | | |
| Rate of loan losses | | 0,0% | 2,4% | 1,6% | 1,6% |
| % RAP into account past losses | 0,0% | 0,0% | 54,0% | 53,9% | 57,4% |

*Source: Summary of reports of the Unguka bank ltd (2011- 2015)*

*c) Identification of indicators of performance*

Writings assert that bank's financial performance is measured by how better off the shareholder is at the end of a period, than he was at the beginning. The main objective of shareholders in investing in a business is to increase their wealth. Thus the measurements of performance of the Unguka bank Ltd are as follows:

*Analysis of financial ratios*

Financial ratios come to investing, analyzing financial statement information (also known as quantitative analysis), is one of, if not the most important element in the fundamental analysis process.

*Return on assets ratio (ROA)*

Return on assets ratio is important profitability ratio because it measures the efficiency with which the company is managing its investment in asset and using them to generate profit. Return on assets ratio is also called the return on investment. return on asset ratio during the covered period .from 2013 up to 2015, the ratio on return on assets are 3.0%, 3.6% and 3.9% respectively. This means from 2013 up to 2015. Unguka bank Ltd is profitable during the covered period because the standard ratio of return on asset is 1% may factors are the cause of that profitability but the quality service are the main cause of the increase of its profitability.

*Return on equity ratio*

Return on equity is a measure of how well a bank used reinvested earnings to generate additional earnings, equal to fiscal year' after –tax. The ratio return on equity is most important of all financial ratios to investors in bank. It means return on money the investors have put into the bank. This is the ratio potential investors look at when deciding whether or not to invest in the bank. From 2013 up to 2015, the ratio on return on equity are the following, 14.1% in 2013, 18.6% in 2014 and 25.8% in 2015, for 100Rwf the investors has put into bank has brought 14.1% of the benefit in2013, for 100Rwf the investors has put into bank has brought has got 18.6% in 2014, for 100Rwf the investors has put into bank has brought 25.8% in 2015.

*Net Profit Margin ratio*

Profit margin, net margin, net profit margin or net profit ratio all refer to a measure of profitability. It is calculated by finding the net profit as a percentage of the revenue.

Table 2

| Year | 2013 | 2014 | 2015 |
|---|---|---|---|
| Net Profit"000"Rwf | 8,688,765 | 11,781,336 | 14,830,235 |
| Net sales in "000"Rwf | 98,524,310 | 83,007,293 | 92,630,215 |
| Ratio in % | 8.8% | 14.2% | 16.0% |

The ratios above show the profitability of Unguka bank Ltd -Nyarugenge branch whereby in 2013 and 2014 one Franc of sales generated 0.08 and 0.14 Franc of net profit; 2015 one Franc of sales generated 0.16 Franc of net profit.

*d) The role of risk management for performance of Unguka bank ltd*

In the literature, risk management seek economics for several reasons such as preventing credit risks ,liquidity risks ,operational risks and interest rate risks problems for the clients and staffs of Unguka bank ltd in order to increase the level and quality of current asset, improve profitability. Thus, to further ascertain the role of risk management for Unguka bank ltd performance in Nyarugenge branch, respondents were asked to indicate the role of risk management for Unguka bank ltd performance.

*Table 3:* Role of risk management on performance of Unguka bank ltd

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Prevent default loans problems, | 5 | 16.7 | 16.7 | .16.7 |
| | Improve efficiency | 12 | 40.0 | 40.0 | 56.7 |
| | Improve profitability | 13 | 43.3 | 43.3 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |

*Source: Primary data, October 2016*

As asserted by different literatures, in every bank the overall aim is to make profit (Walf, 2004). That is why Unguka Bank were to improve profitability (43.3 %) improve firm efficiency (40.0 %), prevent default loans problems (16.7 %).

*e) Analysis of the relationship between risk management determinants and financial performance indicators*

The *F*-test was carried out to test the significance of the regression model in predicting the dependent variable (performance of Unguka bank-Nyarugenge branch). From the results, it was found that the four independent variables (credit risk, interest rates risk, liquidity risk and operation risk predict the performance of Unguka bank-Nyarugenge branch (adjusted *R* squared = .695). That means the model explains 69.5 % the variance in the performance of Unguka bank-Nyarugenge branch; 60.0% of variations are brought about by factors not captured in the objectives. Therefore, further research should be conducted to investigate the other factors (60.0 %) that affect performance of Unguka bank-Nyarugenge branch. The regression equation appears to be very useful for making predictions since the value of $R^2$ is close to 1.

The findings shows hypotheses of the linear regression *F*-test results ($F = 8.741$; and 5df) are significant at $p < 0.05$. Therefore, the five hypotheses concluded that the regression model linearly explains the performance of Unguka bank-Nyarugenge branch. Therefore, the study accepted the alternative hypotheses.

- $H_{a1}$: There is a relationship between credit risk and performance of Unguka bank-Nyarugenge branch;
- $H_{a2}$: There is a relationship between interest rates risk and performance of Unguka bank-Nyarugenge branch;
- $H_{a3}$: There is a relationship between liquidity risk and the performance of Unguka bank-Nyarugenge branch;
- $H_{a4}$: There is a relationship between operation risk and the performance of Unguka bank-Nyarugenge branch and
- $H_{a5:}$ There is a relationship between default loans and the performance of Unguka bank-Nyarugenge branch.

The study conducted a multiple regression analysis so as to determine the regression coefficients (β) which shows that $\beta 0 = 1.138$ and which means that all the independent variables credit risk interest rates risk, liquidity risk, operational risk, and default loans have a significant contribution to Unguka bank-Nyarugenge branch performance even if the x variable equal to zero means Y= 1.138 and according to table 14 the model equation become Y= $1.138+0.258X_1 + 0.367X_2+ 0.423X_3+0.157X_4+ 0.345X_5$ .

## VI. Conclusions and Recommendations

*a) Conclusions*

The general objective of this study is to assess the role of risk management on financial performance in banking institutions in Rwanda. The findings of the study was relevant due, use of risk management, are critical factors for financial performance as measured by ROA,ROE and Net income marginal. It concluded that the interactions use of risk management of the factors create an impetus for financial performance as measured by ROA, ROE and Net income marginal.

*b) Recommendations*

From the above analysis, it is recommended Unguka bank ltd should emphasize more on training its personnel continuously particularly those in risk management in order to enable them apply accepted tools of risk management in a professional manner and to enable them give relevant and reliable answers to questions credit risk management. To help them in selecting correct investment projects of customers appropriately and in profession manner so as to avoid poor lending on numerous projects. The bank must train them in ways to promote non-payment services (customer care and public relations) to the public in order to attract good borrowers and maintain good customers.

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Global Journal of Management and Business Research: C
Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# How Likely Does Technology Affect Small-Investors' Herding Behavior and their Level of Confidence?

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*Abstract-* Technology around us continues to evolve and influence our lives whether we realize it or not. The evolution of technology has enabled people to do more than ever from the comfort of their location with a cell phone signal connected to a smartphone or laptop. Landline phones have become mobile phones for people to communicate anywhere in the world with a cellular signal. Smartphones act as mini computers connected to the internet with the growing number of applications from developers. The speed and computing power of these devices have enabled people to incorporate these devices into their lifestyles. Understanding if these technologies increase or decrease trader's tendency towards the herding behavior and how it affects their level of confidence is important because it could ultimately affect their trading behaviors. Small-investors are at potential risk because as technology changes, so can the way small-investors trade stocks. Technologies have the ability to influence human behavior in positive or negative way. This study explores the influence of technology on small-investors' herding behaviors and level of confidence by using a 17 questions survey distributed online and in person.

*GJMBR-C Classification:* *JEL Code: R53*

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*Strictly as per the compliance and regulations of:*

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Ngai Tsun Chan [α] & Dr. Magdy Hussein [σ]

*Abstract-* Technology around us continues to evolve and influence our lives whether we realize it or not. The evolution of technology has enabled people to do more than ever from the comfort of their location with a cell phone signal connected to a smartphone or laptop. Landline phones have become mobile phones for people to communicate anywhere in the world with a cellular signal. Smartphones act as mini computers connected to the internet with the growing number of applications from developers. The speed and computing power of these devices have enabled people to incorporate these devices into their lifestyles. Understanding if these technologies increase or decrease trader's tendency towards the herding behavior and how it affects their level of confidence is important because it could ultimately affect their trading behaviors. Small-investors are at potential risk because as technology changes, so can the way small-investors trade stocks. Technologies have the ability to influence human behavior in positive or negative way. This study explores the influence of technology on small-investors' herding behaviors and level of confidence by using a 17 questions survey distributed online and in person. Results from the research, have hinted towards the conclusion that that technology is likely have an increasing effect on stock trader's herding behavior and level of confidence. Knowledge gained from this research will contribute to area of technology and behavior finance.

## I. Introduction

Improvements in technology in both hardware and software are reshaping people's lifestyles and have affected human behaviors at work, home, and outdoors. Technology have also influenced the ways people do things faster or more effective through the use of computers and smartphones that can seamlessly synchronize with their desktop computer counterpart allow people to access their data without much hassle. Activities like trading stocks can be an area of concern if traded under the wrong influences.

Documenting how technology changes can affect human behavior is important to understand because as the environment change so does the way people react and respond. Sometimes this can occur for the benefits, but can also do harm if not caught and discovered. As future generations utilize the use of new and better technology in terms of software and hardware, how will it affect their trading behaviors? The three main technologies focused in this research will include the landline telephone, internet on the computer, and smartphone applications because these comprise of the three main ways for investors to trade stocks.

For small-investors, understanding the tendency for herding behaviors and increased level of confidence to occur between the technologies is important because of how each type of technology can have a different impact on small-investors' decisions. Since herding behaviors and higher level of confidence may lead to regretful trading decisions, it is important to document the influences on small-investors by the three main technologies sources. The question becomes if these technologies affect the behaviors of small-investors. Should small-investors worry about the factors that may affect their behaviors for better or for worse? To explore its importance, the research question of "How likely does technology affects stock small-investors' herding behavior and their level of confidence?" will be the focal point of this research.

The aim of this research is to determine how likely technology affects small-investors' herding behaviors and their level of confidence. Determining if technologies, such as the landline telephone, internet on computer, and smartphone applications, will influence small-investors' herding behavior and level of confidence will be on the scope of the research. Secondary goal is to try to detect if there an increase level of herding behavior and level confidence between the three technologies. The first hypothesis is that technology will cause more herding behavior to take place among small-investors. Secondly, technology will provide a higher level of confidence to small-investors among small-investors. The research findings will provide awareness to small-investors to allow for better decision making when trading stocks.

## II. Telephone Effects on Behavior

The invention of the telephone has allowed investors to trade stocks at their leisure of their homes by calling the stockbroker. This allowed investors to not physically be needed in the same room with the stockbroker to conduct the trade. Travel cost can be eliminated, while the transaction fee for each trade

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Global Journal of Management and Business Research ( C ) Volume XVII Issue I Version I Year 2017

would be still valid. Communications between two parties either to the investor and broker or friend-to-friend seeking advice has also influence people on their behaviors. One such behavior is known is the herd behavior, which according to Koppel (2011) is the behavior where one follows the action or the opinions of another into order to feel safe and to be with the majority. This behavior may lead investors to either a right or wrong path as a result of this bandwagon effect to follow others. Communications over the telephone can lead to more conversations among their peers and thus may lead to the herd behavior in investors.

More communications from the invention of the telephone would promote more knowledge and information to be transferred from one person to another. However, sometime too much information may lead to being overconfident in one self. Overconfidence is defined by Nofsinger (2011) as the perception of oneself who under estimate risks, overestimate their level of knowledge, and believes that they can control the outcome of the event. Often time investors believe that they have better probability to gain a return from the stock market. This is also known as the better than average effect in which investor want to believe that they can gain the above average return.

## III. Internet Effects on Behavior

Wikipedia is a source of information and though its content may or not may be 100% accurate due its open source content. Much like a search engine of knowledge, Wikipedia can be easily accessed on the desktop or the phone without much effort due to its simple web design layout that contains mostly text without any fancy web features like sound or any flash content. Studies by researchers of Tsinghua University and Hong Kong University of Science and Technology, have found that the information within Wikipedia can influence stock small-investors behaviors in a positive way by offering more information to small-investors (Xin & Xiaoquan, 2013). Whenever companies disclose negative earnings reports or any negative news, stock small-investors can find out about them through Wikipedia to allow them to react properly and sell if necessary. As a result, information on the internet can lead to a certain degree of a herding behavior for those following the information on Wikipedia.

According to Nofsinger (2011), stock small-investors who switched over from the traditional phone based stock trading method to an online-based platform tended to exhibiting an increase of over confidence in behavior by a study done by Brad Barber and Terry Odean. In the study of 1,607 investors by Brad Barber and Terry Odean (Nofsinger, 2011), investors gained about 18% in return versus the 12% gain in return before and after switching to an online based. Switching to an online-based trading system found lowered trader's returns based on their study. Prior to the switch to the online trading system, the average portfolio turnover was around 70%. The percentage jumped to 120% after going and dropped a little to 90% two years later. Nevertheless, the number of trades done had increased after going to an online-based system. Their conclusion was that over confidence led to excessive trading, which lead to more transactions fees and commissions to stock brokers.

Today's faster computing and faster internet power also led to the development of High- Frequency Trading, where these small-investors account for the 40% to 70% of the transactions in the online market. It is expected to lower trading costs and improve the quality of service within the market (Abergel, et al., 2014). As online trading costs get cheaper over time, investors behaviors might be more exposed to over herd behavior, overconfidence, and excessive trading.

## IV. Smartphone Applications Effects on Behaviors

According to a cash market transaction survey done in Hong Kong, the result suggests that only 69% of them were online small-investors in 2010 (Sam, et al., 2013). Sam, Chatwin, and Ma found that 62% of its citizens owned a smartphone according to Radio Television of Hong Kong. They also found that 76% of these smartphone users used them to access the internet in a study in 2012 according to Nielsen's Smartphone Insights Study. Coincidently, the study also concluded that Hong Kong was the third highest county with a 74% mobile apps usage in the same study by Nielson. Even though the study suggests that citizens of Hong Kong are commonly use mobile apps, Nielson's study of the global use of mobile applications around the world found that only 31% of all small-investors in the world use mobile apps to trade investments. In another study source of a mobile banking perception found, Sam, et al. (2013) concluded that mobile trading was not popular yet in Hong Kong at only 4% of participants had used mobile trading apps.

While study by Sam, et al. (2013) concluded that mobile trading was not trending yet among the citizens of Hong Kong, their survey study have suggested finding that there is a positive perception for mobile stock trading. Sam and Chatwin claim that the positive feedback of people toward mobile stock trading suggests a beneficial factor to its users.

In another study by Tai, Y. & Ku, Y. (2013) called "Will Stock investors use Mobile Stock Trading", trader's perception of risk caused trader's behavior to avoid trading on mobile devices due to risks involved. As a result, investors may choose may choose to avoid and skip the potential benefits from using mobile stock trading according to Tai, Y. & Ku, Y. (2013). The common risk perceptions founded toward mobile trading were difficulty when entering data prone to errors, piracy issues, crashing of the software and cellular signal loss. Tai, Y. & Ku, Y. (2013) believe that there is negative perception towards mobile stock trading because they are scared of making entry errors and others mention above according to studies done.

Tai, Y. & Ku, Y. (2013) also found positive findings that social influences among their peers, friends, and family can a determining factor whether users will adopt this mobile stock trading technology. They suggest banks promote mobile stock trading to the most likely users. Once the trend picks up, it could be similar to the herd behavior to adopt this fairly new technology to trade stocks on smartphones.

On January 18, 2006, the Nikkei 225 experienced a market decline of 7% after small-investors learned of the Live door scandal, which involved falsifying financials in order to increase its stock price. Later that year in November, mobile transactions among the three largest brokers in Japan hit $8.7 billion dollars' worth for the first time in history. This was 90% increase in dollar value from the prior year according to Hall, K., & Rowley, I. (2006). At the same time, they believed that small-investors rapidly sold their stocks at the convenience on their mobile phone software that attributed to the market drop that day which caused trading to be halted. Small-investors selling their stocks from this kind of news from a company scandal can promote a herding behavior that can send swarms of small-investors sell from the comfort from their mobile phones.

Currently, there are abundant of stock related applications for their smartphones that allow small-investors to trade, monitor, and analyze their stocks all within their smartphones anywhere in the world with a good cell phone signal. From a search for "trade stocks" in Apple's iTunes store, there were 100 software applications that would allow users to manage their stocks from their smartphones. According to Statista, the Apple App store had a total of 1.5M apps, while Google Play store had a 1.6M apps available as of July 2015.

One special smartphone application called Robinhood, which as of March 10th, 4.5 rating out of 5 in the iTunes store with 242 reviews. Robinhood is unique because it gives small-investors zero commission fees per trade. In return, Robinhood holds your cash balance for a few days to earn interest before releasing the funds back to you after the sell. By having no cost trades, it will be interesting to see how current and new investors behave to these new technologies within the smartphone applications markets.

Brokerage firms, such as TD Ameritrade and Charles Schwab have also seen increased demands for smartphone applications according to KEN, H. (2016). TD Ameritrade have seen a steady 16% increase of smartphone app users yearly and with 18% of its trades done through a smartphone app. For Charles Schwab, the mobile application team claims to have 10,000 new users each month with a total of 800,000 or more using the software at any point in time. Based on the increasing usage of smartphone applications, it will be interesting to find out how it can affect trader's behaviors.

## V. Research Methodology

A blend of qualitative and quantitative research methodology will be used for the research for the subject matter presented in the research question. This research method will help identify the issues and the variables between each technology and the behavioral variables associated in the study. Each source of the technology is the interdependent variable while the herding behavior and the level of confidence become the variables. Overall, the research will determine if there is an influence on stock trader's behavioral herding tendencies and their level of knowledge in the market. Results of the study will help small-investors be aware of the actions they undergo while trading. From this, small-investors will be better able to make better decision from among the technology used to trade stocks.

Data collection method for primary data used with the quantitative method will consist of surveys with open and close-ended questionnaires done in person and online. The types of questionnaire used in this study will consist of self-completed questionnaires, and web questionnaires. The questions here will be distributed to a uniform sample size through the public via on site or online with web link. The participants will have the option to either fill out the surveys in person or fill out the surveys online at a more convenient time. Questions on the questionnaire will be designed to help answer the research question and its research objectives. Using qualitative methods, the data will be interpreted into findings by reviewing each respondent's feedback.

The un-uniform sample size for the study will be consisted of 100 human subjects who have traded stocks either by a telephone call to broker, online trading, or through a smartphone application. Presentation of data will be shown in percentages on how many respondents selected for each answers. A review of the open-ended question will be conducted to gauge how respondents feel about herding, confidence, and technology.

## VI. Data Collection Results from Questionnaires

The data collection for the research study of 100 participants concluded after 10 days of collection from participants through various coffee shop locations within Silicon Valley and the distribution of the online surveys to small-investors. Dissecting the survey data in reference to Table 1-1, the participants from the study came out to be 80% male and 20% female. Of the 100 participants, there is an even number of participants who are between 25-39 and 40-60 at 42% while 12% of them were over 60 years old and 3% were between 18-24. Most small-investors fell between the two age groups of 25-39 at 42% and ages 40-60 at 42%. The sample study yielded an equal number of participants that fell within those groups. The next highest group belonged to the 60+ group at 12%.

*Table 1-1:* Data Sample

| | | | | | |
|---|---|---|---|---|---|
| Gender | Male | Female | | | |
| | 80% | 20% | | | |
| Age | 18-24 | 25-39 | 40-60 | 60+ | |
| | 3% | 42% | 42% | 12% | |
| Education | No HS | HS graduate | College graduate | Some Graduate School | Complete Graduate School |
| | 0.00% | 6.00% | 37.40% | 11.10% | 45.50% |

In the study in reference to Table 1-2, the majority of the small-investors at 46% do not believe that their friend's stock suggestions are valid sources of information for stock trading by combining the total of the disagree and strongly disagree. The rest of the small-investors were neutral on the matter with only 20% of the small-investors believing that listening to their friend was a good idea for trading. Results from the survey resulted that small-investors also do not prefer to trade based on their stockbroker's suggestions with 39% disagreeing, while 30% and 31% of the small-investors agreed and remained neutral to the thought. From the survey, 54% of the small-investors believe that technology has provided more and faster access to information through technology to enable them to process information quicker through the internet either on the computer or on using smartphone to access information.

Small-investors' levels of confidence, as the study shown, are related to the returns from their investments as 82% of the small-investors in the survey agreed to statement #7 in Table 1-2. The results shows only 3% of the small-investors had disagreed and with 14% of whom felt neutral about the same statement. The internet has provided small-investors with access to more information as shown by the 97% of the small-investors in the study, which directly correlates to the 90% of the trader that believes technology gives them more knowledge. Small-investors can gain higher level of confidence in trading by having more knowledge of the stock market of which 83% of the small-investors agreed to the idea in the study.

*Table 1-2:* Responses from Questionnaire in percentages selected

| Statement (Percent) | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I would buy/sell a stock based on friend's suggestion. | 3 | 17 | 34 | 22 | 24 |
| I would buy/sell a stock based on my broker's suggestion | 3 | 27 | 31 | 16 | 23 |
| Having more knowledge of the stock market dynamics affects my confidence | 27 | 56 | 11 | 6 | 0 |
| Technology has given me more knowledge | 41 | 49 | 10 | 0 | 0 |
| I rely on the telephone to get market | 0 | 4 | 20 | 33 | 43 |
| The internet has provided me with access to more information. | 68 | 29 | 3 | 0 | 0 |
| Having gains on my returns increases my level of confidence. | 32 | 50 | 14 | 2 | 1 |

Among the three made ways of trading stocks, landline telephone, internet on the computer, and smartphones, the study indicates that the vast majority of small-investors ranks trading on the internet using a computer as the most preferred method to trade stocks with 63% of the votes in reference to Table 1-3. Trading on the smartphones applications ranked second at 21% followed by the 8% of small-investors who preferred trading on the landline telephones. Small-investors who use the computer to trade stocks were at 94%, while small-investors who used smartphone applications were at 58%. Not surprisingly, only 8% of the small-investors ranked the landline telephone to be the most preferred method.

*Table 1-3:* Technology Usage and #1 Ranking.

| | Yes | No | | |
|---|---|---|---|---|
| Traded on a Landline Telephone | 21% | 79% | | |
| Trade on a Computer | 94% | 6% | | |
| Traded on a Smartphone Application | 58% | 42% | | |
| Rank of Technology as #1 | Landline Telephone | Internet on Computer | Smart phone Apps | Un-answered |
| | 8% | 63% | 21% | 8% |

## VII. Findings on Data Sample

The even number of small-investors with aged between 25-29 and 40-60 was a surprise finding making up 42% in each group among the 100 small-investors in the research. The next highest age group belonged to the 60+ age group, which makes sense since these folks will have more savings and income than the 18-24 age group. The younger crowd might not have the income and might still be in school.

The number of males who took part of the research was significantly higher than females with 80% as compared to 20% females. This data may suggest that there are more male small-investors than female small-investors in the population. However, the gender bias may be due to the fact that more males were asked to participate in the research as compared to females that will be discussed in the limitations section.

In addition, 93% of the participants had graduated either from college or graduate school, which suggest that the majority of the participants from this study are well-educated people capable of processing information. Within the study almost half them at 45% of the 100 small-investors received a master's degree. This shows that they have the knowledge and capability to learn complex academic chores likes reading large amount of written content to do their stock research.

### a) *Findings on Herding*

Data suggest that small-investors do not listen to their friends and stockbrokers to make their trading decisions, which suggests that small-investors rely on their own research before trading. For the 20% to 30% of the small-investors, who would buy or sell stocks based on suggestions from their friend or stock broker, may be more influenced by the herding effect. For the 31% to 34% of the small-investors who choose neutral to question one and two, there may not be enough information here alone for them to make a trading decision judgment as the data suggests.

Small-investors in the study indicated that technology does increase their tendency to the herding behavior. Fifty four percent of the small-investors believe that technology has allowed them to process more data and faster using computer and smartphones. This finding suggests that technological innovations that increase communication or provide faster information to users can indeed increase the herding effect among small-investors. Some follow others to trade, thus more technological advances in communications via online and social media can increase herding behavior for those who do not do their own research in stocks and or use outside tools such as technical analysis or any other research databases in reference to APPENDIX C. Some small-investors believes people get information roughly at the same time in real time, in which technology makes information available to people faster and more easily than before. Small-investors who read the same article as others through social media may be reposted and encourage other small-investors to follow in a certain direction.

### b) *Findings on Level of Confidence*

With technology as the vehicle to communicate information to small-investors, it seems likely that level of confidence among small-investors increase as more information are processed by small-investors. When asked if technology affect their level confidence, 63% said yes and 5% said no. The most commons reasons for the yes responses were because computers and smartphone allow information to be distributed faster and in real time to the general masses according to APPENDIX B. Technology have also provided small-investors to view more information on more than one computer screens using software tools to conduct technical analysis and other software tools. Technology has allowed small-investors to make more informed decisions to feel more secure, and therefore can increase small-investors' level of confidences.

### c) *Findings on Technology Influence*

The once popular method of trading stocks by the landline telephone is replaced by new technology that are faster and more efficient for small-investors to trade either on the computer or smartphone applications. The shift towards the preferences to trading on the computer can be attributed by 63% vast majority of small-investors who most preferred the computer to trade stocks. Reasoning behind this in reference to APPENDIX C is because of the easier access to the information, dual screen monitors, better tools and software, and better security that is offered more on the computer than on smartphones applications. Another reason is that small-investors are often already conducting other activities on the computers already in addition to trading stocks on the same device. Those who use smartphone applications for trading mainly do so because of the better access and convenience they have when trading on the smartphones for 18% of the small-investors in the study. Though catching on, smartphone applications are still not as good as the computer counter part due to the lack of screen size and software features as on the computer. Convenience and accessibly is growing trend associated with trading on the smartphone that is driving this increase.

The 8% who preferred to trade via landline telephone in Table 1-3 mainly do so to get in touch with their stockbroker, which shows small-investors have not all abandoned to listen to their stockbrokers. Some small-investors prefer landline telephone to trade is to avoid all the misleading information on the internet that can influence small-investors' decisions. They avoid the technology to make trades to avoid the information from their peers and the internet from corrupting their trading decisions. Their rationale to avoid trading on the smartphone was also to try to minimize data entry errors or mistake that can occur from the smartphone.

As small-investors who used the landline telephone to trade stocks fade away to the popular method of using computers and smartphone applications, smartphones application shows as potential tool for new users as smartphone become more functional and more secure. Already, we see that more than half at 58% of the small-investors in the study have traded stocks on the smartphone. Telephone trading is expected to decrease as the smartphone application usage go up as the younger generation follow the new trend with newer technologies, while the older generation using older technology dwindle. We also see less reliance on stockbrokers since majority of the small-investors in the survey do not believe their stockbrokers have ability to give them a return as belief among 39% of the small-investors. With more information provided to small-investors over the internet, small-investors can conduct their own research online to build their level of confidence. This correlates to the survey data since 90% of the participants acknowledge that the internet has provided them more knowledge in Table 1-2.

## VIII. Recommendation for Stock Small-Investors

Based on the feedbacks of those who gave written responses to the open-ended questionnaires, the followings are recommendation for small-investors. Small-investors who are comfortable with what they are doing and that is working for them should keep doing on what is working. New technologies are good, but can also be harmful if someone does not fully understand the effects it has on them. If trading on the telephone with the stockbroker works, then keep doing what is comfortable. Small-investors who might want to try new methods of trading can explore either monitoring or trading stocks via smartphone applications. Although, some smartphone applications may not be equivalent to the analytical tools offered by the computer software, some smartphone applications offer commission free trading, such as Robinhood that small-investors can take advantage of. Trading on the computer may still be the most popular way to trade stock because of the large amount of tools available. Overtime smartphone applications could address the most common problems perceived by responses of smartphone trading, such as security, limited screen size, and unfriendly user interface. Until then, small-investors should trader under the method they prefer and be aware of the new methods of trading stocks reshaping the market as time changes.

## IX. Study Limitations

Seeking a balanced number of male or female small-investors would show more depth in the study to factor in any indications that male or female may have different behavior tendencies. It would be interesting to see how the data will present itself with studies groups with only one gender. The uniform sample set collected at 80% and 20% shows mainly behavior from the perspective of males and is inconclusive for female small-investors. A larger sample size would be better to increase the confidence level of the study, if more time was available during the 3-month research period. A more even number among each age group would make a more even study to capture ages of each generation as well.

The locations where data sampled were collected manually throughout various coffee shops in the Silicon Valley may be inconclusive of the overall population because behaviors of small-investors here may be more acceptable to technology. Areas with less technological influence may prefer to trade with their stockbrokers and may not own a smartphone. In addition, the sample size may be limited to coffee shop goers, which may only capture a certain demographics of people in terms of age and certain lifestyle.

Answers left blank or contained no explanation to the question is a limitation of the study as well that was uncontrollable during the study. There was no obligation to the participant to answer all questions based on their willingness to do so. Some of the questions used in the survey might have prompted some invalid responses as well as it might have not been clear to them what the question was asking. This may have led to more blank responses as well. As a result, some of the questions may have contradicting answers. For example, 46% of the small-investors believe that they will not buy a stock based on a friend's suggestion. However, at the same time part of the reason why 34% small-investors believed that herding would increase with technology was because of how it would increase from the social media influence among small-investors in APPENDIX C. Better design of the questions would had help prevented this.

In addition, surveys done at the coffee shops may be less thorough as compared to those who had the chance to do the survey online from the comfort of their leisure time versus those who were asked to stop what they were doing to fill out the survey on the spot. Future studies on this topic can address these limitations and further benefit to the study of behavior finance.

## X. Conclusion

In conclusion, the findings based on the survey data shows that it is likely that technology can increase small-investors ' tendency to the herding behavior from the vast amount of information small-investors can receive either on their computers or on their smart phones. Their level of confidence is also likely to increase from the information available on the internet. As more information is provided to small-investors, their decision become more informed and thus become more confident when trading. The technological preference in trading has shifted from the landline telephone to the internet on the computer in the current generation and the phasing out older technologies as new technology sets the new standard in stock trading. For small-investors to fully adopt the new smartphone trading trend, smartphone application developers must address the basic needs of small-investors such as security and the ease of use as mentioned in the findings. Trading on the smartphone with better software and tools in the near future could set a new frontier as more improvements are progressed in the comings years. Until then, stock small-investors have to keep doing their due diligence in researching stocks to keep their level of confidence high in their preferred method of trading, while avoiding the herd, as they perceive information on the web and social media at their fingertips on their computers or smartphones.

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Global Journal of Management and Business Research: C
Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Determinant Factors Affecting Loan Repayment Performance of Women Borrowers from Micro Finance Institutions in Southwest Ethiopia: Evidence from Four Woredas around Gilgel Gibe Hydroelectric Power Dam

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*Abstract-* The aim of microcredit is to help the poor and lower income group to get funds for their business activities and to improve their lives. Also Ethiopian government use and promote microcredit as a bridge to eradicate poverty and for women's empowerment. In reverse, many women's are loan defaulter than other borrowers. But, there are a limited number of researches attempted to explore determinant factors affecting loan repayment performance in the case of women borrower of micro finance institutions by using empirical data, especially in the study country and almost no for the study area. So to fill this gap, we conduct a cross-sectional study with overall aim of assessing determinant factors affecting loan repayment performance in the case of women borrowers from micro finance institutions. We employed a multi-stage sampling approach and a total of 182 women's, which 85 borrowers were defaulter and 97 non-defaulters.

*Keywords: loan repayment, women borrowers, MFIs, binary logistic regression.*

*GJMBR-C Classification: JEL Code: H74*

DETERMINANTFACTORSAFFECTINGLOANREPAYMENTPERFORMANCEOFWOMENBORROWERSFROMMICROFINANCEINSTITUTIONSINSOUTHWESTETHIOPIAEVIDENCEFROMFOURWOREDA SAROUNDGILGELGIBE HYDROELECTRICPOWERDAM

*Strictly as per the compliance and regulations of:*

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*Abstract-* The aim of microcredit is to help the poor and lower income group to get funds for their business activities and to improve their lives. Also Ethiopian government use and promote microcredit as a bridge to eradicate poverty and for women's empowerment. In reverse, many women's are loan defaulter than other borrowers. But, there are a limited number of researches attempted to explore determinant factors affecting loan repayment performance in the case of women borrower of micro finance institutions by using empirical data, especially in the study country and almost no for the study area. So to fill this gap, we conduct a cross-sectional study with overall aim of assessing determinant factors affecting loan repayment performance in the case of women borrowers from micro finance institutions. We employed a multi-stage sampling approach and a total of 182 women's, which 85 borrowers were defaulter and 97 non-defaulters. Data were collected by using a structured questionnaire on background characteristics of women's and their household. Further, additional data were collected on characteristics specific to determinant factors affecting loan repayment performance. Then, both household and respondents background characteristics were summarized and reported using various descriptive statistics, such as, tables, and summary statistics. In this connection, researchers' collect data from primary and secondary sources and analyzed by using Binary logistic regression model. Depending on the main objective of the study nine independent variables are selected to evaluate determinant factors, out of which six variables are significant and the remaining three variables are insignificant. Namely, age of respondents, education level of respondents, Sufficiency of loan for intended purpose, type of residences, using of loan for intended purpose, and number of group member are statistically significant. However, the extents to which these variables relate with the dependent variable were different. The results of the study show that Sufficiency of loan for intended activities increases the borrowers' loan repayment probability by 11.03 times and using loan for intended purpose increases the borrowers' loan repayment performance probability by 3.32 times. Many women's are citing MFIs are mostly focusing on profit maximization rather than helping the poor, for example interest rate of MFIs was higher than commercial banks, which is contrast with the aim of MFI. So it needs more attention as well as correction from policy makers.

*Keywords: loan repayment, women borrowers, MFIs, binary logistic regression.*

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## I. Introduction

### a) *Background of the Study*

Women constitute half of the world's population, accomplish nearly two thirds of its work hours but still receive only one tenth of income and one percent of world's property. Also gender discrimination is dissimilar and common in developing countries (Kalai, 2004).

Microfinance Institutions, financial services designed for poor people has been renowned for its ability to reach out to women and enhance their welfare. Study conducted in Kenya shows that, Women entrepreneurs in Kenya are the key to economic growth because they are generating employment. However, women owned businesses could contribute more than what they are doing today. A growing amount of research shows that countries that fail to address gender barriers are losing out on significant economic growth. Without increased attention to the gender dimensions of economic development, Kenya is therefore unlikely to meet its growth targets. This leads to demonstrates that addressing gender barriers in Kenya could generate significant economic growth for the country (Omonywa and Muturi, 2015).

Goetz and Gupta (1996) and Noponen (1990) argued that, impact on empowerment cannot be inferred from take-up of financial services or repayment levels. Women may repay through taking loans elsewhere and getting into serious debt while loans may be controlled by men. Some researchers have expressed concerns that women's micro-finance programs may be merely using women as unpaid debt collectors mediating between development agencies and male family members, increasing their dependency on men and/or conflicts between women to fulfill repayment targets.

According to Kabeer (2001), "…these conflicting conclusions about the 'empowerment' potential of credit for women are both apparent and real. What appears to be contradictory findings concerning, for instance, the extent to which credit exacerbates or lessens violence against women, enables or fails to enable them to acquire independent assets, is associated with an increase or decrease in their living standards is partly a difference in methodology. It reflects the fact that some studies relied largely on statistical data and significance tests for their findings while others relied on more qualitative, sometimes anecdotal, evidence. Conflicting conclusions about the impact of credit also reflect differences in the questions asked by different evaluations. "In conclusion she argued that, by and large, the negative evaluations focused on processes of loan use while the positive ones focused on outcomes associated with, and attributed to, access to loans. The validity of both sets of measures depends on their conceptual clarity and on the validity of their underlying grounds.

Undeniably women entrepreneurs around the world are making a difference. They contribute numerous ideas and a great deal of energy and capital resources to their communities, and generate jobs as well as create additional work for suppliers and other spin-off business linkages (Common wealth secretariat, 2002). Siwadi and Mhangami, 2011 adds that, it is undeniable that women entrepreneurs are the major actors in that sector and contributors to economic development and are becoming increasingly visible in the local economies of the developing counties.

Generally, the main objective of the study was to identifying determinant Factors affecting Loan Repayment performance of women borrowers from Micro Finance Institutions in South West Ethiopia, in the Case of four woredas around Gilgel Gibe Hydroelectric Power Dam.

### *b) Justification of the Study*

According to many studies around the world Women entrepreneurs have been seen as a major force for innovation, job creation and economic growth. Even though the crucial role they play, women entrepreneurs continue to face a number of challenges. For example: loan repayment default (failure to repay their loans in time), discrimination (at household and organizational level), lack of access to finance, lack of education, and lack of training regarding to their business are few amongst to others. Though there is growing interest in women funding through women enterprise fund and a number of micro-financing institutions. Kamanza, (2014) state that, loan repayment by women is a big challenge which leads to reduction of their potential to positively contribute to the economy.

One way to tackle the loan repayment problem is to investigate the factors which affect the loan repayment of MFIs., although loan repayment is determined by willingness, ability and other characteristics of the borrowers; businesses characteristics and characteristics of the lending institutions including product designs, training, credit rationing and suitability of their products to borrowers. Regarding their characteristics, even if it is the only case; repayment of loans depends on the willingness and ability of the borrowers to repay was the main. Therefore, individual borrowers can either repay their loans or choose to default. It is also true that the factors influencing loan repayment capacity among borrowers are not only likely to differ by programs but also differ from country to country depending on the domestic business and economic environment (Tundui, C. and Tundui, W., 2013).

Study conducted by Fikadu G. and Wondaferahu M., (2016) stated that, even if micro finance institutions have a positive impact/role on women economic empowerment, loan repayment problem was seen on some women clients of micro finance institutions. Therefore, the researchers were motivated to look into the determinant factors affecting loan repayment performance of women borrowers of micro finance institution clients in the study area.

## II. Literature Review

### *a) Microcredit and Loan Repayment*

Microcredit is just a small credit given to the poor that engaged in microenterprise or for the purpose of income-generating activities. On the other hand, microfinance encompasses broad financial services given to the poor and low-income group for many reasons and not just for income generating activities. Woller& Parsons (2002) describe microfinance as the second revolution in credit theory and policy where the first revolution is microcredit. Microfinance institutions (MFIs) were established to fill the gap in the financial services sector by providing funds to the poor and lower income group and thus alleviating poverty and enhance their business activities. The Microfinance Institutions provide funds for start-up business or for working capital.

In addition, some Microfinance Institutions also provide funds for non-business activities such as for education and emergencies purpose. In the credit market, agency problem, moral hazard and adverse selection exist because of information asymmetries. Information asymmetries are the main obstacle for Microfinance Institutions to provide loans to clients. Financial institutions usually requires business proposal, borrower past credit information and collateral before approving the loan. MFIs offer credit through group-based lending method to mitigate agency problems, moral hazard and adverse selection and to replace the collateral requirement. In group-based lending, borrowers must form a group before applying loans and they also responsible to other loan members. If one member default, the others will be responsible to pay the loan or they will be denied access for the next loans.

Microfinance Institutions are usually non-governmental organizations (NGOs) who are not profit-oriented. NGOs assume poverty is created through social processes that deprive the poor of their rightful access to social resources, including credit. These NGOs help the poor to find credits to support their small enterprises or income-generating activities. These institutions acted as a financial intermediation like formal bank. The difference between formal banks and microfinance institutions (MFIs) is the former focus on rich clients, while the latter to MFIs clients who are poor people. According to Remenyi (2000), subsidized credit and subsidized banking with the poor are inimical to "best practice in microfinance". Moreover, Microfinance Institutions also offered skills training and marketing to their clients.

*b) Microcredit and Women Borrowers*

Beverly et al., 2011 states that, the government and the corporate world have come up with a number of financing schemes aimed at providing loans to women entrepreneurs. According to Kamanza 2014, this effort mostly turns to be unfruitful due to poor loan repayment. In addition, business failure influences loan, gender roles, borrower's entrepreneurial skills and diversion of loan funds by borrowers. These factors have made the financial institutions to be skeptical about the entrepreneurial abilities of women.

Lending to the poor or lower income group raises many debates among practitioners and academicians. The poor are usually excluded from credit facilities because of many reasons. These include insufficient collateral to support their loans, high transaction costs, unstable income, lower literacy and high monitoring costs. Usually they survive through involvement in micro business activities or informal activities that comprises food processing and sales, small scale agriculture, services, crafts and petty trading. However, these activities actually contribute a number of total employment and gross domestic product (GDP) to the country. Micro and small enterprises (MEs) have been recognized as a major source of employment and income in many countries of the low income country (Mead &Liedholm, 1998).

*c) Microfinance Program and Women's Participation in Ethiopia*

According to Itana et al, 2004; until 1990s, the sources of finance for rural and urban poor and micro and small enterprise operators in Ethiopia were confined only to informal sources of finance like Arataabedar (local money lenders in local version), and relatives are the main sources. They also added that, starting in the mid-1990s, following the drought of 1984/85, some Non-Government Organizations (NGOs) introduced the idea of saving and credit among poor people as a strategy for rehabilitation and development, which the local people assumed as aid. But when government programs operated with in collaboration of international financial institutions came into the picture.

With the substantial measures taken to liberalize the financial sector, Ethiopian government take action for emphasizing the role of MFIs by made proclamation. Micro-financing is taken as a core to eradicate poverty through implying capital to subsistence agriculture and micro enterprises. Following the Agricultural Development Led Industrialization strategy of the Ethiopian government, financing rural community has been considered as an important tool for agricultural and food security (Belay, 2002).

In order with the development of micro-finance institutions, the Government of Ethiopia arrangement participatory rules and policies which gave room for women productivity. Padma and Swamy (2003) noted that, government has formulated and issued the Ethiopian Women's Policy to accelerate the economic and social improvement of women. This new policy gives special attention to rural women by 'facilitating the necessary conditions whereby they can have access to basic services and to ways and means of lightening their workload'. Consequently, all development programs at national and regional levels should be able to integrate gender concerns in their plans and programs to guarantee that women participate, contribute, benefit recognized.

## III. Methodology of the Study

*a) Study Area and Design*

A cross-sectional Study design was employed to look Factors affecting Loan Repayment of Micro Finance Institutions borrowers in South West Ethiopia. Among the four woredas', two weredas, namely, Omo Nada and Sokoru was selected and from these two woredas', 6-pairs of villages are selected and paired based on various comparability factors, including similarity on, infrastructure availability, communication facilities and other socioeconomic characteristics, such as literacy rate, topography, access to electric power, and presence of other development programs.

*b) Sampling Method and Sample Size*

For this study multi-stage probability sampling techniques were used. Since the members are large in number they are divided by groups and randomly selected for data collection. 182 samples have been collected for the research from all selected areas for the study. All women at working age and residing in the selected kebeles for more than six month consitituted as the study population.

Global Journal of Management and Business Research ( C ) Volume XVII Issue I Version I Year 2017

*c) Method of Data Collection and Sources of Data*

A structured interview schedule questioner was prepared by the researchers and used for collecting data from the rural and sub-urban women who are member of Micro finance institution for more than one year. The study was undertaken in rural and sub-urban areas of the study region. Both primary and secondary data's were used. Primary data is enumerated from a field survey in the study area. Secondary data were collected from governmental and non-governmental organization reports, internet and related documents.

*d) Data Analysis and Estimation Techniques of Econometric Model*

Data analysis was done after all the relevant data collection from the respondents. The empirical analyses of the study were conducted using both descriptive statistics and econometric regression model. Descriptive statistics discussion were made by using measures like percentages and cross-tabulation used for comparing borrowers not paid credit/defaulters/ and paid credit/ non defaulters /in various explanatory variables and to interpret the data.

To analyze studies that involves qualitative choice, especially to evaluate dichotomous variables most studies used logit and probit. The logit and probit formulations are quite comparable, the main difference being that the former has slightly flatter tails; that is, the normal curve approaches the axes more quickly (Gujarati, 1988). Logit model has got advantage over probit in the analysis of dichotomous outcome variable in that, it is extremely flexible and easily used model from mathematical point of view and results in a meaningful interpretation. (Hosmer and Lemeshew, 1989).

Therefore, binary logistic regression model was applied for analyzing the qualitative data which deals with loan repayment performance on nine explanatory variables that would be included in the study. Loan repayment status was a dependent variable, while different background characteristics of respondent, socioeconomic, business related and micro finance institution related factors would be considered as independent variables. In this case the value of this dependent variable (loan repayment performance) is 0 and 1, if borrowers paid a loan on time it takes 1 and otherwise 0. The functional relationship between the probability of loan repayment performance and explanatory variables specified as:

Let $Y_{ij}$ be the $i^{th}$ women's loan repayment performance (a binary outcome, 1= alone, 0=otherwise) living in the $j^{th}$kebele.

$$Y_{ij} \sim Bernoulli(P_j)$$

$$log\frac{P_j}{1-P_j} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

where, $P_j$ is the population proportion of loan repayment performance of women's in the $j^{th}$ kebele, $X_1, X_2, \dots, X_k$ individual level and other related characteristics of the study subjects and $\beta_0, \beta_1, \dots \beta_k$ are their associated regression coefficients or parameter to be studded.

Loan repayment performance Function of this study defined as:

LRP= *f* (AG, ME, EL, TL, NHHM, NGM, SLFIP, ILIP, ALFMFI)

Where,
LRP= Loan repayment performance (Dependent variable)
AG= Age
TL= Type of Locality
ME= Marital Status
EL= Educational Level
NGM= Number of Group Member
NHHM= Number of Household Member
ALFMFI= Amount of loan Approved by MFIs
SLIP= Sufficiency of Loan for intended purpose
ILIP= Investing Loan on intended purpose

## IV. Result and Discussion

*a) Back Ground Characteristics of the Respondents*

Information collected on the characteristics of the households and respondents was important to, understand and interpret the finding of the survey and provide indicators of the representativeness of the survey. The information is also useful in understanding and identifying the possible factors that affect loan repayment performance women borrowers.

Among 182 of households, 142(78%) were male headed and 40(22%) are female headed. The average household size, 139(76.3%) were less than or equal to 5 membership and 43(23.6%) are greater than 5 household member size. As expected from total respondents 133(73.1%) no education or they are not write and read at all, 41(22.5%) primary education and 8(4.4%) secondary and higher education. Out of total population of study between age of 25-32 covers the highest percent which is 138(75.8%) and the lowest percent of age group was between 40-47 years of age, which count 7(3.8%). Lastly, 142(78%) respondents are married or live with their husband, 29(15.9%) divorced and only 11(6%) of them are widowed (Annex I; Table 1) Generally result of the study survey indicates that, households in the study area were predominantly male headed, which shows almost the same result with the study country and also a common feature of most African countries. Almost around one in four households are headed by women with the proportion of female-headed households much higher in urban than in rural areas. Depending on the finding and theoretical arguments it is possible to say that, family sizes in rural areas were higher than urban area.

*b) Asset Ownership of Respondents and their Household*

The study survey result shows that, 169(92.6%) of household respondents have their own houses while 13(7.2) respondent's household does not have it. Meanwhile 158(86.9%) of respondents indicated the floor of their house is natural floor, while 20(10.9%) rudimentary floor and 4(2.2%) indicated their houses having finished floor. Concerning the main construction material for their home, 99(44.4%) of the respondents used natural roof, 3(1.6%) rudimentary roof and 80(44%) of respondents household finished roof. In addition 134(73.6%) of respondent used natural wall, 43(25.8%) rudimentary wall and only 1(0.5%) have finished wall. However, only 59(32.4%) of respondents indicated that they have electricity while the majorities 123(67.8%) do not have electricity in their home (Annex I; Table 2).

Regarding to household effect, majority of respondents 169(94.5%) of households have radio and only 9(5.5%) of them does not have it. However, only 31(17%) households have television at home. Among the total respondents of the study, around one third of them said that, their household does not have their own land for agricultural. This indicates that households, in rural Ethiopia are much less likely to possess consumer items like televisions, radios and electricity when compared with urban areas (Ibid).

*c) Determinant Factors affecting Loan Repayment Performance of Women Borrowers'*

The result of binary logistic regression model on determinant factors affecting loan repayment performance of borrowers is presented in table I below. A total of nine explanatory variables were considered in the econometric model. Out of which six variables were found to be significant. These were age of respondents, education level of respondents, Sufficiency loan to start business/intended purpose, residence type, using of loan for intended purpose, and number of group member. The coefficients of half of these significant variables were negative and half of them were positive, those are using of loan for intended purpose, number of group member and sufficiency of loan to start business or sufficiency of loan for intended purpose. However, the extent to which these variables relate with the dependent variable is different.

The age variable was negatively and significantly influencing loan repayment at 5% significant level. If the other variables held constant, a unit increase in the respondents' age decreases the probability of being defaulter by 0.173 times when compared to the other category. It is possible to say that through a time aged respondents more responsible for their activities became settled and accumulate wealth more than youngsters.

The education level was negatively and significantly influencing loan repayment at 5% significance level. The probability of the loan repayment rate of educated/secondary and above educational level respondents to became loan repayment defaulter is higher by 0.008 when compared to respondents those are no education/not write and read, other variables are remaining constant. This figure revels that the borrowers whose educational level increased by attending one more year at school have the probability of decreasing the loan repayment performance/becoming defaulter by 0.008 times less than the borrowers who have lesser education level/illiterates. This may be suggests that more educated borrowers are governmental workers and the inflation problem happened in the country may be have impact on loan repayment performance. This finding result was not in similar with the study conducted by Shaik Abdul M. P. and Tolosa N., at 2014.

Sufficiency of Loan to Start Business variable was positively and significantly influencing borrowers' loan repayment performance. It became significant predictor of borrowers' loan repayment performance at 5% significance level. As indicated under binary logistic regression result, Sufficiency loan to start business/for intended purpose increases the borrowers' loan repayment probability by 11.03 times. But this result was in parallel with study conducted by J.T.O.Oke, et al, (2007) and, Shaik Abdul M. P. and Tolosa N., 2014. Therefore, these positive preconditions enable borrowers to enhance loan repayment performance better.

Type of Residence variable also found to influence borrowers' loan repayment performance negatively and significantly at 5% significance level. Keeping the other factors constant, living in rural area were decreases the probability of being defaulter by 0.015 times. This is may be inflation problem happened in the country before and at the time of data collection. According to country governmental as well as private media reports the inflation affects more urban areas community rather than rural area. Also Using of Loan for Intended Purpose variable was found to influence positively and significantly the borrowers' loan repayment performance at 5% significance level. Using of loan for intended purpose increases the borrowers' loan repayment performance probability by 3.32 times. This study result was parallel with the study conducted by Shaik Abdul M. P. and Tolosa N., 2014.

The number of group member's variable was positively and significantly influencing borrowers' loan repayment performance. It became significant predictor of borrowers' loan repayment performance at 5% significance level. As indicated under binary logistic regression result, when number of group member increases by one, the borrowers' loan repayment probability increases by 1.18 times. This result was the in parallel with study conducted by J.T.O.Oke, et al, 2007. This result also indicates that, these positive preconditions enable borrowers to enhance loan repayment performance.

*Table 1:* Binary Logistic Regression Result

| Independent Variables | B | Sig. | Exp(B) |
|---|---|---|---|
| Sufficiency of loan to start business | 2.406 | .009 | 11.093 |
| Residence type | -4.211 | .002 | .015 |
| Age of respondent | -1.755 | .019 | .173 |
| Saving type (voluntary or compulsory) | -.862 | .162 | .422 |
| Marital status of respondents | -.894 | .391 | .409 |
| Educational level | -4.884 | .000 | .008 |
| Number of household member | -1.005 | .006 | .366 |
| Using loan for intended purpose | 8.082 | .000 | 3.235 |
| Amount of loan approved by MFIs | -1.183 | .177 | .306 |
| Number of group member | .597 | .001 | 1.816 |

*Source: Survey result, 2015.*
*Where, B=regression coefficient, Exp (B) = odds ratio, Sig. = significance*



## V. Summary and Conclusion

The aim of Micro finance institutions is to give financial service, especially microcredit for the poor of poor and low income. In spite of the fact, women coverage of poor of poor and low income group was very high. Microfinance programs are currently being promoted by the government as well as nongovernmental organizations as a key approach for addressing both eradicating poverty and women's empowerment in Ethiopia. And micro credit have a positive impact to address the objective of micro finance institution as well as governmental policy to poverty alleviating and serving the poor, especially solving socio economic problem of women which leads to empowerment. Besides to this positive impact many studies shows that, loan repayment problem which is obstacle for both borrowers and lenders to achieve their objective. However, the main objective of this study was to identify the determinant factors that affect loan repayment performance of women borrowers from micro finance institution in south west Ethiopia.

The study result show that, 85(46.7%) of borrowers are defaulted in loan repayment and 97(53.3%) of respondents were non-defaulter. The figure indicate that the numbers of defaulters are almost nears to half of total borrowers. The respondents mention various reasons that contribute to their default in loan repayment; for example, lack of training and follow up, business idea does not work out, cash flow problems, failure in the business, lack of investing loan on intended purpose, in sufficiency of loan to start intended business/activities, the difference between amount of loan proposed by borrowers and approved by MFIs and interest rate is very high. Many of them are similar with the factors identified by this study. According to Remenyi (2000), subsidized credit and subsidized banking with the poor are inimical to "best practice in microfinance". Moreover, Microfinance Institutions also offered skills training and marketing to their clients, which is not in similar with our finding.

Over all this study identifies significant factors affecting loan repayment performance by using of econometric model. Of total independent variables that affect loan repayment performance, nine variables six variables were statistical significant. From six significant variables three of them are affect positively, namely using of loan for intended purpose, number of group member and sufficiency of loan to start business or sufficiency of loan for intended purpose and the remaining are affect negatively.

The age variable was negatively and significantly influencing loan repayment performance. A unit increase in the respondents' age decreases the probability of being defaulter by 0.173. This implies that through time aged respondents more responsible for their activities became settled and accumulate wealth more than youngsters. When borrowers educational level increased by attending one more year at school have the probability of increasing to becoming defaulter by 0.008 times. In short, there is inverse relationship between educational level and loan repayment. This did not conform to theoretical expectations in general and stated under literature as well as introduction of the study.

Sufficiency of loan to start business/for intended purpose increases the borrowers' loan repayment probability by 11.03 times. Therefore, these positive preconditions enable borrowers to enhance loan repayment performance better. Living in rural area were decreases the probability of being defaulter by 0.015 times compared to urban area. Using of loan for intended purpose or activity increases the borrowers' loan repayment performance probability by 3.32 times compared to those not investing/using for intended purpose. As indicated under binary logistic regression result, when number of group member increases by one, the borrowers' loan repayment performance probability increases by 1.18 times.

Finally, a determinant factor affecting loan repayment performance of women borrows from microfinance institution was identified with their different extent and significance. From the study result it is possible to conclude that, positive preconditions including training and better supervision enable borrowers to enhance loan repayment performance. The result indicate that, MFIs and other stockholders working for the beneficiary of women's must and essential to give attention on the specified problems. When women became defaulter they pay back the loan by selling any resource of the household that is enough to pay or by borrowing another loan from other Micro finance or from local money lenders with higher interest rate than microfinance. At the end of the day it leads the life of the whole family from hope to worthy than before.

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## Annex I

*Table 1:* Background Characteristics of Respondents

| Background Characteristics | | Did you face any Difficult to Repay Last Round Loan | | | | | |
|---|---|---|---|---|---|---|---|
| | | No | | Yes | | Total | |
| | | No. | % | No. | % | No. | % |
| Marital status | Married | 71 | 39 | 71 | 39 | 142 | 78 |
| | Divorced | 25 | 13.7 | 4 | 2.2 | 29 | 15.9 |
| | Widowed | 1 | 0.5 | 10 | 5.5 | 11 | 6 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Age | 18-24 | 4 | 2.2 | 6 | 3.3 | 10 | 5.5 |
| | 25-32 | 79 | 43.4 | 59 | 32.4 | 138 | 75.8 |
| | 33-39 | 10 | 5.5 | 17 | 9.3 | 27 | 14.8 |
| | 40-47 | 4 | 2.2 | 3 | 1.6 | 7 | 3.8 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Educational level | No education | 59 | 32.4 | 74 | 40.7 | 133 | 73.1 |
| | Primary education | 30 | 16.5 | 11 | 6 | 41 | 22.5 |
| | Secondary and above | 8 | 4.4 | 0 | 0 | 8 | 4.4 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Number of household | <or equal to 5 | 78 | 42.9 | 61 | 33.5 | 139 | 76.4 |
| | >5 | 19 | 10.4 | 24 | 13.2 | 123 | 23.6 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Residence | Urban | 9 | 4.9 | 18 | 9.9 | 27 | 14.8 |
| | Rural | 88 | 48.4 | 67 | 36.8 | 155 | 85.2 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Household headship status | Female | 26 | 14.3 | 14 | 7.7 | 40 | 22 |
| | Male | 71 | 39 | 71 | 39 | 142 | 78 |
| | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |

*Source: Survey result, 2015*

*Table 2:* Asset Ownership of Respondents and their Household

| Background Characteristics | | | Did you face any difficult to repay last round loan | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | No | | Yes | | Total | |
| | | | No. | % | No. | % | No. | % |
| Housing Characteristics | Main material of floor | Natural Floor | 88 | 48.4 | 70 | 38.5 | 158 | 86.9 |
| | | Rudimentary Floor | 7 | 3.8 | 13 | 7.1 | 20 | 10.9 |
| | | Finished Floor | 2 | 1.1 | 2 | 1.1 | 4 | 2.2 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| | Main material of the roof | Natural Roof(Grass) | 74 | 41.2 | 25 | 13.2 | 99 | 44.4 |
| | | Rudimentary Roofing | 2 | 1.1 | 1 | 0.5 | 3 | 1.6 |
| | | Finished Roofing | 20 | 11 | 60 | 33 | 80 | 44 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| | Main material of the wall | Natural Walls | 77 | 42.3 | 57 | 31.3 | 134 | 73.6 |
| | | Rudimentary Walls | 19 | 10.4 | 28 | 15.4 | 47 | 25.8 |
| | | Finished Walls | 1 | 0.5 | 0 | 0 | 1 | 0.5 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| | Electricity | Yes | 13 | 7.1 | 46 | 25.3 | 59 | 32.4 |
| | | No | 84 | 46.2 | 39 | 21.4 | 123 | 67.6 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Possession of Household Effect | Radio | Yes | 89 | 48.9 | 84 | 46.2 | 169 | 94.5 |
| | | No | 8 | 4.4 | 1 | 0.5 | 89 | 5.5 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| | Television | Yes | 20 | 11 | 11 | 6 | 31 | 17 |
| | | No | 77 | 42.3 | 74 | 40.7 | 151 | 83 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Ownership of the house | | Yes | 94 | 51.6 | 75 | 41.2 | 169 | 92.8 |
| | | No | 3 | 1.6 | 10 | 5.5 | 13 | 7.2 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Ownership of agricultural land | | Yes | 72 | 39.6 | 61 | 33.5 | 133 | 73.1 |
| | | No | 25 | 13.7 | 24 | 13.2 | 49 | 26.9 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |
| Ownership of livestock | | Yes | 91 | 50 | 71 | 39 | 162 | 89 |
| | | No | 6 | 3.3 | 14 | 7.7 | 20 | 11 |
| | | Total | 97 | 53.3 | 85 | 46.7 | 182 | 100 |

*Source: Survey result, 2015*

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Global Journal of Management and Business Research: C
Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Movement of PE Ratio and its Impact on Price Fluctuations: A Case Study of Dhaka Stock Exchange in Bangladesh

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*Abstract-* This study describes the movement of PE ratio mentioned in corporate annual reports and impact on market price fluctuations in stock market. Specifically, this report discovers the affiliation between PE ratio and market price fluctuation in stock market in an emerging market like Dhaka stock Exchange, Bangladesh. For this purposes, it has analyzed and utilized a disclosure index about PE to measure the extent of relation with market fluctuation made by companies in corporate annual reports. This study reports that a very few company's share price in DSE are making efforts to run with PE ratio which are mostly quantitative in nature. Whether the price earnings ratio is a good criterion on which to base investment decisions is also examined in this report.

*Keywords: price earnings ratio, price fluctuation, dhaka stock exchange, emerging market, earning per share.*

*GJMBR-C Classification: JEL Code: R53*

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*Strictly as per the compliance and regulations of:*

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## I. Introduction

In recent years investments in equities have surged manifold. This evident from the fact that a large number of stocks have been enrolled in the Dhaka Stock Exchange in the last few years as well as from the significant increase that has taken place in the daily turnover of the market. With the entry of foreign institutional investors in Dhaka Stock Exchange coupled with stronger activity of domestic financial institutions and the arrival of private mutual funds; the erstwhile rule of stock picking has matured from speculation to research base investment. There is an increased awareness about the need for investment analysis is looking at various parameters in assessing the performance of corporate in the stock market.

Dhaka Stock Exchange has been shown greater volatility which has affected the informational efficiency of DSE. The Dhaka Stock Market has been experiencing volatility since its inception-the indices reached the highest level in its history in November 1996 and December 2010 and eventually crashed; afterwards investors lost their confidence about the stock market.

Different researchers have inquired on various side i.e; R Vaidyanathan and Ranadev Goswami (1997) show the affiliation between PE and stock returns. Pu Shen (1998) talks about the PE ratio (2010) research on the affiliation between P/E Ratio, Dividend Yield Ratio, Size and Stock Returns in Jordanian Companies: A Co-integration Approach. It is generally originated to be convenient to identify a single indicator which can be used to reflect the changes in the underlying fundamentals pertaining to scrip. Equity researchers are however divided in their opinion regarding the single parameter which represents the fundamental of scrip and hence EPS, RONW, P/BV or P/E ratio etc. are used for this purpose.

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### a) *Hypothesis*

The following hypothesis was set in order to achieve the research objective.

*H1:* There is no significant relation between the P/E ratio and price fluctuation of stock.

## II. Methodology

This research is based on P/E ratio of a specific date and stock price fluctuation for a specific. The methodology of the overall work is as under.

Researcher followed the procedure for the sampling. It facilitates of accounting data accesses which is most reasonable and standardized information. The genesis of the sample was the Dhaka Stock Exchange (DSE) industry wise company list. There were total 500 companies among which 221 are Treasury bond which are not traded in market. So it is handpicked 100 companies from 279 companies randomly.

For completing the study secondary data and primary data were utilized. For secondary data collection, companies annual report, daily trading price of stock and DSE general index, Dhaka stock exchange's library was used. Dhaka stock exchange's web site was also used to collect companies yearly performance data. For primary data oral questioned were asked to investor about P/E ratio.

For data analysis, Karl Pearson's coefficient of correlation has been used to find out the affiliation between the P/E ratio and stock price fluctuation. This analysis is made without concentrating and group of the company. For regression analysis, P/E ratio has been used as the independent variable, price fluctuation a dependent variable. Other calculation like: Mean, standard deviation, covariance etc were done as well. Two tailed hypothesis test done to test the presumed hypothesis.

## III. Objectives of the Study

General objective of the study are to specify the affiliation between P/E ratio and market price fluctuation. Other objectives of the study are:

1. To know the nature of P\E ratio
2. Interducing with individual company P/E and overall market P/E.
3. Price volatility of individual company.
4. Confidentiality of P/E ratio.
5. Measure the efficiency of Dhaka stock Exchange.

## IV. Significance of the Study

This research is remarkable is various aspects. First of all, it will pave the easy way for investors to identify the nature of P/E ratio and market price fluctuation along with help them to take decision regarding investment . Secondly, future researcher would be able to extend the research by including other indicators. Furthermore, it will help government or authorized department like, SEC, CSE, DSE, Board of Investment etc. to understand the role of P/E ratio is stock market.

## V. Limitations of the Study

The limitation confronted while conducting the research were:

- The scope of the report is limited to only hundred companies listed in DSE without any grouping.
- Availability of information was limited for which data of only one year has been incorporated.

## VI. Literature Review

Recent research in empirical finance has shown that variables like dividend yields, price to earnings (P/E) ratios as well as past returns have significant explanatory power for the variation in cross section of expected returns even after controlling for market risk (Fama and French, 1992, for a through coverage of the topic). Similar results are reported for several developed markets (Ferson and Harvey, 1997, Fama and French, 1998) as well as emerging markets (Bekaeet,et. Al., 1997; Claessens, Dasgupta and Glen, 1998; Rouwenhorst, 1999). Whether these variables are risk proxies in an efficient market or signs of mispricing is the subject an ongoing debate in financial economics. Yet for the practitioner in the market, it is the longer term predictive ability, rather than contemporaneous explanatory power , that is really important .

*R vaidyanathan & Ranadev Goswami (1997),* said the price earnings ratio is the single most popular tool for equity valuation . The inherent simplicity in understanding its significance has made it particularly popular among ordinary investors. The investment analysis also gives P/E ratio its due importance before making investment decision and for timing the entry into or exists from a stock. Base (1997) showed how the price earnings ratio that is computed from reported accounting earning can be used to select that have good price appreciation potential. His analysis showed that stocks with low P/E ratio earned risk adjusted rate of return that beat the returns earned by a naïve buy and hold strategy. The price /earnings ratios of Japanese firms are known to be higher than of other countries. In addition apart from forecasting individual stock returns stock market investors are also interested in the forecasting power of market wide averages of variables like dividend yield/E and book to market ratios as tools in market timing in highly volatile stock markets. The objective of this paper is to investigate the ability of P/E ratios to predict future stock market volatility in emerging equity markets. Emerging markets are differentiated from developed markets with respect to their heterogeneous nature and inherent dynamics. These are the markets characterized by high volatility and high average returns. It has been shown that they are not integrated to the developed markets of the world as evidenced by very low correlation with the rest of the world and among them (Bekaert ET. Al.1998). Hence the importance of market time and country selection for an internationally diversified portfolio investor is obvious. Bleiberg (1994) employs aggregate data for future stock returns and average P/E ratio to develop a market timing and asset allocation strategy. To this end, he groups historical average P/E ratios into quintiles and relates them with future returns using S&P 500 index.

*Bierman (1991)* points out that P/E of Japanese firms are considerably overstated because of widespread reciprocal ownership in Japan. In his opinion, when large amounts of common stock are held by corporations and when dividend payout are low as is common in Japan, P/E can be substantially inflated. Another study by Ikeda M (1992), however, claims that such upward biasness of P/E ratio is not necessarily due to crossholding alone. Instead, the P/E adjustment process should take into account different levels of scale, earning and payout ratios that are interconnected by different degrees of reciprocal ownership. Some researchers have should that P/E ratio is a combination of present and future growth rate.

Leibowitz and Kogelman (1992) establish that the P/E ratio of a firm wi9th not franchise value gives the base P/E which is simply the reciprocal of the market capitalization rate. in contrast, the P/E of a firm with substantial franchise opportunities will command a premium to the base P/E. The author later (1994) shown that the current growth rate of a firm although greater than market average, not in excess to its expected franchise opportunities. On the other hand, high earning derived from franchise opportunities which in turn pull down the P/E value. Hence, firm's valuation will be able to maintain higher P/E ratio.

*Evans (19993)* finds that the usual stock market 20-which says the P/E ratio plus the inflation rate should equal 20- no longer holds true. He suggests that the rule might have lost its validity and many are trading at much higher P/E ratios, but there still exist some fundamental affiliation between the yield on stock and bonds. Several attemps have also been made to find the effect of firm size and earnings/price ratio in relation to equity return. Basu (1997) claims that earning/price ratio subsumes the size in sample specific cases. Another study by Reinganum (1981) originated that size subsumes the earning/price ratio due to fortuitous choice of methods.

*Cook and Rozff (1984*) late examined the join effect of size and earning/price ratio and their findings suggest that both effects are at work. i. e. one is not subsumed by another as alameda by previous work. A more study by fama & French (1992) provided even greater support for this ratio as a measure of relative value. The purpose of the study was to examine alternative variable that would explain the cross-section of the rates of return on common stock. One of the explanatory variables was the well known beta coefficient. Their results did not provide much support for beta as an explanatory variable but the results did reveal that both size of the firms and the ratio of book value to market value of equity were significant explanatory variable but the result did reveal that both size of the firms and the ratio of book value to market value of equity were significant explanatory variables. They also contended that the book to market value ratio was the single most important variable.

*Penam (1996)* in his study explain that the P/E ratio indicates the future growth in earning which is positively correlated to expected future return on equity and negatively related to current return on equity. Empirical evidence indicates differential P/B ratios but not P/E ratios expect in the extreme. Current return on equity is not good indicator of P/E since a given level of P/E can be associated with alternative combinations of current and future return on equity vaidyanathan & Ranadev Goswami 1997 researched that the investment in low P/E stocks on an average will give higher return than in higher P/E stocks. They have considered 60 active scrip's listed on Bombay stock exchange for period 1991-1997.They also said that the annual average return of the portfolios formed on the basis on P/E ratios is not significantly different from each other. They also originated that even these risk adjusted returns are not significantly different for different portfolios formed on the basis of P/E ratios. Pu shen 2000 when price earnings ratios have been high stock prices has usually grown slowly in the following decade. Moreover at tomes such as the present when high price earnings ratios have reduced the earnings yield on stocks relative to interest rates stock prices have also tended to grow slowly in the short run. Forecasts based on such evidence are subject to much uncertainty, however, because history may not repeat itself. Specifically, the possibility cannot be ruled out that this time will be different due to fundamental changes in the economy that will allow high price-earnings ratios to persist and thus stock prices to continue growing both in the near term and in the coming decade.

Fama and French (1988) and Campbell and Shiller (1998, 2001) use, in addition to P/E, the dividend-yield in order to predict future market returns. Shiller (2000) indicates that P/E ratios that are high relative to their long –run historical average signal "irrational exuberance" in the stock market are usually followed by sell-offs and low future return. Thus, the P/E ratios has a tendency to revert back to its long-run historical mean. Kane, Marcus and noh (1996) used the P/E ratio as a proxy for the required rate of return and find it to beinversely related to volatility. This support the notion that investors are risk-averse. Since asset return exhibit volatility clustering;i. e. "large changes then to be followed by large change of either sign, and small changes tend to be followed by small changes" [see mandelbrot (1963, p. 418)] large increases in current volatility entail higher volatility in the future. Consistent with the above mentioned studies, high (low) P/E ratios relative to their long-run hitoricsal mean lead to lower (higher) future market returns. Thus, when investors exprct higher future volatility, they will sell their current position (leading to a drop in P/E)/ and wait until expected returns rise in the future to compensate them for the risk. This paper examines the relation between P/E and volatility using several measures for each. Kane et al (1996) findings suggest a negative relation between P/E and volatility. Dimitros koutmos (2010) originated that P/E can serve as an important market valuation tool. Since it is significantly related to volatility, it embodies information regarding investor' expectation for future market condition and future return. Secondly , although the long-term interest rate has been suggested as a proxy for the investment opportunity set [see Merton (1973), empirical findings provide weak support of this.

Mona Al –Mwalla, Ahamad M. Al–Omari, Fayssal Ayad (2010) research indicates the existence of long run equilibrium between dividend yield, P/E ratio, size and stock' return for the simple under study. This research got out the connection between average P/E for company remain alive under Dhaka stock exchange for the year ended 2009 and convert in market share price for one year from 15-10-2010 to 15-10-2011. Correlation analysis along with other examination between them worked hard to explore out whether there exist any coordination between them or not.

## VII. Analysis and Interpretation of Findings

In five fragments the result of the study are scrutinized. In the first phase, disclosure levels by simple companies in Bangladesh has been scrutinized and discoursed. The second phase focuses on top and bottom level companies listed from several paradigms under Dhaka stock exchange. Third season explored the correlation analysis. Forth debated on Result of Regression analysis. The final stage engrossed on Test of hypothesis.

*a) Disclosure level by the sample companies in Bangladesh*

This section focuses on the measurement and analysis of the extent of P/E ratio and share price fluctuation in Dhaka stock Exchange. In most of the studies reviewed, a disclosure index was prepared in order to measure the extent of P/E ratio and share price fluctuation in the annual reports of the companies under study. Mean, Standard deviation, Maximum, minimum occurred in individual companies are given below in the table.

*Table 1:* Descriptive statistics of the P/E ratio & Market price fluctuation

| | P/E | Market price fluctuation |
|---|---|---|
| Mean | 30.8646 | 40.2243 |
| Standard Deviation | 18.51627 | 17.42609 |
| Maximum | 98.11 | 86.95 |
| Minimum | 8.24 | 0 |

From the table it is found that mean of P/E ratio is lower than that of market price variation. But if we into the maximum and minimum P/E ratio both are higher than market price fluctuation.

In table 2, P/E ratios of companies have been scrutionized. For analysis, P/E ratio has been classified into ten categories from 0 to 100

*Table 2:* Number of companies in P/E scale

| P/E ratio range | No of companies | % of companies |
|---|---|---|
| 0-10.99 | 6 | 6% |
| 11-20.99 | 30 | 30% |
| 21-30.99 | 27 | 27% |
| 31-40.99 | 16 | 16% |
| 41-50.99 | 10 | 10% |
| 51-60.99 | 4 | 4% |
| 61-70.99 | 3 | 3% |
| 71-80.99 | 1 | 1% |
| 81-90.99 | 1 | 1% |
| 91-100.99 | 2 | 2% |
| | | |

In the table, it has been found that maximum companies are Lying in scale of 11 to 20.99 (which in number is 30) and they occupy 30% of the total examined companies. 27 companies are standing capturing 27% of total in scale of 21 to 30.99. Least number of companies is seen in the scale bith in 71-80.99&81-90.99. So from the table it can be assumed in DES that most of the companu,s P/E ratio ratio are higher than 117Lower than 50.99.

Table 3 shows sample companies according to price fluctuations in the last one year ended 15-10-2011. The change is shown in percentage.

*Table 3:* Number of companies in stock fluctuation scale

| Price fluctuation scale (%) | No of companies | % of companies |
|---|---|---|
| 0-10.99 | 2 | 2% |
| 11-20.99 | 10 | 10% |
| 21-30.99 | 17 | 17% |
| 31-40.99 | 27 | 27% |
| 41-51.99 | 20 | 20% |
| 51-60.99 | 10 | 10% |
| 61-70.99 | 10 | 10% |
| 71-80.99 | 2 | 2% |
| 81-90.99 | 2 | 2% |
| 91-100.99 | 0 | 0% |

Form the above table, it is clear that in the last one year most of the company's share price has changed significantly.27 companies are standing in the scale of 31 to 40.99 which occupies 27 of the total companies. 17 companies are standing in the scale 21 to 30.99. Least number of companies is situated in the highest scale and in lowest scale, which means market share price change is in moderate stage.

## VIII. Top and Least Ranked Companies

The simple companies were ranked on the basis of P/E ratio & market price fluctuation of each company. Table 4 shows the top ranked companies by the size of P/E index. These provide insights about which company are capturing low P/E and which having high P/E. This table indicates that the lowest P/E in Bangladesh was obtained by South East Bank ltd. None of the top ranking companies are subsidiaries of multinational companies. Further, when these companies were classified into industrial categories. It was found that six of them came from the "Bank" category.

*Table 4:* Ranking of the companies based on the lowest P/E ratio

| Name of companies | P/E ratio | Ranking |
|---|---|---|
| South East Bank Ltd | 8.24 | 1 |
| ICB acml 1st mutual fund | 8.78 | 2 |
| Exim Bank Ltd | 10.13 | 3 |
| Titas Gas Lit | 10.57 | 4 |
| Mutual Trust Bank LTD | 10.63 | 5 |
| Rupali Bank Ltd | 10.89 | 6 |
| AB Bank Lit | 11.04 | 7 |
| Olympic Industries | 11.32 | 8 |
| BAT BC | 11.87 | 9 |
| Mercantile Bank Ltd | 12.28 | 10 |

Table 5 presents the highest P/E OF seven companies in Bangladesh using the percentage of change in share price. The lowest scores were obtained by Bangas Ltd and Metro Spinning Ltd. In the table it is originated that in highest P/E ratio there are two companies from "Insurance" category. It is interesting to note that in highest P/E ratio eight companies are different categories. For normal investors it may be seen that Bangas Ltd is the most risk companies for investment but it may not be true all times.

*Table 5:* Ranking of the companies based on the highest P/E ratio

| Name of companies | P/E ratio | Ranking |
|---|---|---|
| Bangas Lit | 98.11 | 100 |
| Metro Spinning Lit | 94.8 | 99 |
| Janata Insurance Lit | 82.32 | 98 |
| Aziz Pipe Lid | 78.6 | 97 |
| RAK Ceramics ltd | 67.29 | 96 |
| BD Auto cars Ltd | 66.29 | 95 |
| Desh Geramics Ltd | 63.14 | 94 |
| BSC Ltd | 61.22 | 93 |
| MJL BD Ltd | 59 | 92 |
| Pragati insurance Ltd | 58.13 | 91 |

In table, 6 research organized the company of least price fluctuation according to their position. In this ranking the highest ranked obtained by Dhaka Insurance ltd. Price fluctuation of Dhaka insurance Ltd. Shows a change of 0%. But it doesn't mean that the company's share price did not change last year. The company's share went up to a high position in the middle of the year because of high EPS (65). It is interesting that the lowest price fluctuation has occurred to only one Bank where in lowest P/E of 10companies. In the table, two companies are from pharmaceutical group and three from agriculture sector have low share price fluctuation.

*Table-6:* Ranking of the companies based on the lowest Share price Fluctuation

| Name of companies | Price Fluctuation | Ranking |
|---|---|---|
| Dhaka insurance | 0 | 1 |
| Islami Bank Ltd | 10 | 2 |
| THE ibn SINA Ltd. | 11.26 | 3 |
| Reneta Ltd | 12.06 | 4 |
| Bangas Ltd | 12.89 | 5 |
| golden son Ltd | 14.63 | 6 |
| national tea Ltd | 15 | 7 |
| Bata shoe Ltd | 16.22 | 8 |
| MJL BD Ltd | 16.55 | 9 |
| BAT BC Ltd | 18.67 | 10 |

In table-7, companies are categorized in order of their price fluctuation. It is Libra infusion whose share price has changed the largest among the samples during last year (86.95%). In the table, it can be found that seven companies are from "insurance & finance" sector in high price fluctuation category. So it also can be derived that financing and insurance companies have high share price fluctuation rate.

*Table-7:* Ranking of the companies based on the highest share price fluctuation

| Name of companies | Price of fluctuation | ranking |
|---|---|---|
| Libra infusion | 86.95 | 100 |
| Geminisea food | 86.67 | 99 |
| Global insurance | 71.27 | 98 |
| Uttara finance | 71.15 | 97 |
| Federal insurance | 70.59 | 96 |
| Popular leasing | 70 | 95 |
| Summit alliance | 68.89 | 94 |
| Janata insurance ltd | 67.86 | 93 |
| Lanka bangle finance | 66.8 | 92 |
| United capital ltd | 66.67 | 91 |

If companies is done among all the figures it can be found that the companies having highest or lowest P/E ratio have no affiliation with share price fluctuation. There is one company bangas Ltd. Whose P/E was high but we see that it has low price fluctuation rate. Most of the investors of our country invest on the basis of P/E ratio. But from that analysis it is found that P/E ratio has no affiliation with price fluctuation.

*a) Correlation analysis*

To examine the correlation between the independent and dependent variables, person correlation coefficients (r) were computer. A correlation matrix of all the values of r for the explanatory variables along with the dependent variables was constructed and is reported. The person product-moment coefficients of the correlation between P/E ratio and share price.

*Table-8:* Correlation and Covariance

| | |
|---|---|
| Coefficient of Correlation | 0.158 |
| covariance | 50.73155 |

From the above table it is originated that there is no significant affiliation between P/E ratio & market price fluctuation. The affiliation between them is near to no affiliation. So it can be said that P/E ratio doesn't indicate anything about future price fluctuation.

*b) Regression Analysis*

Analysis of P/E & Price fluctuation on sector base:

Companies listed under DSE have been categorized under different sector. Here sector wise analysis was done to identify whether P/E ratio and price fluctuation have any affiliation or not.

*Table 10:* Classification of P/E ratio on sector based

| Sector | P/E ratio |
|---|---|
| Banks | 12.313 |
| Insurance | 42.83 |
| Engineers and power | 33.58 |
| Pharmaeeuticals | 31.52 |
| Garments | 32.81 |
| Chemicals and others | 35.48 |
| Network | 30.515 |
| Finance | 280243 |
| Steel and housing | 32.45 |
| Mutual fund | 15.39 |

From the table and chart analysis it has been found that highest P/E ratio are captured by insurance companies, whereas, banks standing in the lowest stage of P/E ratio.

Data obtained can be arranged in order of price fluctuation rate both in table and chart.

*Table 11:* Sector based price fluctuation

| Sector | Price fluctuation (%) |
|---|---|
| Banks | 35.17 |
| Insurance | 47.68 |
| Engineers and power | 36.18 |
| Pharamaccuticals | 32.40 |
| Garments | 40.26 |
| Chemicals and others | 37.62 |
| Network finance | 40.835 |
| | 61.40 |

On the basis of above mentioned table and chart it is explored that the highest price fluctuation incurred in Finance sector. The last was in mutual funds. It is to note here that lest P/E was captured by banks though price fluctuation is much high 47.68% for the same. This indicates that P/E ratio has no influence on price fluctuation.

## IX. Conclusion and Test of Hypothesis

Since the computer value to Z test is 0.80 (hypothesis), which is less than the table value (1.96 at 5% level of significant), the hypothesis is accepted. This indicates that there is no significant relation between the P/E ratio and stock price fluctuation.

## X. Recommendations

- Capital market is not a casino. Investors should evoke that is a logistic investment place.
- Necessary tidings before sorting investment in stock must be curbed. They should not travel and panic with rumor.
- Investor running out from short run investor should invest for long term to gain profit.
- It should not be recognized as a profession as some investors do. It must be ancillary of profession.

PE ratio must not be considered as only single parameter for investment. Other parameters lilke EPS. Dividend payout ratio, book to market price and price statistics may also be judged.

*For further research*

- This study evolves over a single year (I.E. 20009). Additional research can be commenced to gauge the extent of liaison between them. Such a study would provide additional insights in scrutinizing P/E for investment.
- This study concentrates not on any particular industry type. Next research can be commenced based on particular industry type (e.g. the pharmaceutical industry and textile industry in Bangladesh).
- Research also contained only 100 companies further research can be designed considering more companies.
- Affiliation between two factors is considered here. Other factors like EPS, profitability margin, and dividend yield can be practiced in upcoming researches.

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Global Journal of Management and Business Research: C
Finance
Volume 17 Issue 1 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Behavioral Factors and their Impact on Individual Investors' Decision Making and Investment Performance: Empirical Investigation from Pakistani Stock Market

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*Abstract-* The purpose of research study is finding out the impact of behavioral factors over investors' decision making and investment performance at Pakistan Stock Exchange. As there are a few studies in Pakistan related to behavioral finance, so this study mainly contributes in the field of behavioral finance in Pakistan. This study focus on existing theories of behavioral finance which led to develop the hypothesis. Data is collected from investors via questionnaire from Pakistan Stock Exchange, after successful collection of data SPSS software is used to analyze and run the data.

The findings and results of the research study show that the behavioral factors including heuristic, prospect, market and herding have high impact on investors' decision making in Pakistani stock markets.

*Keywords:* *behavioral factors, behavioral finance, investment decisions, investment performance.*

*GJMBR-C Classification:* *JEL Code: H54*

BEHAVIORALFACTORSANDTHEIRIMPACTONINDIVIDUALINVESTORSDECISIONMAKINGANDINVESTMENTPERFORMANCEEMPIRICALINVESTIGATIONFROMPAKISTANISTOCKMARKET

# Behavioral Factors and their Impact on Individual Investors' Decision Making and Investment Performance: Empirical Investigation from Pakistani Stock Market

Anum [α] & Beenish Ameer [σ]

*Abstract-* The purpose of research study is to find out the impact of behavioral factors over investors' decision making and investment performance at Pakistan Stock Exchange. As there are a few studies in Pakistan related to behavioral finance, so this study mainly contributes in the field of behavioral finance in Pakistan. This study focus on existing theories of behavioral finance which led to develop the hypothesis. Data is collected from investors via questionnaire from Pakistan Stock Exchange, after successful collection of data SPSS software is used to analyze and run the data.

The results of the research study show that the behavioral factors including heuristic, prospect, market and herding have high impact on investors' decision making in Pakistani stock market. Furthermore results show that three factors which includes heuristic, market, and herding have positive impact over investment performance, however prospect is the only factor that has negative impact on performance of the investment. The findings of this research can be used by the security organizations to study the investors' Behavior.

*Keywords: behavioral factors, behavioral finance, investment decisions, investment performance.*

## I. Introduction

In traditional finance paradigm investors are considered as "rational" in the financial markets. There are various traditional theories which consider investor as rational investor who makes decisions on the basis of risk and return. Finance has evolved a lot in past years on the basis of some assumptions that investor make rational decisions and they are unbiased in their decisions about the future (Nofsinger, 2001). An investor is rational when he tries to update his profile with new information on frequent basis, and go for those choices which are acceptable (Thaler, 2005).

Individuals reveal irrationality, incompetence and inconsistency in decision making particularly in those situations where they are faced with uncertainty (Bernstein, 1998). Nofsinger (2001) reveals that various psychologists have criticized the assumptions of unbiasedness and rationality. In this perspective psychologist Daniel Kahneman and Amos Tversky contributed to the field of psychology and finance and characterized new field as behavioral finance in 1980s and this field is basically about how various individuals behave in financial markets or in financial settings. Basically behavioral finance is all about how the financial decisions of individuals and corporation are affected by psychology in financial settings (Nofsinger, 2001).

*Investment decisions and Behavioral Aspects*

Many of the financial and economic theories assume that investors act rationally and take into consideration all of the information in process of decision making. Gilway (2009) states that market in efficiency comes when individuals base their decisions over simple tools like heuristics or mental shortcuts rather than relying on basic forecasting techniques or fundamentals. Field of behavioral finance reveals how the decision processes are affected by psychological factor (Oslon, 1998). Markets in which individuals make decisions are difficult to comprehend because there is high level of complexity in real world (Gwily, 2003). This issue has taken keen consideration that whether manager works in rational market, whether irrational manager works in rational market or both are there (Subrahmanyam, 2007).

Therefore behavioral finance work over those psychological factors which affect individual or groups while they work as investor, Portfolio managers or analysts (Brown & Reilly, 2004). When people are in unclear or uncertain situation they use heuristics or rule of thumbs against different alternatives, through this people are able to reduce complexities and make decision making simpler (Raines & Leathers, 2011).

*a) Problem Statement*

As stock market is the financial market which positively influence the economy of any country, so if there is rise in stock market it will surely influence health of the economy of a country in positive way. So the investment decisions made by investors in stock market perform major role in identifying, defining and setting trends in stock market that in turn influence the economy of the country. But some of the times investors make irrational and illogical decisions based on their personal perception and preferences which sometimes

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lead towards the losses in real settings of financial market. Individuals reveal irrationality, incompetence and inconsistency in decision making particularly in those situations where they are faced with uncertainty (Bernstein, 1998). Irrational behaviors of the investor makes the market inefficient because, rational investors are those who value the stocks rationally by taking into consideration the risk and return of the investment and they do not allow their subjective opinions to affect their decision making process (Shiller & Robert, 2002). Due to these facts it is necessary to identify the factors which affect the investors regarding investment decision making at Pakistan Stock Exchange and the degree to which these factors affect their investment performance.

## II. Literature Review

As most of the theories of economics and finance are based on the rational decision making processes. These theories consider that investors are always rational in decision making and they consider all aspects while deciding about anything (kim & Nofsinger, 2008). Generally financial behavior of investors is based on the intellectual model which includes various factors related to psychology, sociology and finance. The agents of the behavioral models are not considered as rational because the investor perception and preferences lead them to behave irrationally (Farlin, 2006). Culture, religion, ideology and emotions are the basic factors which lead to the irrational behavior of investor while taking decisions in different situations (Macgoun, 1992). Although there are many of studies in this area but most of the people are unaware of the concept of financial behavior and the elements which lead toward the irrational behavior (Montier, 2002).

### *a) Heuristic variable*

Heuristics makes the decision making easier because these are based on rule of thumb. But heuristics can also lead towards the various biases when situations are changed. So in that case heuristics can lead towards the decisions which are suboptimal (Ritter, 2003).These heuristics helps in decision making in those situations when time is limited and decision is to be taken urgently (Waweru, Munyoki & Uliana, 2008).There are various biases like representativeness bias, availability bias, anchoring bias and availability bias (Kengatharan & Kengatharan, 2014).

#### i. *Representativeness*

Representativeness is the extent or degree to which the event is similar to its parent event of population, it is also refereed as degree of similarity or resemblance with population. In representativeness bias sometimes sample size is neglected and this occurs when people refer to very few samples (Luu, 2014). Representativeness is the degree by which the situations and instances resemble with the population (DeBondt & Thaler, 1995). Representativeness can lead towards the biases in decision making because due to representativeness people try to value more recent events and ignore long term events (Ritter, 2003). In situations where, there is more uncertainty people make their decisions on the basis of its similarity with its parent population and that event also has those characteristics from which it is generated. This leads the investors to analyze the companies on the basis of its various characteristics like returns, publicity, products and mainly its management and investment is mostly based on these characteristics if they are good (Onsomu, 2014).

#### ii. *Overconfidence*

Overconfidence refers to the inappropriate belief regarding judgement, reasoning and the cognitive abilities of the individual. This bias plays the major role in stock market business now a days, and the psychological studies covers the impact of overconfidence over the behaviors studied (Sadi et al., 2011). Whenever investor believe that he has much more knowledge than he actually needs and try to value more his personal information it means that individual want to exaggerate his perceptions, predictions and judgement (Razzi, 2008). Generally most of the individuals are overconfident about their abilities. Overconfidence gives its exposure in many of the ways, like very little diversification due to the fact that investor invests his money in that with which he or she is more familiar (Barber &Odean, 2001). The research study of Barber and Odean (2001) also determined that men exhibits more overconfidence than women.

#### iii. *Anchoring*

Anchoring bias occurs when people try to use initial values to make their decisions in particular situations. In anchoring people are biased towards the initial values. In anchoring investor go through historical trends and set range of prices and company's income which lead investors to underreact when any unexpected changes come (Luu, 2014). Anchoring bias is also connected to representativeness because it also shows that the investors try to focus more on experiences that are recent ones and they are more optimistic when there is rise in market and more pessimistic when there is fall in market (Waweru et al., 2008). Anchoring is so defined as the tendency of investors to refer their decisions to an irrelevant reference point regarding their investments (Pompian, 2006).

#### iv. *Gamblers' fallacy*

Gamblers' fallacy is the behavioral bias which occurs when individual believe that sample resembles its parent population from which it is drawn out (Statman, 1999). This bias arises in stock market when investor inaccurately predicts reverse points and those are considered as ends of the good or bad results. Investors try to predict reversal in stock prices when they are suffering from this bias, because they think that trend will be reversed (Waweru et al., 2008). In gamblers' fallacy investors think that random events in stock market are self-correcting.

v. *Availability Bias*

Availability bias occurs when people use general rules or the mental shortcuts in order to predict the probability of the results and the extent to which it occurs in their lives. In this situation people are more deviated towards the easily recalled events rather than those which are hard to imagine or recall. It is based on the general tendency of humans to recall recent and inspirational events very quickly. The process of evaluating the events which are at the end of the month are easy to recall rather than those which are at beginning of the month, so recent events affect perception more easily (Sadi et al, 2010).

*b) Prospect variable*

Prospect theory and Expected Utility Theory (EUT) are the main important approaches in investor decision-making process having different perspective. Prospect theory stress over the subjective kind of decisions of the investors which are mainly influenced by investors' system of values, however expected utility theory focuses over investor's rational expectations in decision making related to their investments (Filbeck, Hatfield & Horvath, 2005). The normative model of rational choice which reflects the economic behavior is main basis of EUT, it involves analysis and evaluation of decisions through risk. Prospect theory shows the behavior of people in those situations when they face uncertainty and risks. People generally prefer certainty, therefore they go for outcomes that are more certain and probable in nature. (Waweru et al., 2008) explains prospect theory (i.e. loss aversion, regret aversion, mental accounting) as major states of mind which significantly affect individual decision making process.

i. *Loss Aversion*

Loss aversion is basically referred as the tendency of individuals for avoiding the losses as compare to gains. Whenever any problem is framed in negative manner, the loss aversion will be more intense, so the individual would go for different decision when he is faced with negatively framed problem. In that situation there will be less negotiation whenever exposure of loss is stronger and powerful because individuals are not aware of that loss (Chira, Adams, & Thornton, 2008). Loss aversion is also defined as the mental penalty the individuals place on same amount of losses or gains (Barberis & Huang, 2001). Most of the people show more distress about the prospect losses than the pleasure that they show on equivalent gains (Luu, 2014). Losses that occur after gains are considered to be less painful than the losses that occur after prior losses (Barberis & Huang, 2001).

ii. *Regret Aversion*

The psychological error that comes out of extra consideration or focus on the emotions and feelings of regret in situations where decision is to be taken, it is mostly poor because other outcomes seem to be more better to the investor. The cause of regret aversion bias is that individuals mostly do not admit their mistakes. In this situation individuals try to avoid decision making due to the fear that whatever the decision they would have that would be suboptimal.

As most of the people are less willing to admit and correct their mistakes on proper time, so this leads them to losing positions. Regret aversion hinders entry of the investors into market whenever there is down trend which shows that signals of ending (Bhatt & Chauhan, 2014). Along with financial loss pain it also includes regret for poor decisions, by which loss were raised. Due to regret aversion investors try to hold poorly performing stocks. Regret aversion also affects the decisions regarding new investments. Investors try to avoid those sectors which performed poorly in the recent times and due to regret expectations they do not go for investment because they think that if they go for investment they will incur losses (Singh, 2012).

iii. *Mental Accounting*

The process with which individuals analyze and evaluate the transactions regarding their financial decisions is referred as mental accounting (Barberis & Huang, 2001).Mental accounting leads the investors manage and organize their investment portfolios in different accounts (Ritter, 2003).

*c) Herding variable*

Herding effect is the tendency of individual to follow the actions of others in stock market. Analysts carefully go through the herding affect because investor try to rely more on information that is collective rather than information that is private, this results in the deviation in the prices of stocks from their core or fundamental value. Herding is considered as important factor because it majorly influence the risk and return characteristics of securities (Tan, Chiang, Mason & Nelling, 2008). Herding can lead to various biases. Investors generally go for herding because they think that it would help them to get useful information. Herding can greatly contribute for analyzing and evaluating professional performance because individuals having low ability try to mimic behaviors of individuals having high ability for developing their reputation (Kallinterakis, Munir & Markovic, 2010). In stock markets investors make their investment decisions that are similar to masses regarding transactions of buying and selling. However rational investors do not follow the flow of masses which is the main cause of efficient markets. However herding makes the market inefficient which leads the market towards speculative bubbles in market. Generally in herding the investors behave in similar manner as prior man who was unaware of market and surrounding environment, they are combined in groups in order to support their safety (Caparrelli, Arcangelis & Cassuto, 2004). Various factors affect herding behavior of the investors which include investment volume, overconfidence etc. whenever investor is more confident they try to rely more on information that is private or personal for their investment decisions, here in this situation investors do not go for herding behavior. When investor invest huge amount of capital, then they follow others to avoid risk of losses. Investor type also determines herding behavior, as individual investor try to follow masses in decisions regarding their investment as compare to institutional investors (Goodfellow, Bohl & Gebka, 2009). Herding drives up stock market and also bring momentum in stock market, but herding can bring market down after certain level because costs of getting return increases. Investor investment decisions that are influenced by others include, choice of stock, buying of stocks, selling of stocks, length of time and volume of stocks (Waweru et al, 2008). Investor decisions of buying and selling are affected by decisions of others in stock market and herding can lead investor towards regret aversion regarding their investment decisions. However volume of stock, choice of stock and period of time for holding stock; these decisions are less influenced by herding behavior. Individual and institutional investors behave differently due to the fact that individual follow herding more as compare to institutional investors (Waweru et al, 2008).

*d) Market variable*

Investor behavior is the major factor that affect the financial markets. DeBondt and Thaler, (1995) explains that investors exhibit different reaction whether that is over reaction or under reaction to the changes in price, any news, prediction for future on the basis of past trends, less focus over fundamentals of stock; so these market factors affect individual investor decision making in stock markets. Various factors that affect decision making of investors in markets are market information, past trends of stocks, price changes, consumer preferences, over reaction or under reaction to the changes in price of stocks and the fundamental of stocks (Waweru et al., 2008). Generally changes in fundamentals of stocks, market price and market information stimulates over and under reaction of investors to the changes in price. These fluctuations majorly affect decision making behaviors of individuals. Over reaction of investors or under reaction of investors leads towards the different strategies which in turn influence their decisions regarding investment. Decisions by investors are highly influenced by the market information, due to this investors try to focus over those stocks which are popular and also focus over those events that grab high attention in stock markets (Waweru et al., 2008). Various attention grabbing events influence investors' decisions even though investor is unaware whether it would result in better future performance or not (Barber & Odean, 2000). Investors tend to rely on market information of stocks whenever they make decisions of their investment. Price changes of stocks influence the investor behavior (Waweru et al., 2008). Investor go for trading of those stocks that go through higher price fluctuations in the past years, so here changes in price are considered as attention grabbing event in the market (Odean, 1999).

Caparrelli et al., (2004) determined that investors try to move with the flow of others whenever there is change in price. Due to this investors may incorrectly estimate the returns of stock which can significantly influence their decisions related to stock investments (Waweru et al., 2008). Odean (1999) states investors go for those stocks which attract them, but selection of stocks for investment is also influenced by investor perception and preferences. Some of the investors go for those stocks which show satisfactory performance however most of the rational investors try to sell out those stocks which incurred losses in the past which help investor to avoid taxes. Past trends of the returns of the stocks also have influence over the decision making of investors (Waweru et al., 2008). Technical analysis is one of the method through which past trends of stocks are analyzed. Generally factors related to market are not the part of behavioral related factors, however these factors affect behavior of rational investors in a way that influence their decision making in various ways, so that's why market factors are included in variables that affect investor decision making process regarding their investments (Waweru et al., 2008).

*e) Investment Decisions and Stock Performance*

Decision making includes the processes and steps for analysis of various options. The investor decisions are based on the complex models related to traditional finance. These financial models have basis of expected return and risk analysis related to the investment like (CAPM) capital asset pricing model (Bodie, Kane, & Marcus, 2008). But as matter of fact decisions may not be just based on complex financial models because these model mostly ignore the situational factors faced by investors. Situational factors includes all the issues and problems which faced by the investors and decision makers and the whole context which also includes environment in which investor has to take decision. So for having appropriate decisions the cognitive psychology should also be taken into consideration psychology (Kengatharan & Kengatharan, 2014). Investment decisions are very much important to investors as investment is their commitment of resources and funds in order to get future benefits (Bodie et al., 2008). Investors face difficulties in making decisions for many reasons like, lack of financial information, shortsightedness, and insufficient self-regulation (Winchester, Huston, &Fink, 2011). As matter of fact that information changes from time to time and it loose its value as more and more time passes, so the decision making in markets becomes more complicated (Formlet, 2001).

Huberman (2001) states that in decision making generally investors show their preference for holding the stocks of those companies which are localized rather than investing in stocks of other companies. However Grinblatt and Keloharju (2001) show that agents face more risk for holding stocks of firms which are nearby the investor. Hong, Kubik, and Stein (2004) states that social interaction affect the stock market participation, so the investors having more social interaction generally prefer to invest their funds in stock market. Cohen (2005) states that some participants rely on earning per share for their investment, but they exclude the important factors like firm's revenues and cash flows. Whenever investors are having multiple information they just focus on that information which seems important to them. Individuals leave most of the information unprocessed and fail to adjust it accurately (Hirshleifer 2011). Although there are various factors which affect the investor decision making but previous literature review shows that investors' decisions are majorly affected by the behavioral factors as these influence the perception of investor regarding risk, which ultimately affect decisions of investors.

Regarding performance of the stocks some of the researchers of behavioral finance argue that poor performance of stocks of the irrational investors could eliminate them from stock market, however some other researchers state that investor who is overconfident having strong trading behavior could have good results (Anderson, Henker, & Owen, 2005). As overconfident individual has high subjective probability, so they trade more than rational investors and expect higher return over their investments and hope for the good performance of their investment (Kyle & Wang, 1997).

*f) Conceptual or Theoretical Framework*

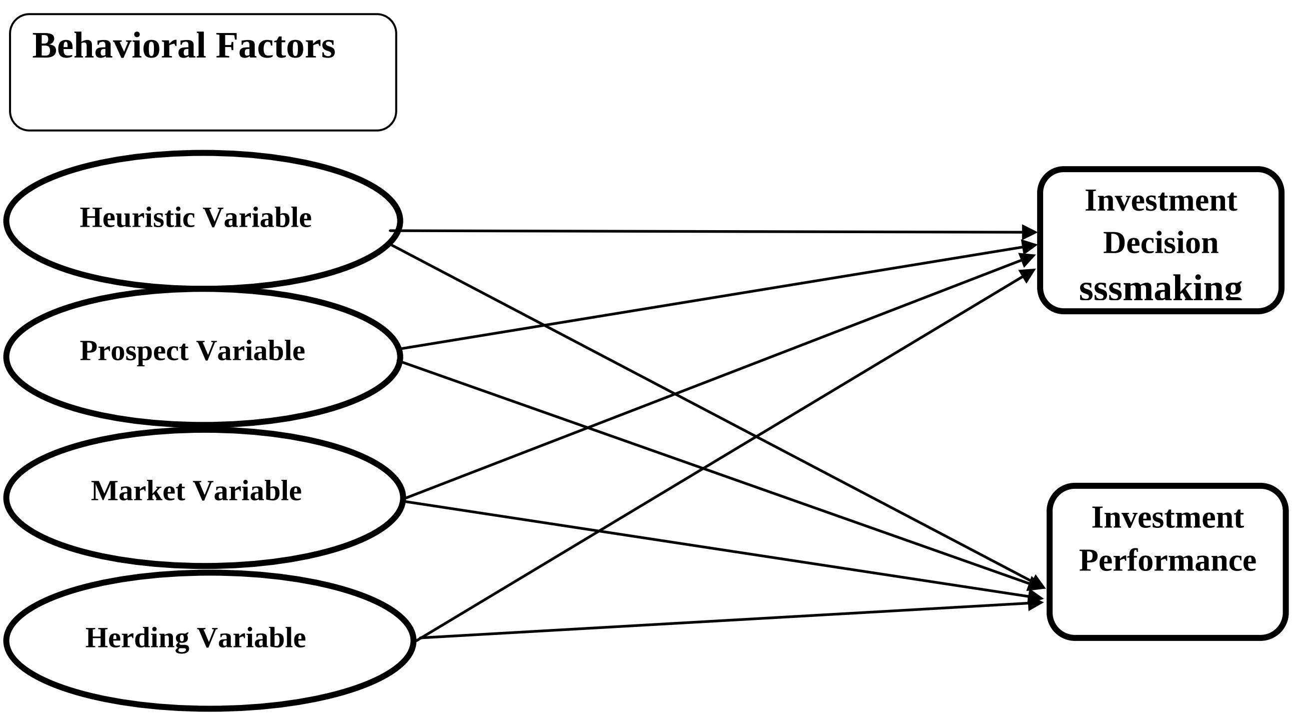


*Figure 2.1:* Research model for impact of behavioral factors on investors' decision making and investment performance

*g) Hypothesis for Research*

- *H1:* Heuristic variable highly impact the individual investors' decision making.
- *H2:* Prospect variable highly impact the individual investors' decision making
- *H3:* Market variable highly impact the individual investors 'decision making.
- *H4:* Herding variable highly impact the individual investors' decision making.
- *H5:* Heuristic variable positively impact the investment performance.
- *H6:* Prospect variable positively impact the investment performance.

- *H7:* Market variable positively impact the investment performance.
- *H8:* Herding variable positively impact the investment performance.

## III. Research Methodology

*a) Research Design*

The cross-sectional design is used in this research. In the cross-sectional design, data is collected and analyzed from more than one point at one single time. This research design is relevant to this research because it best suits this type of research to show the common trends of the behavior of investors rather than a single specific one. So the main reason is that the data in this study is collected at single point of time not the multiple stages (Saunders et al., 2009).

*b) Data Analysis Method*

In order to run the data SPSS Software is used because data is cross sectional. Varioyus tests are conducted through SPSS like Cronbach's Alpha, Descriptive Statistics and Multiple regression model.

## IV. Data Analysis and Results

*a) Reliability Measurement*

Cronbach's Alpha (Measurement Reliability)

*Table 4.1:* Cronbach's Alpha

| Cronbach's Alpha value | Number of Items |
|---|---|
| .808 | 41 |

Cronbach's alpha is .808 which is greater than 0.6 which shows that scale has very good reliability. As in social sciences acceptable reliability is 0.6 and this questionnaire has significantly higher value which shows that it is good measure to follow. It means that the factors or variables included in the scale which are heuristic, prospect, and market and herding are reliable enough to proceed the further analysis.

Through means of sample, level and intensity of impact of behavioral variables on decisions of investors is identified. The mean value of 6- point Likert scale would help to see the level of impact of these variables. Following values of means would help to evaluate the impact level (Kengatharan, 2014).

*b) Impact of Behavioral Factors over Individual Investors' Decision Making*

*Table 4.2:* Mean value range and its impact level

| Mean value | Impact level |
|---|---|
| Mean below 2 | Very low impact |
| Mean exceeds 2 but less than 3 | Low impact |
| Mean exceeds 3 but less than 4 | Moderate impact |
| Mean exceeds 4 but less than 5 | High impact |
| Mean exceeds 5 | Very high impact |

*Table 4.3:* Mean value range and Standard Deviation

| Variable | Mean | Standard Deviation |
|---|---|---|
| Heuristics | 4.5175 | .46653 |
| Prospect | 4.6508 | 0.47951 |
| Market | 4.3775 | 1.04028 |
| Herding | 4.4735 | .55238 |

Heuristic variable has mean of 4.5175 which is greater than 4 and less than 5, which indicates that heuristic has high impact on investment decision making. So the hypothesis that Heuristic variable highly impact individual investors' decision making is accepted. The mean of prospect variable is 4.6508, which shows that prospect has very high impact on investment decision making. So the hypothesis that prospect variable highly impact individual investors' decision making is accepted. Market variable has mean of 4.3775 which is greater than 3 less than 4, which indicates that market variable has moderate impact on investment decision making. So the hypothesis that market variable highly impact individual investors' decision making is rejected. The mean for herding variable is 4.4735, which is greater than 4 and less than 5, so herding has high impact over investment decision making. This result supports the hypothesis that herding variable highly impact individual investors' decision making, so the hypothesis is accepted.

c) *Impact of behavioral variables on investment performance*

- *H5:* Heuristic variable positively impact investment performance.
- *H6:* Prospect variable positively impact investment performance.
- *H7:* Market variable positively impact investment performance.
- *H8:* Herding variable positively impact investment performance.

Summary of Regression Model

*Table 4.4:* Summary of regression model

| Model | R value (correlation) | R-Square value | Adjusted R-Square value | Standard Error of Estimate |
|---|---|---|---|---|
| 1 | 0.698 | 0.487 | 0.452 | .3803 |

Regression coefficient results

*Table 4.5:* Regression coefficient results

| Model | | Coefficients (Unstandardized) | | Coefficients (Standardized) | t-value | Significance |
|---|---|---|---|---|---|---|
| | | Beta (value) | Error (Std) | Beta (value) | | |
| | (Constant) | 1.280 | .592 | | 2.363 | .002 |
| | Heuristic | .177 | .102 | .129 | 1.733 | .015 |
| 1 | Prospect | -.063 | .100 | .047 | .628 | .531 |
| | Market | .12 | .45 | .19 | 2.263 | .014 |
| | Herding | .448 | .082 | .388 | 5.482 | .000 |
| F-Value=10.142 | | | p= 0.05 | | | |

$$\text{Investment performance} = 1.280 + .177\times\text{Heuristic} - .063\times\text{Prospect} + .12\times\text{Market} + .448\times\text{Herding} + \varepsilon$$

The above equation shows that value of intercept $\beta_o$ is 1.280, this value represents that if the values of all predictors are zero then value of investment performance would be 1.280.

The value of $\beta_1$ 0.177 which reveals that if heuristic variable changes by 1%, there would be 17.7% change in investment performance, by holding the other predictors constant.

The value of $\beta_2$-0.063 this shows that if prospect variable changes by 1%, there would be -6.3% change in investment performance, by holding the other predictors constant.

The value of $\beta_3$0.12 which reveals that if prospect variable changes by 1%, there would be 12% change in investment performance, by holding the other predictors constant.

The value of $\beta_4$ 0.448 this shows that if prospect variable changes by 1%, there would be 44.8% change in investment performance, by holding the other predictors constant. From above regression equation it is very much clear that herding variable has highest impact on investment performance, because it brings highest change of 44.8% as compare to the other variables values in the equation.

The above table of regression analysis show that all variables have significant impact on investment performance except prospect, which has no significant impact on the dependent variable (investment performance).

The p-value of heuristic is 0.015 which less than 0.05, so the hypothesis that heuristic variable positively impact investment performance is accepted.

The p-value of prospect variable is 0.531 which is less than 0.05, so the hypothesis that prospect variable positively impact investment performance is rejected.

The p-value of market variable is 0.014 which is less than 0.05 so the hypothesis that market variable positively impact investment performance is accepted.

The p-value of herding variable is 0.000 which is less than 0.05 so the hypothesis that herding variable positively impact investment performance is accepted.

*d) Conclusion*

This study accomplished answers of all those questions which were identified in the introduction. This study identified the impact of several behavioral factors over investors' decision making in Pakistan. Research concluded that most of the behavioral factors have high impact on investor decision making in Pakistan. As Pakistan stock market is not much developed one, major portion of investors do not have financial expertise in order to evaluate their investments, so they mostly focus on that information which is available in the market and make their decisions on the basis of explicit outcomes. All the behavioral variables highly impact investors' decision making which led to accept the all hypothesis related to impact level of behavioral factors on individual investors' decision making. But among all those variables prospect highly impact investor decision making. It shows that individual investors in Pakistani stock market mostly commit behavioral errors like loss aversion, regret aversion and mental accounting biases while making their investment decisions. In relation to variables that impact investment performance only three of the four variables have significant impact on investment performance. Herding has the highest positive impact on investment performance, after that heuristic and market have high positive impact investment performance. Results of all these variables are significant. However prospect variable negatively impact on investment performance but impact of this variable is not significant, which led to reject the hypothesis that prospect positively impact investment performance.

*e) Limitations of the Study*

In this research study data regarding behavioral factors is collected through questionnaires. But financial decision making is very much complex process and investors encounter various situations where they irrationally make decisions. But when investor provide data through questionnaires, they are somewhat relaxed so they answer differently. To overcome this interviews with investors could have been done to obtain accurate data. In order to enhance the accuracy of data related to performance, secondary data of stock return performance should have been taken, because most of the investors do not exactly know the expected returns of their investments and the average rate of return of the market so they just make random estimates. So secondary data of stock returns may increase the accuracy of measurement.

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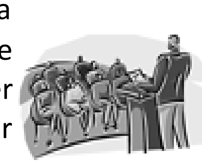

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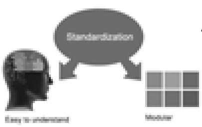


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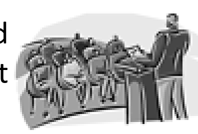

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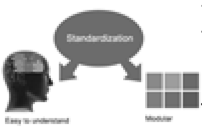


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- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

**Note :**

"

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- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

# Process of submission of Research Paper

The Area or field of specialization may or may not be of any category as mentioned in 'Scope of Journal' menu of the GlobalJournals.org website. There are 37 Research Journal categorized with Six parental Journals GJCST, GJMR, GJRE, GJMBR, GJSFR, GJHSS. For Authors should prefer the mentioned categories. There are three widely used systems UDC, DDC and LCC. The details are available as 'Knowledge Abstract' at Home page. The major advantage of this coding is that, the research work will be exposed to and shared with all over the world as we are being abstracted and indexed worldwide.

The paper should be in proper format. The format can be downloaded from first page of 'Author Guideline' Menu. The Author is expected to follow the general rules as mentioned in this menu. The paper should be written in MS-Word Format (*.DOC,*.DOCX).

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**(A) (I) First, register yourself using top right corner of Home page then Login. If you are already registered, then login using your username and password.**

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- Abstract Font size of 9 Bold, “Abstract” word in Italic Bold.
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- Two Column with Equal Column with of 3.38 and Gaping of .2
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- Paragraph before Spacing of 1 pt and After of 0 pt.
- Line Spacing of 1 pt
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**You can use your own standard format also.**
**Author Guidelines:**

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript’s Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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**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.

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**Key points to remember:**

- Submit all work in its final form.
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- 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.

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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

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- Separating a table/chart or figure - impound each figure/table to a single page
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· Present your points in sound order

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· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

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Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

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- 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:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

**Introduction:**

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- 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:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

**Procedures (Methods and Materials):**

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- 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.

Methods:

- 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:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- 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.

**Results:**

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

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- 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
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- 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

**Discussion:**

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- 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
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

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| ***Introduction*** | 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 |
| ***Methods and Procedures*** | 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 |
| ***Result*** | 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 |
| ***Discussion*** | 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 |
| ***References*** | Complete and correct format, well organized | Beside the point, Incomplete | Wrong format and structuring |

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ISSN 9755853