A RESEARCH PUBLICATION OF SKYLINE UNIVERSITY COLLEGE,
SHARJAH, UNITED ARAB EMIRATES

ISSN 1998-3425

SKYLINE BUSINESS JOURNAL

VOLUME XI | ISSUE 1-2015-2016

EDITORIAL
Amitabh Upadhya ii

PHARMACEUTICAL BUSINESS IN BANGLADESH: OPPORTUNITIES AND CHALLENGES
Sheikh Abdur Rahim 1

WORKERS' PERCEPTION TO JOB SECURITY: AN EMPIRICAL STUDY ON THE ORGANIZED LEATHER INDUSTRY IN KOLKATA, INDIA
Indranil Bose, Sredharran Sampath 12

COMMODITY FUTURES TRADING AND PRICE DISCOVERY IN INDIA: AN EMPIRICAL INVESTIGATION
Ramesh Chander, Mehak Arora 22

EXCHANGE RATE DETERMINATION AND OUT OF SAMPLE FORECASTING: COINTEGRATION ANALYSIS
Hafsa Hina, Abdul Qayyum 32

DIVIDEND POLICY AND MARKET PRICE BEHAVIOUR IN INDIAN COMPANIES
Sandeep Goel 46

TESTING THE STATIONARITY OF BETA FOR BANKING SECTOR STOCKS IN INDIAN STOCK MARKETS: A PANEL REGRESSION ANALYSIS
Mihir Dash 53

MITIGATING CREDIT RISK: AN EMPIRICAL STUDY OF INDIAN PUBLIC SECTOR BANKS
Renu Arora, Archana Singh 61

AN EMPIRICAL ANALYSIS OF THE VULNERABILITY OF THE GCC COUNTRIES TO THE FINANCIAL CRISIS OF 2008
Zaheda Ronak 72

ASSESSING THE PERFORMANCE OF CLOUD-BASED CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS
Prerna Lal, Sangeeta Shah Bharadwaj 89

INNOVATING THE CZECH AND SLOVAK TOURISM THROUGH CREATIVE TOURISM
Alzbeta Kiralova, Andrej Malachovsky 101

FORTHCOMING CONFERENCES 117

CALL FOR PAPERS 120

SKYLINE UNIVERSITY COLLEGE

CELEBRATING 25 YEARS SILVER JUBILEE 1990 2015

SKYLINE BUSINESS JOURNAL

Patron
Mr. Kamal Puri

Editor-in-Chief
Dr. Amitabh Upadhya

Associate Editor
Dr. Shanmugan Joghee

BOARD OF ADVISORS

Mr. Nitin Anand
COEC, Skyline University College

Dr. Bob De Wit
Strategy Academy, The Netherlands

Dr. Richard Anthony John Sharpley
University of Central Lancashire, UK

Dr. Devashish Das Gupta
IIM, Lucknow, India

Dr. Fahim Youssofzai
Royal Military College of Canada, ON, Canada

Dr. Yam B. Limbu
School of Business, Montclair State University, USA

EDITORIAL BOARD

Dr. Jesus Cuahtemoc Tellez Gaytan
Universidad Autonoma del Carmen, Mexico

Dr. Kristine Brands
Regis University in Colorado Springs, USA

Dr.Nicholas Meihuizen
North West University Potchefstroom Campus,South Africa

Dr. Ming Ming Su
Renmin University of china

Dr.Sudhakar Kota
Skyline University College

Dr.Manuel Fernandez
Skyline University College

Dr. Leszek Dziawgo
Nicholas Copernicus University, Poland

Dr.Mahesh Agnihotri
Skyline University College

Dr.Idorenyin akpan
American University of Nigeria

Dr.Manoj kumar
Skyline University College

Dr.Parag Sanghani
Skyline University College

Dr. Makarand upadhyaya
Jazan university , Jazan, Saudi Arabia

Dr.J.Paul Sundar Kirubakaran
College of applied sciences – Nizwa, Sultanate of oman

Dr.Nadir Ali Kolachi
Skyline University College

Dr. Riktesh Srivastava
Skyline University College

Dr.Shivakumar Krishnamurti
Skyline University College

Dr. Gouher Ahmed
Skyline University College

Dr. Mohit Vij
Skyline University College

TECHNICAL COMMITTEE

Mr.Firoj Kumar Rauta
Mr.Vasujit
Mr.Jaymar
Mr.Anish Chacko

EDITORIAL

A new-look Skyline Business Journal (SBJ) is a befitting dedication to the Silver Jubilee edition! A lot of discussion and deliberation took place to finally settle for the smart new look of the journal which is now in your hands. Skyline University College has, this year, completed 25 years of its academic presence in the UAE with a distinction of being one of the first private universities in the country. The journal too, like the University College, has gone through its own moments of peaks and troughs in a journey of over ten years when it was first conceived. We are thankful to all those who have contributed to bring the journal to this level especially the distinguished editorial board members, reviewers and advisors.

The transformation of the journal into its present avatar is not just cosmetic but a whole lot in substance. The contents of this issue and those that follow now onwards, will be testimonials of the changed and charged approach that the journal has adopted to realize its goal of excellence in its scholastic pursuit. SBJ from the very beginning had the objective of further enriching the existing body of management knowledge and providing a platform to scholars to suggest meaningful solutions to business problems. We, with this issue, have now moved to yet another level of such pursuit and hope to keep the march evocative, enlightened and efficacious.

This issue of SBJ contains ten research papers ranging from 'Challenges of Pharmaceutical Business in Bangladesh' to cases of 'Credit Risk of Indian Public Sector Banks'. Being a high priority sector in Bangladesh the study on its pharmaceutical industry is very apt and timely. As a result of empirical research eight suggestions have been offered including one urging the government for good governance towards procurement and price control. In a separate study the working conditions of the leather industry that employs over sixty five thousand workers in Kolkata has been explored. The study recommends capacity building and social security as major requirements that must be addressed soon. In another interesting paper the authors have made an endeavor to scrutinize price discovery relationship for four agricultural commodities with specific reference to pulses and cereals. The study applies the 'Ganger Causality Test' that uses f-test to understand the cause and effect affiliation between two time series. In yet another study 'Frankel Monetary Model' of exchange rate is used to examine long run behavior of Pakistan Rupee per unit of US Dollar over a specific time period. A very interesting paper on 'creative tourism' in Slovakia and the Czech Republic has attempted to define the term and analyze its supply side as a source of competitiveness. It is an important paper also because, the split of Czechoslovakia in 1993 changed the dynamics of tourism in the region and the drivers of this region's tourism have since been its natural and cultural resources and private investment.

The recommendations and suggestions offered in the research papers that are included in SBJ have always had a practical approach. Reviewing the various submissions to the journal gives a clear indication that SBJ has acquired a prominent place amongst scholars from the MENA (Middle East and North Africa) region and the South Asian Subcontinent. As such a niche has been carved, which needs to grow its influence further, starting geographically with the adjoining areas and the editorial team is focused on this. We look forward to inputs from our patrons and urge all of you to contribute with your valuable feedback and comment on the new-look and newer features that you would like to be included.

Amitabh Upadhya
Editor-in-Chief

PHARMACEUTICAL BUSINESS IN BANGLADESH: OPPORTUNITIES AND CHALLENGES

Sheikh Abdur Rahim

Abstract

One of the highest priority sectors in Bangladesh is the Pharmaceutical sector. The reason is that the sector is the second highest contributor to the national exchequer and it creates huge employment opportunities for the unemployed people in Bangladesh. The pharmaceutical companies of Bangladesh currently meet 97 percent of local demand and exports to 109 countries in five continents. It also exports pharmaceutical products to different international agencies (EPB-2013). Thus, this paper attempts to reveal the opportunities of pharmaceutical business in Bangladesh. At present the pharmaceutical companies of Bangladesh are facing tremendous challenges due to the competition in the global market. As per trade-related intellectual property rights (TRIPs), the pharmaceutical companies of Bangladesh can continue to produce patented products until 2016 (WTO-2012). Therefore, this paper also attempts to explore the challenges facing by the pharmaceutical companies of Bangladesh and prescribe some possible courses of action to overcome these challenges.

Keywords: *Pharmaceutical, Intellectual, Opportunity, Challenge, Bangladesh.*

Introduction

The pharmaceutical sector is one of the most high-tech developed sectors in Bangladesh. There are 268 small, medium, large and multinational companies operating in the country at present. These companies are meeting 97 percent local demand of the medicines and they are also exporting medicines to 109 countries in five continents of the world. In terms of contribution to government's revenue, the second largest industry in Bangladesh is the pharmaceutical industry. It contributes about one percent of the total GDP of this country.

However there was hardly any pharmaceutical company in Bangladesh before independence. The government of Bangladesh could not increase (in relative terms) budgetary allocations for the enhancement of medical sector after several years of liberation. Most of the citizens of this country had limited opportunity to access essential life-saving medicines at that time. The pharmaceutical sector of Bangladesh started to improve from 1980s. According to banglapedia (http://www.banglapedia.com), the pharmaceutical industry of Bangladesh has been growing in the last two decades at a considerable rate. The development of pharmaceuticals industry in Bangladesh has accelerated after the promulgation of Drug Control Ordinance of 1982. The key factors for these developments are skills and knowledge of the professionals, and innovative ideas of the people involved in this industry. The significant impact of Drug Control Ordinance -1982 is the rapid development of local manufacturing capability. Through this ordinance, the government of Bangladesh reduced the influence of multinational pharmaceutical companies.

The pharmaceutical sector is one of the rapid-growing sectors in Bangladesh. The total size of the pharmaceutical market of Bangladesh has estimated to be Tk. 125 billion with an annual growth rate is about 10 percent in December 31, 2013 (Integrated Market Survey Report, 2013). After meeting local demand, the pharmaceutical companies of Bangladesh are exporting medicines to 109 countries in five continents of the world and the demand for export is increasing rapidly. The pharmaceutical industry of

Bangladesh is now heading towards self-sufficiency in producing pharmaceutical products and soon, this sector is sure to mark its presence in the global arena.

Research Objectives

The study was conducted with the following objectives:

(i) To investigate the present scenario of pharmaceutical business in Bangladesh
(ii) To find out the opportunities for pharmaceutical business in Bangladesh and abroad
(iii) To explore the challenges of this business in Bangladesh and abroad and make some recommendations to overcome these challenges

Research Limitations

The main limitation of the study is that the author could not use primary data/information. For this reason, the author had to collect enough data/information from the secondary sources for accurately discovering and explaining the opportunities and challenges of pharmaceutical business in Bangladesh and abroad. So, the present paper is prepared based on secondary data/ information.

Research Methodology

The current paper is prepared by using secondary data/information. The secondary data/information was collected from the following sources:

i) Published books, newspapers and magazines
ii) A-ranked pharmaceutical related journals and articles
iii) Website of the different pharmaceutical companies in Bangladesh
iv) Website of Bangladesh Bank
v) Website of the World Trade Organization (WTO)
vi) Website of the Pharmacy Council of Bangladesh
vii) Website of the Ministry of Health and Family Welfare, Govt. of the People's Republic of Bangladesh
viii) Website of Banglapedia
ix) Website of UK Trade & Investment
x) Website of Bangladesh Bureau of Statistics (BBS)
xi) Website of Drug Administration of Bangladesh

In order to analyze and process the data/information in this study, the author has used Adobe Illustrator® as tool. The author has also used Microsoft Office Package® and Microsoft Excel in data tabul ating, charting, and graphical representation.

Literature Review

At present, one of the most high-tech developed industrial sectors of Bangladesh is the pharmaceutical sector. This sector has been playing a significant role to boost the overall economic condition of Bangladesh. Now, it contributes one percent of the GDP and is the second largest revenue exchequer to the government of Bangladesh. It meets 97 percent local demand of medicines and exports to 109 countries in five continents of the world (BAPI, 2013). Bangladesh inherited a poor pharmaceutical sector. There was hardly any pharmaceutical company in Bangladesh (then East Pakistan) before liberation. After the liberation of Bangladesh, multinational companies had been dominated the pharmaceutical sector in this country. At that time, the country was largely import dependent. The 75 percent of the pharmaceutical market was dominated by the MNCs, whereas the rest were shared by some 133 local pharmaceutical companies in this country (Shawon, 2011a). Basically, the pharmaceutical sector of Bangladesh started to develop 1980s through the promulgation of Drug Control Ordinance of 1982. The government of Bangladesh had strongly controlled the pharmaceutical sector in this country with the help of Drug Control Ordinance of 1982. Since then, the local firms have established a stronger foothold, and the country

become from an import dependent to an active exporter of pharmaceutical products (Shawon, 2011).

According to Hassan (2002), at present the pharmaceutical sector of Bangladesh is a leading growth sector and is manufacturing practically the entire range of therapeutic products and is also capable of producing a number of bulk drugs. Rahman (2002) points out that before 1982, the contribution of local pharmaceutical companies was insignificant and patients had to depend in most cases on the medicines produced by some multinational companies. Gradually, the scenario of pharmaceutical industry has been changing. At present, the local pharmaceutical companies of Bangladesh have taken the leadership role over the multinational pharmaceutical companies operating in Bangladesh. According to Drug Administration of Bangladesh (2013), the 95 percent pharmaceutical market of Bangladesh is under the local pharmaceutical companies.

Based on the above literature, it can be said that previously most of the researchers conducted their research studies to find out the problems, prospects and overview of the pharmaceutical industry in Bangladesh. Previously, no researcher conducted any research study to find out the opportunities and challenges of pharmaceutical business in Bangladesh. For this reason, the researcher selected this topic to conduct the present research study.

Pharmaceutical Industry in Bangladesh: At a Glance

Bangladesh inherited a poor base of pharmaceutical industry during the liberation year 1971. The reason behind that most of the multinational companies (MNCs) had their production facilities in West Pakistan. After several years of liberation, the budgetary allocation for the health sector was also a very insignificant amount in this country.

In the pre-1982 era, 80 percent of the pharmaceutical market was controlled by multinational pharmaceutical companies. There were 166 licensed pharmaceutical manufacturers in Bangladesh in 1981 and at that time about 75 percent of the pharmaceutical products manufactured by 8 multinational companies, 15 percent of the pharmaceutical products manufactured by 25 medium sized local companies and the rest of the 10 percent manufactured by 133 small pharmaceutical companies (www. banglapedia.org).

Multinational pharmaceutical companies were selling their locally produced drugs at a higher price to the people of Bangladesh prior to the initiation of Drug Control Ordinance of 1982. In order to control the higher prices of the pharmaceutical products of multinational companies, the government of Bangladesh imposed new regulations to be enforced by the Drug Regulatory Committee (DRC) and then Drug Regulatory Committee circulated notice that now and onward the pharmaceutical industries of Bangladesh would be governed by the Drugs Act of 1940. After this the government of Bangladesh formulated the Drug Control Ordinance of 1982 on the basis of Drugs Act of 1940. As a result many harmful, unless or unnecessary medical products were withdrawn from the market with the promulgation of Drug Control Ordinance of 1982 by ensuring availability of essential drugs at all levels of the healthcare system. The new Drug Ordinance also required that drugs that were being produced locally were not allowed to be imported and it was made compulsory for all manufacturing base companies before they could sell registered drugs in the market. For encouraging the production of Active Pharmaceutical Ingredient (APIs), the National Drug Policy was last amended in 2005. There are 268 pharmaceutical companies conducting their business activities at present in Bangladesh out of which seven are multinational and 97 percent of the local medicine requirements of the local market are provided by

these companies and the rest of the three percent are imported from outside the country.

Reasons for Significant Development of Pharmaceutical Industry in Bangladesh

The pharmaceutical of Bangladesh is playing a significant role for developing the overall economy of Bangladesh. It is one of the fastest growing and technologically developed sectors in Bangladesh. It creates ample job opportunities for the unemployed people of Bangladesh. It contributes about one percent of the total GDP in Bangladesh. This sector is expanding rapidly because of the following reasons:

i) Drug Control Ordinance of 1982: Before formulating Drug Control Ordinance of 1982, the pharmaceutical sector of Bangladesh was highly dominated by the multinational pharmaceutical companies. With the promulgation of Drug Control Ordinance-1982, the government of Bangladesh was rightly controlled the multinational pharmaceutical companies and facilitated local pharmaceutical companies. After this, the local pharmaceutical companies gradually took the major market share in the country.

ii) National Drug Policy in 2005: The government of Bangladesh amended the National Drug Policy in 2005. The prime objective of this amendment was to provide more facilities to the local pharmaceutical companies in this country so that they could meet the 100 percent local demand of medicines, on the one hand and the other hand they could make their global position stronger.

iii) Professional Knowledge, Thoughts and Innovative Ideas of the Employees: The employees who are working in different pharmaceutical companies in Bangladesh at present have highly professional knowledge, thoughts and innovative ideas which will help them to produce different types of essential life-saving medicines for the people of Bangladesh with lower production cost. As a result, the people of Bangladesh can purchase these medicines at lower prices and the government of this country need not to import these medicines from other countries of the world by paying huge amounts of money. So, it will create tremendous positive impact on the overall GDP of Bangladesh.

iv) Qualified Pharmacy Education & Training: Different public and private universities of Bangladesh have already established Pharmacy Departments in the universities to produce talent, competent and skilled human resources for the pharmaceutical companies of Bangladesh by providing quality education and training. Besides universities, different vocational education and training institutes are relentlessly trying to produce qualified human resources for the pharmaceutical industry in this country. These efficient human resources are contributing rigorously for the development of pharmaceutical industry in Bangladesh.

v) Congenial Business Environment: The present government of Bangladesh is highly business friendly. They are always trying to create favorable business atmosphere for business people of Bangladesh. Thus, the owners and employees of pharmaceutical sector of Bangladesh conduct their business activities without facing any critical obstacles.

Structure of Pharmaceutical Industry in Bangladesh

The pharmaceutical industry of Bangladesh can broadly be classified into two categories. These are as follows:

i)Patent Medicines: The Pharmaceutical companies who have their own research teams working on their own laboratories have invented patent products (medicines).

For enjoying the monopoly market for several years, these products are patented by these pharmaceutical companies in Bangladesh. The formulation is sold to other companies after long years of business so that they can go into mass production.

ii) Generic Medicines: The pharmaceutical companies in Bangladesh are producing generic medicines on a large scale. Several pharmaceutical companies in Bangladesh are marketing these products under different brand name.

But the formulation of these products is almost same. There are 268 local and multinational pharmaceutical companies operating their business activities in Bangladesh at present and these companies are approximately selling 8,000 branded generics in the pharmaceutical market of Bangladesh.

Key Pharmaceutical Companies in Bangladesh

There are 268 pharmaceutical companies in Bangladesh out of which seven are multinational and three are government and semi-government pharmaceutical companies. The 90 percent market share is covered by the national pharmaceutical manufacturers and 10 percent market is occupied the multinational pharmaceutical companies. The pharmaceutical companies and their sales, market share and growth rate are shown in Table i.

Table i: Key Pharmaceutical Companies in Bangladesh

Rank	Name of the Company	Market Share (in %)	Growth Rate (in %)	Tk. (in Crore)
1.	Square Pharmaceuticals Ltd.	18.7	7	1766
2.	Incepta Pharmaceuticals Ltd.	9.8	12	928
3.	Beximco Pharmaceuticals	8.6	5	816
4.	Opsonin Pharmaceuticals Ltd.	5.3	10	503
5.	Reneta Ltd.	5.0	10	472
6.	Eskyef Bangladesh Ltd.	4.5	3	424
7.	Aristopharma Ltd.	4.2	13	401
8.	ACI Ltd.	4.2	3	395
9.	Drug International Ltd.	3.9	14	366
10.	ACME Ltd.	3.8	-2	361
11.	Novo Nordisk Ltd.	2.4	27	224
12.	Sanofi Aventis Bangladesh Ltd.	2.3	-3	213
13.	Healthcare Pharma Ltd.	2.1	19	195
14.	General Pharmaceuticals Ltd.	1.7	15	164
15.	Glaxosmithkline	1.7	6	162
16.	Popular Pharma Ltd.	1.6	13	151
17.	Orion Pharma Ltd.	1.5	-6	145
18.	Novartis Bangladesh Ltd.	1.4	4	127
19.	Unimed & Unihealth	1.3	20	120
20.	Sandoz	1.2	-13	116

Source: Bangladesh Pharmaceutical Index (2013) (1st Quarter)

Table 1 shows that the local or retail market size of Bangladesh is Tk. 9,441 crore with 12 percent annual growth rate. Top twenty (20) companies have occupied 85.2 percent market share.

Growth Rate of Pharmaceutical Sector of Bangladesh

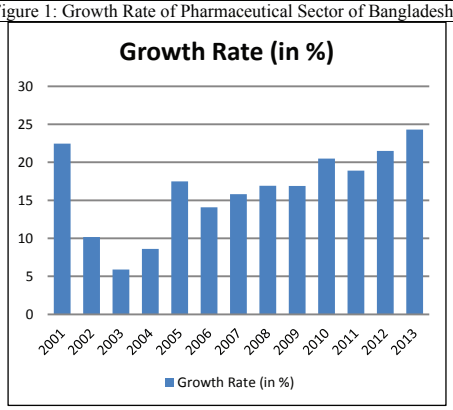
The growth rate of pharmaceutical sector of Bangladesh is shown in Table ii.

Table ii: Growth Rate of Pharmaceutical Sector of Bangladesh

Year	Growth Rate (in %)
2001	22.46
2002	10.18
2003	5.90
2004	8.60
2005	17.50
2006	14.08
2007	15.80
2008	16.91
2009	16.90
2010	20.50
2011	18.90
2012	21.50
2013	24.30

Source: Bangladesh Bank (2013)

Figure 1: Growth Rate of Pharmaceutical Sector of Bangladesh



Source: Graphical Representation

Figure 1 shows that the growth rate of pharmaceutical sector of Bangladesh was good in the year 2001. But the growth rate of pharmaceutical sector of Bangladesh was not good from the year 2002-2009 because lacking of skilled human resources, government policies and procedures, and global financial crisis. Again, the growth rate of pharmaceutical sector of Bangladesh was good from the year 2010-2013. The reason behind that significant measure has been taken by the owners of the industry and the government of Bangladesh to increase the growth rate of pharmaceutical sector of Bangladesh such as formulated effective policies and procedures, created favorable working environment, appointed skilled and experienced human resources, created strong network within and outside the country.

Imports of Pharmaceuticals to Bangladesh

The following ingredients are to be imported for the pharmaceutical companies of Bangladesh:

i) Active Pharmaceutical Ingredients: The pharmaceutical companies of Bangladesh have to import most APIs (Active Pharmaceutical Ingredients) from outside the country. The raw materials have to be imported even if the API is manufactured in Bangladesh. It generates higher costs factor which will impact on the selling price of pharmaceutical products.

ii) Organic Chemicals: Organic chemicals import by the pharmaceutical companies of Bangladesh from mainly China, USA, Japan, Indonesia, India, Taiwan, Germany, Malaysia, Republic of Korea, Hungary, Italy, Belgium, Netherlands, France, Denmark, Spain and Switzerland.

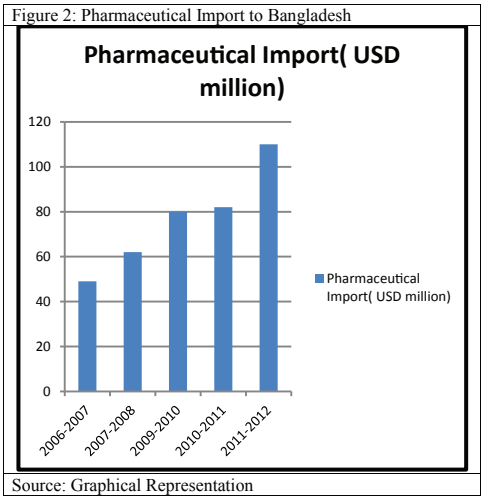
iii) Machinery: The pharmaceutical companies of Bangladesh import machinery from outside the country. It has huge impact on the selling price of pharmaceutical products in Bangladesh. The leading pharmaceutical companies import most of their machinery from China, India, Europe and Japan. The pharmaceutical import to Bangladesh is shown in the following Table iii:

Table iii: Pharmaceutical Import to Bangladesh

Year	Pharmaceutical Import(USD million)
2006-2007	49
2007-2008	62
2009-2010	80
2010-2011	82
2011-2012	110

Source: Bangladesh Bank (2013)

Figure 2: Pharmaceutical Import to Bangladesh



Source: Graphical Representation

Figure 2 shows that the pharmaceutical import to Bangladesh is gradually increasing over the years. The reason for this is that the production of pharmaceutical goods has been increasing rapidly over the years. For this reason, the pharmaceutical import to Bangladesh trend is increasing.

Export of Pharmaceuticals from Bangladesh

The pharmaceutical companies of Bangladesh have been exporting pharmaceutical products since early 1990s. Initially, these companies exported their bulk drugs as well as finished formulations to some of the less regulated countries, such as Nepal, Vietnam, and Myanmar.

Table iv: Pharmaceutical Exports from Bangladesh

Year	USD (in Billion)
2007-2008	43.0
2008-2009	45.7
2009-2010	43.2
2010-2011	45.3
2011-2012	46.0

Source: Export Promotion Bureau (2013)

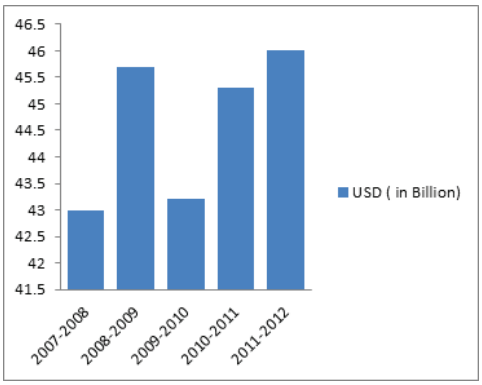


Figure 3 shows that the pharmaceutical exports from Bangladesh are increasing except the year 2009-2010. It happened due to the influence of global financial crisis. The owners of the pharmaceutical industry and the government of Bangladesh should take the initiative to build-up the strong relationship with the government and business communities of other countries.

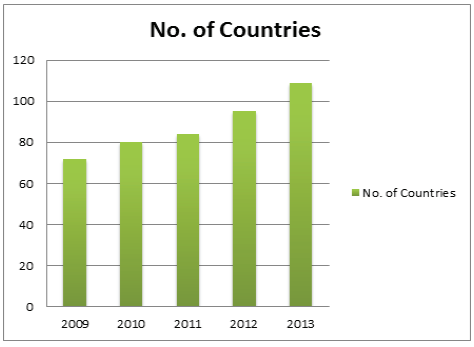
The export market of pharmaceutical products of Bangladesh has been growing significantly over the years. The export destinations of pharmaceutical products of Bangladesh are shown in Table v.

Table v: Export Destinations

Year	No. of Countries
2009	72
2010	80
2011	84
2012	95
2013	109

Source: Bangladesh Bank (2013)

Figure 4: Export Destinations



Source: Graphical Representation

Figure 4 shows that the export destinations of pharmaceutical products of Bangladesh are gradually increasing over the year. The owners of the pharmaceutical industry and the government of Bangladesh should try to find out the opportunities for exporting pharmaceutical products at large scale in the future.

Problems Facing the Pharmaceutical Companies of Bangladesh

According to the Pharmacy Council of Bangladesh (2013), there are problems facing the pharmaceutical companies of Bangladesh at present, this include:

i) Inadequate Trained Human Resources: The pharmaceutical industry in Bangladesh is suffering from the lack of trained human resources at present. The reasons behind this is that different public and private universities and vocational training institutes have been producing a good number of graduates but they have no practical work experience. As a result, they can't meet the demand of the pharmaceutical industry in Bangladesh at present.

ii) Ineffective Monitoring Systems: The second problem which is now being faced by the pharmaceutical companies in Bangladesh is ineffective monitoring systems. The monitoring authority doesn't regularly conduct operations to look after the activities of the pharmaceutical companies. That is why some pharmaceutical companies have been producing medicine without maintaining quality of standards.

iii) Inappropriate use of Medicines: The third problem of pharmaceutical businesses in Bangladesh is inappropriate use of medicines, it has been happening regularly in this country. In Bangladesh, anybody can purchase any medicine from medicine shops without prescriptions at present. As a result, on the one hand, accidents occurred

regularly and on the other hand, people may not get expected benefits from the use of medicines. It also creates a negative impact on the growth and development of the pharmaceutical business in Bangladesh.

iv) Shortage of Independent Labs: Even today all pharmaceutical companies of Bangladesh have no independent labs for testing products to justify the quality of the finished products. For this reason, some pharmaceutical companies may have produced and marketed lower quality medicines which will create a negative impacts on the pharmaceutical business in Bangladesh.

v) Shortage of Manpower in National Regulatory Authority: The national regulatory authority of Bangladesh is responsible to supervise the activities the pharmaceutical companies in this country. But this authority doesn't monitor the activities of pharmaceutical companies due to the shortage of manpower. As a result, some pharmaceutical companies have taken these opportunities and produced and marketed lower quality medicines that will impact negatively on the pharmaceutical business in Bangladesh.

vi) Lack of determining Fair Price of the Medicines: The pharmaceutical companies of Bangladesh are producing and marketing similar types of medicines under different brands. Due to the lack of proper monitoring systems, some pharmaceutical companies charge higher prices for their medicines. As a result, customers sometimes are confused regarding the actual price of these medicines and it has hampered the pharmaceutical business in Bangladesh.

vii) Shortage of Active Pharmaceutical Ingredients (APIs): Most of the pharmaceutical companies in Bangladesh still have no own Active Pharmaceutical Ingredients (APIs) park. For this reason, they cannot produce raw materials for producing qualified and standard medicines.

Opportunities of Pharmaceutical Business in Bangladesh

According to the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh (2013), there are huge opportunities of pharmaceutical business in this country at present because of the following reasons:

According to the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh (2013), there are huge opportunities for pharmaceutical business in this country at present because of the following reasons:

i) Increased educated people: There is a huge growth potentiality of the pharmaceutical industry in Bangladesh. The reason behind that the urban population is increasing and people are being educated. As a result, they are now more concerned about healthcare. Thus, the demands for medical products are increasing.

ii) Increased tropical diseases: The tropical diseases are increasing in Bangladesh. This leads to a high demand for pharmaceutical products. In addition to this, unhygienic conditions and poor health maintenance plans provide huge opportunity for the pharmaceutical companies to sell their products.

iii) Created employment opportunity: The pharmaceutical companies create huge employment opportunities for the unemployed people of Bangladesh. At present, there are more than 63,000 people working in this industry and day-by-day this industry will create more employment opportunity for the people of Bangladesh. As a result, the unemployment rate of Bangladesh will decrease gradually in the future.

iv) Increased export opportunity: The pharmaceutical companies of Bangladesh are exporting medicines to 109 countries in five continents of the world. This industry earns a huge amount of foreign currency through exporting pharmaceutical products to abroad.

v) Enjoyed patent waiver: Bangladesh is one of the LDCs countries in the world. As the least developed country, Bangladesh enjoys a patent waiver under a deal of 2016. Bangladesh can manufacture patented drugs until 2016 under the TRIPS Agreement. Most of the countries in the world could not manufacture patented drugs since 2005 because of TRIPS Agreement. So, this is a big opportunity for the pharmaceutical companies of Bangladesh to make their position stronger within and outside the country.

Recommendations

The following prescriptions have been recommended to overcome the problems of pharmaceutical companies in Bangladesh at present:

i) The pharmaceutical companies should recruit adequate skilled and trained human resources from the national and international labor pools to accomplish the various activities of these companies with smart at hand.

ii) The respective authority should regularly monitor the activities of the pharmaceutical companies and implement the existing legislation and policies and guidelines.

iii) The authority should take necessary actions to stop the inappropriate use of medicines by ensuring that nobody can purchase any medicine from medicine shops without a doctor's prescriptions.

iv) Each pharmaceutical company should establish an independent lab for testing medicines which will help the company to ensure quality systems in the production of pharmaceutical goods.

v) The government of Bangladesh should recruitment sufficient skilled and experienced human resources to look after the activities of the pharmaceutical companies in Bangladesh.

vi) The government should ensure good governance in procurement and medicine pricing so that no pharmaceutical company can set a higher price for the products.

vii) Every pharmaceutical company should establish an Active Pharmaceutical Ingredients (APIs) park which will help this company to produce the required raw materials.

Conclusion

The pharmaceutical sector is one of the fastest growing and most high-tech developed sectors in Bangladesh. This sector is the second largest sector in terms of contribution of revenue to the government of Bangladesh. It provides 97 percent of the total medicine requirement of the local market. The key pharmaceutical companies are expanding their business within and outside the country. At present, some pharmaceutical companies have been established with high-tech machinery and professionals which will make this sector stronger. This sector needs help from government, customers, employees, suppliers, distributors, competitors, for future growth and development, both nationally and internationally.

References

Bale, H. E. (1997). Patent Protection and Pharmaceutical Innovation. New York University Journal of International Law and Policies, 29(½).

Barfield, C. E., & Groombridge, M. A. (1998). The Economic Case for Copyright Owner Control over Parallel Imports. The Journal of World Intellectual Property.

Bangladesh Bank (2013). Balance of Payment Statistics Department. Retrieved 15 October 2013, from http://www. bangladeshbank.org.bd.com

Bangladesh Pharmaceutical Society. (2012). Retrieved 05 December 2012, from http://www. pharmadu.net/bps/ company info.htm

Bangladesh Association of Pharmaceutical Industries (BAPI).Retrieved 15 July 2013, from http//www.bapibd.com
Bangladesh Bureau of Statistics (BBS). (2012). Retrieved 31 December 2012, from www.bbs.gov.bd
Banglapedia.com. Retrieved 10 November 2013, from http:// banglapedia.com

Directorate General of Drug Administration. (2013). Retrieved 27 December 2013, from http://www. ddabd.org.com

Danzon, P. M. (1997). Pharmaceutical Price Regulation: National Policies Versus Global Interests. Washington D.C.: American Enterprise Institute.

Export Promotion Bureau of Bangladesh (EPB). (2013). Retrieved 22 December 2013, from http://www.epb.gov.bd/index.php

Jahan, S. (2011). Pharmaceutical Opportunities in Bangladesh. UK Trade & Investment, Dhaka.

Hossain, M. M., & Shoaib, S. M. (2014). Role of Pharmaceutical Sector in the National Economy of Bangladesh. World Journal of the Pharmacy and Pharmaceutical Sciences, 3(2), 951-960.

Hassan, M. A. (2002). Our Pride: Our Pharmaceutical Industry. Bangladesh Year Book (1st ed.). Dhaka, Bangladesh.

Integrated Market Survey (IMS), USA. (2013). Retrieved 01 July 2013, from www.integratedmarketsurvey.com

Danzon, P. M. (1997). Pharmaceutical Price Regulation: National Policies Versus Global Interests. Washington D.C.: American Enterprise Institute.

Export Promotion Bureau of Bangladesh (EPB). (2013). Retrieved 22 December 2013, from http://www.epb.gov.bd/index. php

Jahan, S. (2011). Pharmaceutical Opportunities in Bangladesh. UK Trade & Investment, Dhaka.

Hossain, M. M., & Shoaib, S. M. (2014). Role of Pharmaceutical Sector in the National Economy of Bangladesh. World Journal of the Pharmacy and Pharmaceutical Sciences, 3(2), 951-960.

Hassan, M. A. (2002). Our Pride: Our Pharmaceutical Industry. Bangladesh Year Book (1st ed.). Dhaka, Bangladesh.

Integrated Market Survey (IMS), USA. (2013). Retrieved 01 July 2013, from www.integratedmarketsurvey.com

Rahman, A. (2002). The ACME Laboratories: Pride of Bangladesh. Bangladesh Business Year Book. Dhaka, Bangladesh.

Shawon , S. A. (2011). Pharmaceutical Industry of Bangladesh. IDLC Finance Limited, Dhaka.

Saad, K. S. (2012). An Overview of the Pharmaceutical Sector in Bangladesh. BRAC EPL, Stock Brokerage Ltd., Dhaka.

The Pharmacy Council of Bangladesh. Retrieved 28 December 2013, from http://www.pcb.gov.bd

The Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh. Retrieved 31 December 2013, from http:// www.sasadmin2@mohfw.gov.bd

The Rise of Pharmaceutical Sector of Bangladesh. (2013). Retrieved 28 November 2013, from http://www.pharmadu.net/bps/pharmaindustries.htm

Ullah, M. S., & Razzak, B. M. (2006). Problems and Prospects of Pharmaceutical Industry in Bangladesh. Journal of World Trade Organization. (2012). Retrieved 10 June 2012, from http://www.wto.org.com

Mr. Sheikh Abdur Rahim
Associate Professor and Head
Department of Real Estate and
Department of Commerce
Faculty of Business and Economics
Room No. # 709, DT-05
Daffodil International University
4/2 Shobhanbag, Dhanmondi, Dhaka-1207
Bangladesh
E-mail: rahim2008@daffodilvarsity.edu.bd

WORKERS' PERCEPTION TO JOB SECURITY: AN EMPIRICAL STUDY ON THE ORGANIZED LEATHER INDUSTRY IN KOLKATA, INDIA

Indranil Bose, Sredharran Sampath

Abstract

Kolkata leather industry employs around sixty five thousand workers, yet the overall working condition in most of the leather units, even in the much hyped 'Calcutta Leather Complex' seem to be not even closer to the minimum prescribed standards at per different labour regulations. The job security in the industry is also reported to be appalling. The present research has been carried out at 'Calcutta Leather Complex', an 1100 acres land based leather industry complex, located at Bantala, at the eastern fringe of the city, the largest concentration of organized leather units in Kolkata. Based on the structured questionnaire based interviews conducted on a randomly chosen sample of 400 workers, the paper attempts to measure the magnitude of different job security perception across the categories of workers and also attempted to recommend necessary initiatives to address the plight of the workers. Standard statistical tools like correlation, regression, paired t-test and chi-square test have been used to test the hypotheses pertaining to the present study.

Keywords: *Perception, Job Security, Empirical Research, Organized Leather Industry*

Introduction

The perception of job security has evolved over the years. From the concept of stability of employment (Herzberg, 1968; Mowday et al., 1979), it has been interpreted as organizational commitment, loyalty and trust of the workers in the situation of emerging difficulties affecting the current roles (Armstrong and Stassen, 1994; Brockner and Grover, 1998), and security of finding an alternative job in case of current job loss, security against arbitrary employment procedures, safety at work and working conditions, opportunities to gain and retain skills, scope of having a voice in the process of decision making, security of sufficient stable income from the job (Kets de Varies and Balazs, 1997). The leather industry in Kolkata, which is fast growing leather cluster of India, has been blamed by different stake-holders, especially the trade unionists across political lines for avoiding the responsibilities directly affecting the job security of its workforce of its thousands of workers.

Geographical Spread of Leather Cluster of Kolkata

The leather industry of Kolkata is spread across the geographical boundaries of Kolkata as well as the 'Calcutta Leather Complex' situated at Bantala. Majority of the tanneries are located at the newly developed Calcutta Leather Complex. Kasba, Topsia and Tangra are the focal points for the leather goods manufacturing units. Units specializing in manufacturing industrial gloves are primarily located at Beleghata. Footwear units are located at Batanagar, Nungi, Janbazar, Rajabazar and College Street areas. The Chinese manufacturers of leather products, except leather footwear are mainly concentrated in Tangra.

Innumerable household units-cum-retail outlets of footwear can be seen on Bentinck Street, predominantly owned by the Chinese population. The unorganized hubs of leather footwear manufacturing are concentrated in Janbazaar, Rajabazar and College Street, where thousands of micro and small scale units are engaged in such activities (ILPA, 2011). It is also observed that more than 50 percent units in Kolkata leather industry are engaged in footwear business. Leather goods manufacturing is the second largest sub-sector in Kolkata

leather industry as more than 38 percent units including manufacturing cum export units, merchant exporters and fabricating units are engaged here. Apart from the footwear and leather goods manufacturers, other important sub-sectors in the industry include industrial gloves manufacturing units (about 6 percent of the total units) and tanneries (about 5.86 percent). Many of these units still use age old techniques (EDI, 2011).

Market Performance of Leather Industry of Kolkata

Since 2010, the value of export of leather and leather products from Kolkata was INR 2072.62 crores, which was more than 90 percent of the total finished product exported from the eastern region has witnessed steady downfall in the total export from Kolkata over the years. As on 2012, the same has fallen to 78.54 percent, though the overall export of leather and leather products increased by almost 10 percent, i.e., INR 2279.62 crores. However, many of the international brands like Coach, Pierre Cardin, Yves St. Laurent, Marks and Spencer, Geoffrey Beene, Harrods etc.

still depend on Kolkata leather industry to source their supplies from Kolkata directly or indirectly (EDI, 2013). As a domestic supplier, Kolkata is a major supplier of finished leather for the footwear manufacturing industry of Agra and Kanpur for last fifty years. Kolkata also meets about 70-80 percent of the domestic demand of wallets, purses, ladies' handbags, travel bags, leather belts, caps and ties, diary, cheque book covers, desktop materials, camera covers, hand crafted leather items etc. (EDI, 2013).

Employment Issues in Kolkata Leather Industry

Except few major leather and leather products manufacturing units, majority of the units across different sub-sectors of the Kolkata leather cluster, working conditions are not only appalling, but also there is scant regard for workers' safety or health. The traditional leather units are dominated by Hindu dalits and Muslim migrant workers from neighbouring states of Bihar, Jharkhand and Eastern Uttar Pradesh, yet the entry of people from different backgrounds are increasingly visible in the sector (Commissioner of Labour, Government of West Bengal, 2010). The report found that about 70 percent of the workers engaged in the industry are traditionally employed as non-regular workers. Most of them join the industry as the workers with very low or no skill and they acquire required skills simply by observation at the initial stages. These non-regular workers are deprived of most of the facilities recommended by different labour regulations like EPF, Gratuity and ESI schemes. Very often these low skilled new entrants to the sector acquire skill under the guidance of their relatives or somebody from their place of origin, also employed as workers in a leather unit in Kolkata.(ILPA,2011). They are the people, who actually bring these very low cost workers from their villages to enable them to learn the required skills at the place of their employment. Initially, these newly inducted workers are either paid very low or no wage and are only provided with the opportunity to learn new skills and then these people are either given jobs at the same place or they themselves search employment in other units. However, the labour market is flexible and intensely competitive and mostly paid on the time rate basis.

According to the recent government order passed by the office of the Labour Commissioner, Government of West Bengal (Order no.1256/98/2013/LC/WB) dated 16th July 2011, with effect from 1/02/2013, the daily minimum wage rate for unskilled /low skilled workers in tanneries and leather manufacturing units located in the areas administered by KMDA should be Rs. 208 and Rs. 221 for semi-skilled workers. However, in reality very few units comprising of

tanneries, fabricators and manufacturers comply with these minimum wage rates (Bose and Mudgal, 2012). It has also been observed that in most of the manufacturing units, especially the footwear and accessories manufacturing units, the work is based on almost as and when required basis. During peak season the workers are required to work for 16 to 18 hours per day and during slack season the daily working hour comes down to 6 to 7 hours per day, causing loss of employment to many low skilled or unskilled workers, those have been inducted to the workforce during peak hours. In tanneries and fabricating units the machine operators and high skilled workers are offered regular employment whereas high skilled workers, eespecially the solemen and uppermen in leather product manufacturing units are kept as fixed but temporary workers. Though the practice of child labour and the women workers are rampant in many small home based leather product manufacturing units, it has been growingly restricted in organized units due to self regulation by the units themselves under the surveillance of respective industry bodies (ILPA, 2011).

Review of Literature

In the present study, job security has been discussed under individual experience of job security and measurement of job security. The explanation on individual experience of job security has evolved over the years from a very simplistic approach towards the understanding of extent of stability of employment at the workplace (Herzberg, 1968; Mowday et al., 1979) to a different dimension of organizational commitment, loyalty and trust of the workers in the situation of emerging difficulties affecting the current roles (Armstrong and Stassen, 1994; Brockner and Grover, 1998). Another dimension of more comprehensive research on job security (Kets de Varies and Balazs, 1997) has however focused on more diverse forms of socio-economic security (security in the possession of a specific post or career path), labour market security (security of finding an alternative job in case of current job loss), employment security (security against arbitrary employment procedures), work security (safety at work and working conditions), skill reproduction security (opportunities to gain and retain skills), representation security (scope of having a voice in the process of decision making) and finally the income security (security of sufficient stable income from the job). In 1999, ILO further added occupational security, which indicates the ability to follow a specific chosen profession, to these dimensions.

Measurement of job security has been another major area of contemporary research. The subjective and objective techniques of job security have been the earliest measurement approaches. In the research domain however, the subjective experience on the level of job-security has been given more prominence than the objective measurements. Burke (1991); Armstrong and Stassen (1994) and Barling and Kelloway (1996) have used single-item based measurement criteria (direct queries) to measure the level of job security of the employees. Scholars like DeWitte (1999) and Mohr (2000) have focused on probability than negativity in preparing their queries. That means the job-security can be subjectively measured based on individualistic experiences, which may arise in between the objective situation and subjective characteristics. They have used quantitative oriented scales in measuring the job-security in the respective engagements. Instead of universal standard, multi-dimensional patterns of queries have been included covering a wide spectrum of issues to measure individual's perception of job-security. Borg and Elizur (1992) have classified the measurement of job-security into cognitive job-security and affective job security. According to them cognitive job security measurements focus on likelihood of the loss of the job itself and is measured by the queries like likelihood of termination, likelihood

focuses on the impact or effect of job-loss on individual in terms of abolition of different characteristics like financial benefits , promotional opportunities, career improvement chances etc. . Hellgren et al. (1999) made a distinction between quantitative job insecurity (means worries about losing the job itself) and qualitative job insecurity (means worries about losing important job features). Probst and Tahira (2003) have developed and validated two scales measuring job security: the Job Security Index (JSI) and Job Security Satisfaction (JSS) scale. JSI has been designed to assess an individual's cognitive appraisal of the future of his or her job with respect to the perceived level of stability and continuance of that job and has been developed on the basis of selected phrases of previous research on the discipline.

The second measure, the Job Security Satisfaction (JSS) scale, has been designed to assess satisfaction with job security. The JSS consists of a series of adjectives or short phrases describing the various evaluative responses one might have to a perceived level of job security. Patrice and Gelinas (2006) have measured the job-security from the approach of quantifying the monetary value of job-security. Clark and Postel (2009) in their research have constructed indicators of the perception of job-security security based on the effectiveness of employment. After going through the available literatures on Kolkata leather industry, no study on the job security has been found by the researcher. Hence, it can be considered as the serious research gap relating to the present study.

Research Objectives

From the above research gap, the current research sets the following objectives:

i) To analyse the level of job security in the organized leather industry in Kolkata.

ii) To measure the magnitude of difference in job security perception of workers.

improve the employment and productivity issues in the organized leather industry in Kolkata.

Research Methodology

Present study has adopted 'quantitative research approach' and 'descriptive research design' as there are many respondents and information from each respondent has been obtained only once. In the process of present research, five major aspects of the investigation have been identified, which encompass defining the sampling design, data collection, data analysis and interpretation of results. The sampling design of the Present study comprises of two stages, defining the population and designing the sampling frame.

The population of the Present study has been defined as the entire workforce comprising of both the regular and non-regular workers, except the managerial or executive employees of the 'Calcutta Leather Complex'. The exclusion of the supervisory staffs from the sample has also been done on the basis of their regular nature of job. Hence, the present study has considered only those respondents as the workers, who have identified themselves as workers.

Calcutta Leather Complex' has been considered for the present research as only units those are registered under different regulatory bodies and comply with different labour regulations have been allowed to set up their facilities there. At the time of research survey, this Complex had total forty functional units that consisted of sixteen tanneries, nine fabricating units, ten manufacturing units and five units engaged in other leather related activities. However, the Complex has plans to increase the total numbers of functional units over 300 by the end of 2020 (EDI, 2011). 'Bata India Limited' located at Bata Nagar near Kolkata has not considered for the present study as it is presently working towards closing down its operation.

outsourcing of manufacturing activities at a very large scale, which also includes manufacturing units of 'Calcutta Leather Complex'. (ILPA, 2011).The sample was drawn from the four types leather units located at 'Calcutta Leather Complex' like tanneries, fabricating units, manufacturing units and the units engaged in other activities exclusively related to leather industry. The tanneries are involved in tanning and processing of raw skins and hides and produce the finished leather, which are further cut and processed in the fabricating units for supplying to specific types of product making in manufacturing units. Some of the fabricating units are also involved in making the parts of different leather items, which are being supplied to the finished leather product manufacturing units within and outside the Complex. The manufacturing units mainly produce the leather goods and items, especially the garments and bags. Very few manufacturing units are, however, engaged in making of leather shoes. Remaining units termed as 'other types of units' are not engaged in any of the activities as mentioned above, but are engaged in colouring of finished leather, product designing and training activities. By a rough estimate, the population of plant level workers in the organized units at the 'Calcutta Leather Complex' is around 12000 (EDI, 2011) and most of them are the members of different unions. In view of the relatively large, but well defined, target population comprising of all the workers of 'Calcutta Leather Complex', the probability sampling technique has been adopted through random sampling method. The 'simple random sampling without replacement' technique has been adopted in the Present research.

It is to be stated here that responses from 416 workers were initially collected and 400 responses were finally found to be usable for statistical analysis. Moreover, the sample size of 400 workers from the population of approximately 12000 workers from the 'Calcutta Leather Complex' is found to be statistically justified since calculated through the mathematical formulae of SS = Z2 * (p) * (1-p) / c 2), where Z = confidence level = 95%, p = percentage of picking a choice (= 0.5 used for sample size needed) and c= Confidence interval = 5 (www.survey system.org).

Hypotheses Formulation

Different hypotheses have been framed at different stages of the present research. Based on the available literature on Kolkata leather industry, it has been found that four types of leather units are functional in the 'Calcutta Leather Complex', such as tanneries, fabricating units, leather product manufacturing units and polishing as well as finishing units. At a later stage of research, while interacting with the trade union leaders and the officials of Indian Leather Product Association, researcher came to know about the nature of employment, origin of workers etc. During the pre-testing stage, the age wise divide of the workers of the complex also came to researcher's knowledge. Accordingly the following hypotheses have been prepared for the furtherance of the study.

1. Level of job security is significantly different among the workers of different types of leather units.
2. Level of job security significantly differs across the different age groups of workers.
3. Level of job security significantly differs among the local and migrant workers.

Designing and Testing of Questionnaire

The present study has adopted the technique of data collection through a especially developed close ended structured questionnaire administered through face-to-face interaction with the workers from the targeted leather units. The research survey questionnaire has been prepared by combining the nominal scale and the itemized rating scale,

the Likert scale has been used to get the responses on different attitudinal and behaviourial dimensions. The rationale of adopting Likert scale in measuring the attitudinal and the behaviourial dimensions lies in the nature of queries made in the questionnaire. The respondents have been asked to respond to each of the questions in terms of five degrees of assessment. For example, the responses to the questions on job security have been measured through 5 point Likert scale (1 = not at all …..5 = Very high). Some of the items of on measurement of job security was taken from the research work by Amstrong and Stassen (1994). After the questionnaire was prepared, the Cronbach's Alpha Coefficient value was calculated on the responses received through the same for a small aggregate sample of 57 respondents. The alpha coefficient value showed 0.83 indicating a high level of reliability of the questionnaire. Then the questionnaire was administered for collection of response from 416 workers across 40 leather units located in Calcutta Leather Complex, which was completed during the period of June – September 2013.

Descriptive Statistics of the Respondents:

The present study has finally considered the responses of total number of 400 respondents from four types of leather units. It was found that maximum numbers of respondents are from tanneries (40 percent), followed by manufacturing units (25 percent), fabricating units (22.5 percent) and least from other units. Employment nature wise, It was further observed that very high majority (62 percent) of respondents are employed as non-regular workers in comparison to the regular workers (38 percent), whereas, origin wise distribution shows the majority of the respondents are migrant workers (71percent) in comparison to only 29 percent local workers. Age group wise distribution shows that maximum number of respondents fall in the age group of 31-40 years (71percent). Respondents from the age group of 41-50 years comprises only 25 percent of the sample and only 4 percent respondents fall in the age group of 21-30 years. Cross tabulation on respondents' employment engagement pattern and types of leather units shows that most of respondents from the regular (41.7 percent) and non-regular (38.9 percent) workers categories are employed in tanneries. It was also found that 60 percent respondents from tanneries, 65.55 percent respondents from fabricating units, 58 percent from manufacturing units and 68 percent from other units are non regular workers. Among the respondents, 78. 63 percent of local workers were found to be regular workers, whereas 78.44 percent migrant workers are found to be non-regular workers. When it is between age group and the nature of employment, it was found that all the respondents from the age group of 21-30 years are employed as regular workers, whereas, 39.4 percent respondents from the age group of 31-40 percent and 25.74 percent respondents from the age group of 41-50 years are regular workers.

Cross tabulation on Origin of the respondents and types of leather units shows that whereas most of the local workers are employed in tanneries (50.4 percent), highest majority of respondents from manufacturing units are migrant workers (77 percent). Leather unit wise distribution of different age groups shows that all the workers from the age group of 21-30 years are employed in tanneries, whereas majority of the migrant workers fall in the age group of 41-50 years (77.3 percent). Finally, it was found that 80.3 percent local workers fall in the age group of 31-40years, whereas majority of the migrant workers (67.49 percent) are also from the same age group.

Survey Findings:

Following trends have been observed from the response patterns on each of the

questions on measurement of job security perception in the questionnaire.

In the response patterns on the question of the level of security in the present job a moderate trend is visible. The overall job security perception is found to be moderate (mean 2.53) with a moderate level of uniformity of opinion (Std. Dev.0.49). On the issue of overall job security environment in the industry a moderate perception (mean 2.55) with a moderate difference in opinion (Std. Dev.0.50) has been found in the overall response pattern.

On the issue of immediate possibility of getting another job in the industry in case of sudden loss of Job a moderate (mean 2.64) trend is observed in the overall opinion of the workers. They are also found to be moderately unanimous (Std. Dev. 0.48) on their observations. Responses on the level of family dependence on the income of the responding workers have shown that the families of the workers are highly dependent (mean 4.31) on the income of the workers from the organized leather industry in Kolkata. They are also moderately divided (Std. Dev.0. 46) in their opinion on the issue. The last issue addressed on the job security perception has been the possibility of getting at least same wage and financial benefits in a new job in industry after suddenly loosing the present job. The overall response pattern shows a moderate trend (mean 2.51) with a moderately divided opinion (Std.Dev.0.50).

Hypothesis Testing:

Hypothesis 1: Level of job security is significantly different among the workers of different types of leather units.

Chi-square test has been conducted on the responses received through the issue no. 1 of Section I (job security in present employment job) and their present place of employment of the respondents. The calculated chi square value (80.017) is found greater than the tabulated value workers across different types of leather units in Kolkata. This is further supported as the Pearson Chi-square value of 80.017 (df = 3, N= 400), $p< 0.05$ is found to be significant at 1 degree of freedom. From the above, it can be concluded that Level of job security is significantly different among the workers of different types of leather units. Hence, the hypothesis is accepted.

Hypothesis 2: Level of job security significantly differs across the different age groups of workers.

To test the hypothesis, Chi-square test has been conducted on the responses received through the issue no.1 of Section I (level of job security in present job) and the age of the respondents. On this issue of job security level across different age groups, the calculated chi square value (6.902) is found greater than the tabulated value (5.991). This shows a significant difference in the level of job security perception among the workers of different age groups in the organized leather industry in Kolkata. This is further justified as the Pearson Chi-square value of 6.902 (df = 2, N= 400), $p< 0.05$ is found to be significant at 2 degree of freedom. Hence, the Hypothesis is accepted.

Hypothesis 3: Level of job security significantly differs among the local and migrant workers.

Chi-square test has been conducted on the basis of the origin of the workers and the question 1 (level of security in present job) of the structured questionnaire. Since the calculated value of chi square (60.871) is found to be greater than the tabulated value (3.84), it is understood that significant difference exists between the local and migrant workers about their perception to job security. This is further justified as the Pearson Chi-square value of 60.871 (df = 1, N= 400), $p< 0.05$ is found to be significant at 1 degree of freedom.

significantly higher score in the statement 'Security at the present job' (Serial no.1 of Section I) (P value <0.001 using unpaired t test).

Therefore, local workers are found to be significantly more secured than the migrant workers. Hence, the Hypothesis is accepted.

Key Findings:

The key findings have been derived in line with the research objectives. It is found that on different job security issues, including their perceptions about job security to their present jobs, overall job security environment, opportunity to get another job etc. diverse opinions have come up. To be more specific, following key findings have been observed after the analysis of the feedback patterns by the respondents.

- The researcher has not found any common trend of opinion across different job security issues. A low to moderate trend is observed on all the issues, except on the response on the issue of dependence of the family members on the jobs of the respondents. This has found to be the only issue on which the respondents' opinion can be identified as high.

- An overall moderate trend on opinion is also observed on the level of security in their present job. The overall response pattern is also found to be moderately divided. This is further supported from the observation that almost half (53 percent) of the total respondents have considered their present jobs moderately secured.

- The present research also identifies relatively lower job security among the workers employed in the manufacturing units, workers from the highest age group and those have come from other places outside Kolkata. The study found that 71 percent respondents from manufacturing units, 55.4 percent respondents percent of migrant workers are poorly secured in their present jobs.

- On the issue of overall job security environment, the general perception seems to be moderate in the organized leather industry in Kolkata. However, the division of opinion has been found to be moderate on the issue

The study has further observed that the opinion on the issue is almost equally divided between low and moderate perceptions. The relatively much larger numbers of respondents from the regular employment category (72.5 percent) have also expressed moderate opinion than the non-regular workers (37.7 percent) about the overall job security environment. The research shows that in the manufacturing units, environment of job security seems to be worst as 75 percent respondents have perceived the overall job security environment poorly. There seems to be many factors responsible for such an observation. The study further shows that the workers from the age group of 41-50 years feel least secured on this issue. The perception of the migrant workers is also found to be relatively poorer than the local workers.

- Possibility of getting another job in the industry in case of sudden loss of present job has also been evaluated as the part of the study on job security perception. On this issue, a moderate tendency in opinions is observed. Regular workers, workers employed in other units, workers from the youngest age group and the local workers have expressed more optimism on the issue. The study shows that 96% respondents from other units, 63 percent respondents from the age group of 21-30 years and 86.3 percent local workers moderately consider the possibility of getting another job in industry. It is assumed that the increased possibility of getting another job decreases the level of insecurity.

- Issue of family dependence is a significant, but an indirect method to measure the job security perception of an individual. From the overall response

patterns, it is observed that the level of dependence of the families in general is very high. This is however, higher among the regular workers. High to very high dependence has been registered through 5-point Likert scale by more than 80 percent respondents from regular workers category. It was understood from the interaction that most of them do not have alternative or existing parallel sources of income. This may describe higher dependence of their families on their income from the present jobs. It is also noticed that 78.63 percent local workers are regular workers, whereas 78.44 percent migrant workers are non –regular workers and most of these workers have their families left behind at their villages, who manage the cultivation and animal husbandry activities.

- On the issue of possibility of getting same wage and financial benefits in a new job, a moderate trend is visible in the overall response pattern. However, regular workers, workers employed in 'other units', workers from the age group of 31-40 years and the local workers seem to be more positive in their opinions on the issue.

Recommendations:

Based on the above findings, following recommendations have been made.

1. Capacity building should be initiated by all concerned stakeholders in the business to enhance the employability of the large number of workers, hence leading to their income security, rather than job security.

2. Social security, unemployment benefits etc. should be introduced at a broader scale to attract better competent workforce to the industry.

3. As the industry has been historically earning valuable foreign currency and generating large number of employment, it should be put in the overall industrial development plan in a more serious manner to create an atmosphere of growth, opportunity, inclusiveness.

Limitation of Study:

- As the data has been collected through single source self reported questionnaire, therefore, a common method variance may remain a minor problem. Responses of individual survey items may also be somehow influenced by group opinion, though maximum caution has been taken in administering the same.

- Moreover, the study has been restricted to 40 units only and more detailed picture might have been captured by extending the study to a larger number of units.

References

Armstrong, J and Stassen, M.(1994), Coping with Transition: A Study of Layoff Survivors, Journal of Organizational Behavior, Vol.15 (3), pp.23-29

Barling, J. and Kelloway, K. E. (1996), Job Insecurity and Health: The moderating role of workplace control., Review of Stress medicine, Vol.12 (2), pp.123-141

Borg, I. and Elizur, D. (1992), Job Insecurity: Correlates, Moderators and Measurement. International Journal of Manpower, Vol.13, pp13-29

Brockner, J. and Grover, S. L. (1988), Predictors of Survivors Job Involvement Following Layoffs: A field Study, Journal of Applied Psychology, Vol.3 (2), pp.39-45

Burke, R. J. (1991), Job Insecurity in Stockbrokers, Journal of Managerial Psychology, Vol.5 (1), pp.30-36

Clerk, A. and Postel, V.F. (2009), Economics of Change and Labour, Oxford Economic Papers series, Vol.61(2), pp.1234-55

Commissioner of Labour, Government of West Bengal (2010), Report on Trade Unions of West Bengal.

DeWhite, H.(1999), Job Insecurity and Psychological Well Being: Review of The Literature and Exploration of Some Unresolved Issues, European Journal of Work and Organizational Psychology, Vol.8,pp.187-201

EDI (2011), The Diagnostic Study Report on Kolkata Leather Cluster.

EDI (2013), The Diagnostic Study Report on Kolkata Leather Cluster.

Hellgren, T; Thomson, K and Robind. K (199). Measuring job security, International Journal of Industrial Relations, Vol.67(2), pp.60-78

Herzberg, F.(1968), Work and Nature of Man, Granada, pp.237-240

ILPA (2011), Leather Cluster Report, Kolkata.

Kets de Vries, M.F. and Balazs, K.(1997), The Downside of Downsizing, Human Relations, Vol.50, pp.45-59.

Mohr, J.,(2000), Issues of Measuring Job Security: An Objective or Subjective Orientation, Industrial Relations Journal, Vol.42(3), pp.56-72

Mowday, J., Robinson, J and Kelonson, K (1979), Workforce Expectation and Productivity, Journal of Psychology, Vol. 6(1), pp.78-98

Patrice, J. and Gelinas, K. (2006), Job Security Measurement: the New Way, Compensation and Benefit Review, Vol. 39(1), pp. 23-36

Probst, ,J. and Tahira, M.(2003), Measurement of Job Security: A Psychological Construct, European Journal of Work and Organizational Psychology, Vol.11,pp.108-121

Mowday, J., Robinson, J and Kelonson, K (1979), Workforce Expectation and Productivity, Journal of Psychology, Vol. 6(1), pp.78-98

Patrice, J. and Gelinas, K. (2006), Job Security Measurement: the New Way, Compensation and Benefit Review, Vol. 39(1), pp. 23-36

Probst, ,J. and Tahira, M.(2003), Measurement of Job Security: A Psychological Construct, European Journal of Work and Organizational Psychology, Vol.11,pp.108-121

Dr. Indranil Bose
Lead Faculty, Post Graduate Programme, Business and Management
Westford School of Management
204, BM Towers, Al Nahda, Sharjah, United Arab Emirates
Email id: sentindranil@gmail.com

Mr. Sredharran Sampath
Program Leader, Post Graduate Programme, Business and Management
Westford School of Management
204, BM Towers, Al Nahda, Sharjah, United Arab Emirates
Email id: ssredharran@gmail.com

COMMODITY FUTURES TRADING AND PRICE DISCOVERY IN INDIA: AN EMPIRICAL INVESTIGATION

Ramesh Chander, Mehak Arora

Abstract

Seasonality of agriculture cause higher price volatility at varied point thus makes it a risky enterprise. Commodity futures trading facilitates price discovery and thus reduces volatility in the price of the underlying. In the study, we have made an endeavor to scrutinize price discovery relationship intended for four agricultural commodities with specific reference to cereals and pulses. The findings reported in this paper mainly intended to draw attention of thought leaders for policy making and the traders (hedgers) for devising trading strategies. The conduct of research in this paper is designed in such manner as to identify whether futures prices helps to discover spot prices or vice-versa. The consequent results of the study are based on Augmented Dickey Fuller test, Granger Causality test, Johansen cointegration test and VECM. The outcome of the study conclusively indicates that futures prices serve the price discovery function efficiently for spot prices.

Keywords: *Perception, Price discovery, Agri-Commodity, NCDEX, Granger Causality, VECM.*

Introduction

Commodity derivative is a very constructive tool in order to achieve financial revelation. In derivative market different instruments are traded which consists of financial instruments for instance futures and forward contracts, options and swaps and physical instruments such as inventories. The most powerful and important instrument among them is futures contract. A futures contract is a type of a contract in which particular quantity of precise commodity is delivered at pre decided future date at a specified price at the particular time of delivery. The main characteristic of futures contracts is that deals of buying and selling are done only on well organized exchanges. In addition to this, futures contract has higher liquidity than forward contracts. Apart from these, a futures contract is 'marked to market', which means that at the closing of each trading day all the funds are properly settled and the necessary transfers are done.

Futures market performs some prime economic functions like it helps in price discovery, hedging of risk, stabilization of prices. Futures market also increases effectiveness, makes transaction cost lower, persuades healthy competition. Since, futures market performs these economic functions so the prices are revised in the futures market first,which therefore provide the updated information to financiers and works as price discovery vehicle for them. Before discussing further we must understand the relationship between commodity futures trading and price discovery.

Commodity futures trading and price discovery

The two primary goals of commodity futures trading are price discovery and hedging of risk. Both of the goals are considerably advantageous for the farmers. On the basis of these two the farmers can have coherent judgment about harvesting and selling of the generated products so that they can boost their farm earnings. These objectives also help to get better yield for the farmers by generating inducements and funds for venture in agricultural business. Commodity futures trading reduce seasonal price volatility at the time of harvest which leads to better price realization for the farmer. As the

information about the future price trends is available in advance with the help of futures market which helps farmers to plan their storage as well as sale of their output.

As the price discovery function is performed by commodity futures market thus helps to organize economic goings-on well which leadsrapid development of futures market. Furthermore, all of the markets for all commodities do not operate concurrently. So it becomes very essential for hedgers and portfolio managers to be aware of the flow of information across the markets. On this basis, they can build up strategies for hedging and formulate policy for investment across the market. In two markets a lead lag affiliation between prices changes may be generated because of some institutional aspects like liquidity, transaction costs etc. Only the market which offer better liquidity and has low cost of trading is expected to play a significant function in price discovery.

But how well this role is executed by futures market, its degree can better be calculated with the help of sequential relation between futures price and spot price. If the new and innovative information is revealed in futures price earlier than spot price it means futures price show the way to spot price or we can say lead it. This also indicates that futures market performs the function of price discovery. So, it is important to discuss the relationship between futures and spot market in order to know the extent that how well futures market discovers the price in spot markets.

Relationship between futures and spot markets

The relationship of futures and spot price is useful to describe the implication of price discovery. Futures price performs the price discovery function or we can say lead the spot price if the information existing in the market is acknowledged by futures prices first. The market in which all the accessible information is completely used to ascertain market price, is known as efficient market. In this market futures price should move with its consequent spot price from one market to another with no lead or lag in movement of prices to the influx of new information.

When the same commodity is represented by futures and spot markets then the price of both the markets shows the same reaction to the same information. But there may exist a lead lag association between two markets if one of the markets receives information earlier rather than the other. One market willrespond more rapidly to the influx of new information rather than the other because of short sale, lower transaction cost etc. The lead lag nature of futures and spot market illustrates how rapid one market integrates information in comparison to the other market. These characteristics specify the competence of the implementation and the extent of assimilation between the two markets.

In futures market traders perform more rapidly and at lesser cost rather than spot market. That is the main reason of presence of lead lag association between two markets. Speculators and hedgers have a preference to hold a futures contract for the reason that the position of futures can be counterbalanced without any difficulty. That is why both hedgers and speculators will act in response to information reflected in futures market and they make transactions in futures rather than spot markets. As a result, futures price tends to lead spot price.

Review of Literature

Various studies have revealed pragmatically that futures trading discover spot price and the findings of some important studies are as below:

Garbade and Silber (1983) discovered price discovery mechanism of storable

agricultural commodities. They used daily prices of spot and futures market in their study to accomplish the purpose. On the basis of results of the study they concluded that futures market governs the spot market. Koontz et al. (1990) examined price discovery methodology for live stock market. They made an endeavor to ascertain the interrelationship among the spot and futures market in agricultural sector, and found that futures markets performs a valuable role than the spot market in price discovery process. Silvapulle and Moosa (1999) examined price discovery process of crude oil and concluded that futures market reveals price earlier than spot market. They discovered that futures price provide as an effectual tool of price discovery function and control the spot prices. They used linear and non linear casuality test inorder to observe the lead lag relation between futures and spot prices of crude oil. The rationale behind this lead lag relationship is that futures market is not as much costly as spot markets since futures market has a low transaction cost and the high degree to achieve leverage. Yang and Leatham (1999) investigated the price discovery methodology for three wheat futures markets of US. Their study found futures market is competent to incorporate innovative information and inventive technology than spot markets. They reported in their study that the futures market of wheat attain long-run price stability across all the three markets but no stability is found in prices of spot market of wheat. They also explained that asset storability does not impinge on the efficacy of the market's price discovery purpose and the effectiveness of futures markets in predicting future cash prices.

Thomas and Karande (2001) analyzed the price discovery mechanism in futures market of castor seed at regional exchanges of Mumbai and Ahmedabad. In their study they found Mumbai and Ahmedabad market do not respond in the identical manner way to identical piece of information. In Mumbai market, futures prices rule the spot prices. On the other hand, in Ahmedabad market there was no lead-lag association between both of the prices.

Yang et al. (2001) examined futures markets for storable and non storable commodities for price discovery. They found that price discovery function is not exaggerated by asset storability, although futures markets predictions may be biased by asset storability. They found that futures market performs a leading role in both of the commodities. Moosa (2002) analyzed price discovery mechanism for crude oil. With the intention to accomplish the purpose of the study he did reassessment of Garbade and Silber (1983) model. He experienced that futures market is capable to perform price discovery function at extent of only sixty percent in case of crude oil.

Kumar and Sunil (2004) concluded in their study that the Indian agricultural commodities futures market is inefficient to discoverprice for spot market. Zhong et al. (2004) examined price discovery process of futures market of Mexican stock index. They took daily observations from 15 April 1999 to 24 July 2002 for their study. Their practical verification concluded that index of futures price serves as a powerful vehicle for price discovery process. Zapata, Fortenbery and Armstrong (2005) explored the relationship between eleven futures prices which were traded in New York and the World spot prices for exported sugar. Their study concluded that futures market for sugar serves as an effective vehicle for cash market. The study revealed that causality exists from future price to spot price but not vice-versa. The study also found that there exists cointegration between futures and cash prices of sugar. This also suggests that future contract of sugar reduces market price risk on the whole which cash market participants face when sale is done at world price.

Karande (2006) examined the price discovery methodology for futures market of castor seed futures market at Mumbai and Ahmedabad. The price association between castor seed spot and futures market is analyzed with the help of cointegration technique. They concluded that the castor seed futures market at Mumbai and Ahmedabad performs a foremost role in price discovery and castor futures prices go ahead the spot prices. They also showed that spot and futures markets at Mumbai and Ahmedabad are generally cointegrated. The flow of information is from futures to spot market at both places in most of the cases and there exists casuality only in futures market to spot market. Fu and Qing (2006) examined the price discovery technique of futures and spot markets in china and establish a long-standing balanced affiliation which exists between two markets. There is also bidirectional flow of information in both of the markets there. Their study showed that futures market acts as a useful tool of price discovery.

Roy (2008) analyzed 32 futures contracts of wheat in India. He found in his study that futures market of wheat is finely associated with spot markets in India. His study found that there is casuality in both directions in the selected contracts during the study period.that there is casuality in both directions in the selected contracts during the study period. As well as, Roy also dogged that the futures market of wheat is proficient in affecting the physical market prices of wheat. Rather than this, Ghosh (2010) found entirely diverse results. He found that futures market is not so well-organized in affecting the physical market prices of wheat. He found no switch over of information between futures and cash markets. Even though, Roy (2008) indicated that market competency is not entirely replicated and attained in all markets of wheat, particularly in intra-state market organization, his results are contradictory in intra-state and inter-state markets. He found that both the markets are cointegrated only in the short period not in long period because of imperfections widespread in the markets are poor hauling, higher operating costs and insufficient storage amenities. Ge et al. (2008) investigated the interaction between Chinese cotton markets and the US market. They used granger casuality test to know the relationship between the two markets. Their study found the cointegration in cotton futures prices of both the countries and bidirectional granger casuality is also found between these two futures market. There is also well-organized sharing of price transmissions in these two markets.

Dash, Andrews (2010) examined Indian commodity market performance and causality effects between futures and spot prices. They used a sample comprising of twenty-one commodities which were vigorously traded on NCDEX during the period of Jan 2005 - Apr. 2007 and found that the pattern is pretty diverse for dissimilar commodities. Furthermore, Srinivasan (2012) studied the price discovery procedure of Indian commodity markets traded at Multi Commodity Exchange (MCX). The experimental outcome of his study showed that the commodity spot markets serves a foremost role than futures market and acts as successful price discovery tool.

There are dissimilar views of different authors about the price discovery function executed by spot or futures markets.
In this paper we have made an effort to analyze price discovery mechanism in commodities market of India. The study endeavor to concentrate on the following question: Do futures prices serve a price discovery function for spot prices?

In this study we scrutinize the case for India i.e., the futures market efficiently serve the price discovery role in case of agricultural commodities such as Chana Barley, Maize and Wheat.

Objectives of study

To know the impact of commodity future trading on price discovery of commodity spot prices.

To know the linkage between current spot and future prices.

Data and methodology

The sample commodities for this study comprise of four agricultural commodities i.e. Chana, Barley, Maize and Wheat. These commodities are traded on National Commodity Derivative Exchange of India, Mumbai. The time period chosen for the study is January 2011 to December 2014. The data consists of daily prices of spot and futures. We use closing spot prices and near month futures prices of the selected commodities. The sample used in the study is the agricultural commodities comprising of Pulses and Cereals. The rationale of this paper is to study whether future prices helps to discover spot prices. The data to achieve the purpose is derived from national commodity derivative exchange NCDEX.

Table: 1 Stationarity Test for Sample Commodities

Barley spot prices	Level	ADF critical values	ADF test statistics	PP critical values	PP test statistics
	1% Level	-3.436261***	-3.657214	-3.436255***	-3.492053
	5% level	-2.864038**		-2.864036**	
	10% level	-2.568152*		-2.568150*	
Barley future prices	1% Level	-3.436290***	-5.106661	-3.436255***	-23.20827
	5% level	-2.864051**		-2.864036**	
	10% level	-2.568158*		-2.568150*	
Chana spot prices		ADF critical values	ADF test statistics	PP critical values	PP test statistics
	1% Level	-3.436138	-1.339908	-3.436132	-1.257893
	5% level	-2.863984		-2.863981	
	10% level	-2.568122		-2.568121	
Chana future prices	1% Level	-3.436160	-1.853896	-3.436132	-3.259635
	5% level	-2.863994		-2.863981**	
	10% level	-2.568128		-2.568121*	
Maize spot prices		ADF critical values	ADF test statistics	PP critical values	PP test statistics
	1% Level	-3.438433	-1.623704	-3.438433	-2.072637
	5% level	-2.864998		-2.864998	
	10% level	-2.568666		-2.568666	
Maize future prices	1% Level	-3.438433	-2.642488	-3.438433	-2.568207
	5% level	-2.864998		-2.864998	
	10% level	-2.568666*		-2.568666	
Wheat spot prices		ADF critical values	ADF test statistics	PP critical values	PP test statistics
	1% Level	-3.437175	-1.349135	-3.437167	-1.382532
	5% level	-2.864442		-2.864439	
	10% level	-2.568368		-2.568366	
Wheat future prices	1% Level	-3.437198***	-9.493418	-3.437167***	-31.24471

First of all, we test whether the futures and spot price series are cointegrated but prior to test cointegration it is crucial to test the stationarity level of price series.

The data is collected with regard to near month future price and spot price. The price taken to carry out the study is the closing price of the day or we can say the last price. We execute required test to ascertain in detail price discovery mechanism.

We use Augmented Dickey Fuller (ADF) 1981 test and Phillips and Perron (1988) test to analyze the stationarity level of the time series. The null hypothesis of ADF and PP test assumes that time series are non stationary. After scrutinizing stationarity level of price series, cointegration test and VECM is applied on the data collected. At last Granger casuality test is applied on price series.

Stationary test

Augmented Dickey–Fuller test (ADF) is an analysis of stationarity level in time series. When we apply this test on the sample price series a negative number comes out which we call Augmented Dickey–Fuller (ADF) statistic. When the Augmented Dickey–Fuller (ADF) test statistic value is judged against its corresponding critical value and test statistic value comes out less than critical value then we reject the null hypothesis and if test statistic value comes out more than critical value then we can't reject the null hypothesis.

Interpretation

The above table shows the Augmented Dickey Fuller (ADF) 1981 and Phillips and Perron test applied on sample price series. The null hypothesis of ADF test and PP test presupposes that unit root exists in the sample series. In the above table we have done comparison between the test statistics and the relevant critical value at 1%, 5% and 10% level and ***,** and * explains the refusal of null hypothesis means that no unit root exist at 1%, 5% and 10% level of significance.

Cointegration test

After checking stationarity level we use cointegration test. In time series, a price series is supposed to be cointegrated when a linear grouping between the series is motionless but the series themselves are in motion. Cointegration procedure helps to establish the existence of long standing balanced correlation between both prices (spot and future in our case). Influx of new information results in price discovery between spot and the future's market merely for short intervals of time because of cost of communication. As the information is increasingly available and at a low cost in futures market which helps in quicker incorporation of information in the futures market in comparison to spot market. The cointegration between both of the markets is analyzed with cointegration analysis that has numerous benefits.

First, with the help of Cointegration analysis we get to know the extent to which two markets (in our case spot and futures) have moved collectively in the direction of long standing equilibrium. Secondly, cointegration analysis also helps to show the discrepancy which one market has from the other market with the intention to attain long standing equilibrium in the short run.

The cointegrating vector discovers the presence of long standing equilibrium at the same time error correction dynamics illustrates the price discovery procedure which facilitate the markets to reach at equilibrium. The cointegation methodology fundamentally moves on with mobile character of price series and reduces the divergence which occurs from the divergence of long-standing equilibrium. The cointegration of futures and spot price entails existence of causality as a minimum in one direction. Here, we select the best possible lag length according to Akaike information criterion (AIC) and we assume that there is no linear deterministic trend in the sample series.

Table :2 Results of Johansen cointegration test

Indices	No of co-integrating equations (CE)	Lag Length	Max-Eigen Statistic	Trace Statistic	0.05 Critical Value	Prob.**
Barley	r=0	1–4 (in first difference of two series)	108.2309	121.3069	15.49471	0.0001*
	r ≤ 1		13.07596	13.07596	3.841466	0.0003*
Chana	r=0	1–4 (in first difference of two series)	106.0005	107.6423	15.49471	0.0001*
	r ≤ 1		1.641844	1.641844	3.841466	0.2001
Maize	r=0	1–4 (in first difference of two series)	11.25705	18.06705	15.49471	0.0200*
	r ≤ 1		6.809999	6.809999	3.841466	0.0091*
Wheat	r=0	1–4 (in first difference of two series)	190.0503	191.9704	15.49471	0.0001*
	r ≤ 1		1.920119	1.920119	3.841466	0.1658

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the null hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Interpretation

The above table shows the Johansen's cointegration test's output. In the above table Maximal Eigen value and Trace test statistics facilitate to interpret results of Johansen's cointrgration test. Maximum Eigen value and Trace test statistics indicate the existence of one cointegrating vector at five percent significance level between the futures and spot market prices. From these two we can construe whether we can reject null hypothesis at r=0 or we can't rejected null hypothesis at r=1. From the table we can notice that in all cases Maximal Eigen value and Trace Statistic is more than critical value at r=0 which means null hypothesis is rejected.

Taken as a whole, Johansen's test results hold up both the prices futures and spot for all the commodities go ahead in the long period. In addition to this, we can interpret the results with the help of p value. In all the cases p value at r=0 is less than 0.05. Here, in case of all of the sample commodities we reject the null hypothesis. Rejection of null hypothesis means that one cointegration association is present between both prices i.e. spot and futures.

From the outcome of the above table we can infer that futures and spot prices of the selected commodities distribute general long-run information between themselves. The cointegration

quconseences substantiate that on the whole that there exists a price discovery procedure in the commodity market of spot and futures.

The cointegration test explains that if both of the commodity markets are inventive as well as efficient then the commodities in these markets reacts inexplicably towards the information regarding price formation in the short period which means a particular market which is deviating from equilibrium is not dynamic to access the latest information and implement improved know-how but in case of long run both the markets achieve equilibrium because in long run both the markets have ample time to adopt better technology and access the new information.

Vector error correction model

After diagnosing cointegration test, we use vector error correction model. Cointegration test only shows the long run relationship between two markets but this model shows the degree of disequilibrium in spot and futures markets from one period to other which is rectified in the subsequent period.

This model also shows the comparative degree of correction that occurs in both markets in order to achieve stability. The Vector Error Correction Model result shows short run dynamics in the price series as well as the price movements in the spot and futures markets.

The optimal lag length in Vector Error Correction Model (VECM) is selected according to Akaike's Information Criteria. For the entire phase, coefficients of the error correction terms are statistically considerable, in the equations of spot and future markets. This means that if both of the markets try their level best and make corrections to reinstate the equilibrium condition at the stage in the coming period when their price relationship diverges from the long-run coinetgrated equilibrium.

Table: 3 Estimates of Vector Error Correction Model on selected commodities

Commodities	Barley		Chana		Maize		Wheat	
Error correction	ΔST	ΔFT	ΔST	ΔFT	ΔST	ΔFT	ΔST	ΔFT
CointEq1								
Coefficient	-0.0235	0.6031	-0.0220	0.4313	-0.0100	0.0056	0.0011	1.0943
Std. error	(0.0073)	(0.0475)	(0.0102)	(0.0342)	(0.0028)	(0.0042)	0.0014)	(0.0609)
t-statistics	[-3.2059]	[12.6918]	[-2.1496]	[12.581]	[-3.5488]	[1.3367]	[0.7656]	[17.966]
prob.	0.0024	0.0000	0.1654	0.0000	0.0000	0.3091	0.3386	0.0000
D(ST01(-1))								
Coefficient	0.1132	0.2628	0.1349	0.1830	0.0432	0.0760	0.2065	7.8017
Std. error	(0.0308)	(0.1997)	(0.0310)	(0.1040)	(0.0354)	(0.0528)	(0.0330)	(1.3485)
t-statistics	[3.6681]	[1.3160]	[4.3429]	[1.7597]	[1.2207]	[1.4389]	[6.2494]	[5.7854]
prob.	0.0000	0.1129	0.0000	0.1152	0.0000	0.2689	0.0000	0.0000
D(ST01(-2))								
Coefficient	-0.0405	0.3844	-0.0723	0.1284	0.0427	0.0326	0.0736	4.1561
Std. error	(0.0306)	(0.1986)	(0.0303)	(0.1015)	(0.0353)	(0.0526)	(0.0337)	(1.3761)
t-statistics	[-1.3211]	[1.9355]	[-2.3845]	[1.2650]	[1.2091]	[0.6204]	[2.1821]	[3.0200]
prob.	0.0300	0.5713	0.0063	0.2668	0.0000	0.2505	0.1078	0.0067
D(FT02(-1))								
Coefficient	-0.0088	-0.1986	0.0183	-0.0753	0.0434	-0.0509	-0.0065	-0.0549
Std. error	(0.0059)	(0.0383)	(0.0105)	(0.0352)	(0.0242)	(0.0361)	(0.0011)	(0.0459)
t-statistics	[-1.4882]	[-5.1787]	[1.7413]	[-2.1375]	[1.7956]	[-1.4096]	[-5.7984]	[-1.1955]
prob.	0.1451	0.0000	0.0405	0.1692	0.4777	0.7279	0.0000	0.1765
D(FT02(-2))								
Coefficient	-0.0054	-0.1143	-0.0065	-0.1316	0.0512	-0.0938	-0.0035	-0.0177
Std. error	(0.0048)	(0.0311)	(0.0092)	(0.0308)	(0.0242)	(0.0361)	(0.0008)	(0.0336)
t-statistics	[-1.1292]	[-3.6679]	[-0.7119]	[-4.2637]	[2.1166]	[-2.5995]	[-4.2722]	[-0.5269]
prob.	0.3376	0.0000	0.5084	0.0004	0.2795	0.1020	0.0000	0.7849
C								
Coefficient	0.0060	0.0210	-0.0221	0.0122	-0.1835	0.1705	-0.0527	0.7680
Std. error	(0.5593)	(3.6192)	(1.4111)	(4.7237)	(0.5250)	(0.7831)	(0.3720)	(15.177)
t-statistics	[0.0108]	[0.0058]	[-0.0157]	[0.0025]	[-0.3495]	[0.2178]	[-0.1418]	[0.0506]
prob.	0.7930	0.9157	0.7566	0.9298	0.5192	0.6771	0.5298	0.7184

Interpretation

From the above table we can see that in equation of spot market for Barley the error equilibrium coeffecient is 0.1132 which shows that when the standard spot price became too high, it immediately falls back towards future price in order to establish equilibrium. To be precise, the spot price makes corrections in its preceding period's disequilibrium by 11.32%. A similar detail applies to error correction terms of other commodities. The result depicts that there subsist long run affiliation between both prices. Generally, the elements of the vectors stipulate that both markets corrects to the new equilibrium price subsequent to a price divergence. From the above table we can be certain that the future market enjoys the supremacy over the spot market in the light of the fact that the futures market's coefficient are higher in magnitude which entails that future price makes larger amendments to achieve the equilibrium back. The futures market also provides the efficient price discovery. The results divulge that terms of error correction in case of future market in all the commodities/indices is larger in amount rather than spot market. It shows that future price creates higher modifications in order to bring back the equilibrium. Or we can say, future price governs the spot price.

Granger casuality test

Granger Casuality test is a statistical tool in which f-test is used. The f-test helps us to understand the cause and effect affiliation between the two time series. This test facilitates to ascertain whether one time series is supportive in anticipating the other time series or not. Granger causality test is capable to ascertain whether two variables move continuously or contemporaneously. Granger Causality test only depicts the competency of X to predict Y, if we reject Grangers Causality Test it just means that the X could not be used appropriately to anticipate Y.

This test is done with level values of two or more than two variables if the variables of time series are motionless but if the variables of time series are in motion, then the test uses first (or higher) differences to perform. The number of optimal lags of the series is selected in Granger Casuality according to Akaike's Information Criteria.

Granger causality test explicates lead-lag association between prices of futures and spot during the short period. This test also finds out whether one variable is considerably explicated by the other variable or not.

Table: 4 Results of Granger Casuality Test

Null hypothesis	F-Statistic	Prob.
Barley		
Ftprice does not Granger Cause Stprice	4.82325	0.0082*
Stprice does not Granger Cause Ftprice	62.9513	1.E-26*
Chana		
Ftprice does not Granger Cause Stprice	10.3629	3.E-05*
Stprice does not Granger Cause Ftprice	128.398	9.E-51*
Maize		
Ftprice does not Granger Cause Stprice	9.72992	7.E-05*
Stprice does not Granger Cause Ftprice	1.18293	0.3069
Wheat		
Ftprice does not Granger Cause Stprice	48.1130	1.E-20*
Stprice does not Granger Cause Ftprice	86.2484	5.E-35*

* shows rejection of null hypothesis.

Interpretation

The above table shows the results of Granger Casuality test. We can understand the results of Granger Casuality output with the help of p value. We reject the null hypothesis if the p value < 5% level of significance and accept the alternative hypothesis but if p value > 5% than we can't reject the null hypothesis. The assumption of null hypothesis is that no casuality exists between spot and futures prices or we can say futures and spot prices does not granger cause each other.

From the above table we can see that in case of Barley, Chana, Wheat we reject the null hypothesis in both cases because here the p-value is less than 5%. So, we can interpret that there is casual relationship between spot and future prices in both directions in case of these three commodities.

Futures and spot prices granger cause each other or we can say both prices have significant impact on each other. On the other hand, in case of Maize we fail to reject the null hypothesis that no casuality exists from spot to futures price because p value is more than 0.05.

Conclusions

In this study we select agricultural commodities. The time period of the study is from Jan 2011-Dec 2014. We find the non stationary nature of that spot and futures price of all sample commodities. In case of all commodities there exists long run equilibrium correlation between and spot and futures prices. As well as the spot and futures prices of these commodities share widespread long-standing information. The results of our cointegration test authenticate that on the whole there is a price discovery process in Indian spot and future commodity markets.

The outcomes of Granger causality test reveals that there exists granger lead lad affiliation in both directions between spot and futures in case of Barley, Chana and Wheat and null hypothesis that no casual association exists from spot price to future price is accepted in case of Maize only. The outcomes of this paper primarily have implication for hedgers and policy makers the most because the findings of our study will assist them to have an improved understanding about the role which futures market play in disseminating the information. On the whole, the price discovery outcome authenticates that spot price is governed by futures price and futures prices execute price discovery function exceptionally well. Hence the proposition that futures price is helpful to discover spot price emerge to have worth in the present perspective.

References

Darrat, A. F., & Rahman, S. (1995). Has futures trading activity caused stock price volatility? Journal of Futures Markets, 15: 537–557

Dash M., Andrews S.B. (2010). A Study on Market Behavior and Price Discovery in Indian Commodity Markets. Retrieved January 16, 2015 from http://ssrn.com/abstract=1722770

Dickey, D., Fuller, W. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica, 49: 1057–1072

Fu, L.Q. and Qing, Z.J. (2006). Price discovery and volatility spillovers: Evidence from Chinese spot-futures markets.

Garbade, K.D., and Silber, W.L. (1983). Dominant satellite relationship between live cattle cash and futures markets. The Journal of Futures Markets, 10(2): 123-136

Ge, Y., Wang, H.H. and Ahn, S.K. (2008). Implication of cotton price behaviour on market integration. Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management, St. Louis, 1–19. Retrieved January 5, 2015 from http://www.farmdoc.uiuc.edu/nccc134

Geweke, J. (1982). Measurement of linear dependence and feedback between multiple time series. Journal of the American Statistical Association, 77: 304-324

Ghosh, Nilanjan, (2010a). Role of Thin Commodity Futures Markets in Physical Market Price Making: An Analysis of Wheat Futures in India in the Post-Ban Era. Takshashila Academia of Economic Research (TAER), Working Paper No.6, 1-16

Johansen, S.J., (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vectors auto regression models. Econometrica, 59: 1551-1580

Karande K., (2006). A Study of Castor Seed Futures Market in India. Indira Gandhi Institute
of Development Research, Mumbai, Ph.D. Thesis. Retrieved December 15, 2014 from http://ssrn.com/abstract=983342 as on 2015-01-16

Kumar, S. and Sunil, B., (2004). Price discovery and market efficiency: evidence from agricultural future commodities. South Asian Journal of Management, 11(2) April-June 2004.

Koontz, S.R., P. Gracica and Hudson, M.A., (1990). Estimation and hypothesis testing of cointegration vectors in Gaussian Vector Autoregressive Models. Econometrica, 59: 1551-1580.

Moosa, I.A., (2002, February). Price discovery and risk transfer in the crude oil futures markets: some structural time series evidence. Benna Monte del Paschi de Sienna Spa, Blackwell Publishers 31(1): 155–165

Phillips, P.C.B., Perron, P., (1988). Testing for a unit root in time series regressions. Biometrica, 75: 335–346

Roy, A., (2008). Dynamics of Spot and Future Markets in Indian Wheat Market: Issues and Implications. Indian Institute of Management, Ahmedabad. Retrieved January 16, 2015 from http://ssrn.com/abstract=1178762

Srinivasan, P., (2012). Price Discovery and Volatility Spillovers in Indian Spot – Futures Commodity Market. The IUP Journal of Behavioral Finance, 9: 70-85

Thomas, S and Karande, K., (2001). Price discovery across multiple spot and futures markets. IGIDR, Mumbai. Retrieved January 16, 2015 from http//www.igidr.ac.in

Yang, J., & Leatham, D. J., (1999). Price discovery in wheat futures markets. Journal of Agricultural and Applied

Yang, J., & Leatham, D. J. (2001). Asset Storability and Price Discovery in Commodity Futures Markets: A New Look. The Journal of Futures Markets, 21(3): 279–300

Zhong, M., Darrat, A.F., and Otero, R.,(2004). Price discovery and volatility spillovers in index futures markets: some evidence from Mexico. Journal of Banking and Finance, 28: 3037-3054

Zapata, H., Fortenbery, T.R. and Armstrong, D., (2005). Price Discovery in the World Sugar Futures and Cash Markets: Implications for the Dominican Republic.s Staff Paper No. 469, Agricultural and Applied Economics, University of Wisconsin, Madison. Retrieved January 10, 2015 from https://www.aae.wisc.edu/pubs/sps/pdf/stpap469.pdf

Dr. Ramesh Chander
Professor
University School of Management
Kurukshetra University, Kurukshetra
Haryana – 136119 India
Email: dalal.kuk@gmail.com

Ms. Mehak Arora
Research Scholar
University School of Management
Kurukshetra University, Kurukshetra
Haryana -136119 India
Email:mehakarorakuk@gmail.com

EXCHANGE RATE DETERMINATION AND OUT OF SAMPLE FORECASTING: COINTEGRATION ANALYSIS

Hafsa Hina, Abdul Qayyum

Abstract

Forecasting the nominal exchange rate has been one of the most difficult exercises in economics. This study employs the Frankel (1979) monetary model of exchange rate to examine the long run behavior of Pakistan rupee per unit of US dollar over the period 1982:Q1 to 2014:Q2. Johansen and Juselious (1990, 1992) likelihood ratio test indicates one long-run cointegrating vector among the fundamentals. Cointegrating vector is uniquely identified as Dornbusch, (1976) monetary model by imposing plausible economic restrictions. Finally, the short-run dynamic error correction model is estimated on the bases of identified cointegrated vector. Out of sample forecasting analysis of parsimonious short run dynamic error correction model is able to beat the naïve random walk model on the basis of root mean square error, Theil's U coefficient and Diebold and Mariano (1995) test statistics.

Keywords: *Exchange rate determination; Unit root; Cointegration; Error correction model; Forecasting; Random walk model*

Introduction

Exchange rate modeling and forecasting is important for policy making. It assesses the benefits and risks attached to the international business environment. Exchange rate is influenced by many economic, political and psychological factors. Forecasting exchange rates, therefore, seems to be a difficult task. Researchers have broadly developed two approaches to forecast exchange rate. First approach takes the fundamental economic variables that determine exchange rates and based on structural models such as traditional flow model and asset models: monetary and portfolio balance models . The other is technical approach which is based on extrapolation of past trends, commonly known as random walk model. Empirical support for these approaches has been rather mixed. For example, Johnston and Sun (1997), MacDonald (1997), Hwang (2001), Cheung et al. (2002), Anaraki (2007), Khalid (2007), Korap (2008) and Abbas et al. (2011) among others believes the predicting ability of the structural models of exchange rate. On the other hand the promoters of random walk model argued that exchange rate is a random walk phenomenon. It efficiently analyzes the exchange rate fluctuations and provides better future forecast such as Rashid (2006) and Malik (2011).

Now the question is why structural models of exchange rate determination cannot forecast much of the variation in exchange rates as compare to random walk models. Meese and Rogoff (1983) and Najand and Bond (2000) suggested that the performance of structural models is disturbed by instable parameters which is due to the existence of outliers in the series caused by internal and external shocks to economy.

It is, therefore, necessary to control the outliers in order to get better forecast (Balke and Famby, 1994 and Dijk, et al.1999).

The aim of this paper is to compare the forecasting ability of exchange rate monetary model with random walk model by taking the currency of Pakistan rupee against US dollar. Further to improve the performance of fundamental approach this paper will also consider the intervention dummies to capture the internal and external shocks to Pakistan

economy and effect of multiple exchange rate regimes on exchange rate forecasting.

Following the introduction, rest of the study is organized as follows: Brief history of Pakistan exchange rate is provided under Section 2. Section 3 presents the literature review. Section 4 describes the structural model of exchange rate determination. Section 5 deals with the econometric methodology. Data and construction of variables is subject of section 6. Section 7 describes the empirical results and section 8 reports the out of sample forecast. Finally, section 9 provides conclusion.

Overview of Pakistan Exchange Rate

Pakistan has experienced a multiple exchange rate regimes after its independence to achieve the objective of export competitiveness, improve balance of payments and rapid economic growth.

Since independence in 1947, Pakistan has adopted a fixed exchange rate system and pegged its currency - Pakistan rupee (PKR hereafter) - with pound sterling up to 1971.

up to 1971. With the collapse of the Pound Sterling in June 1972, the Sterling area has been demolished and US dollar became dominant currency across the globe. Pakistan, therefore, decided to delink PKR from pound sterling and tied its currency to the US dollar.

In 1980-81, Pakistan had lost its export in non-dollar area, when PKR appreciated against French franc and pound sterling. It raised the import bills and deficit in balance of trade increased. Under these circumstances, in Jan 1982, the decision was made to delink PKR from US $ and exchange rate system was moved away from fixed exchange rate system to flexible exchange rate system. However, Pakistan's exchange rate system was not completely flexible; it is a hybrid of fixed and flexible exchange rate system, in which market forces determine the level of currency price and central bank does intervention in the forex market via open market operations and foreign exchange operations to prevent the exchange rate volatility.

Pakistan became the nuclear power on 28th May, 1998. Nuclear test hit the economy and created financial crisis because very soon after the test foreign aid sanctions were imposed and this drastically decreased the remittances. In order to alleviate the financial and exchange rate crisis, State Bank of Pakistan has frozen the foreign currency accounts and introduced two-tier exchange rate system, in July 1998.

In May 1999, State Bank of Pakistan replaced the two tier exchange rate system by market based unified exchange rate system and put the PKR on dirty float. Under dirty float exchange rate policy, PKR was pegged to US dollar and allowed to float within the narrow band of 52.10 - 52.30 rupees per US dollar. In this period, exchange rate was relatively highly volatile. Dirty float exchange rate band was abolished by the State Bank of Pakistan in July 2000 and flexible exchange rate system was finally achieved.

This exchange rate system remains unaltered until the present time. Theoretically this system is helpful to maintain the stability of exchange rate as it allows the self correction in response to market pressure. In practice, exchange rate is highly volatile under floating exchange rate and can have a major impact on local economies. Especially when a country is in an economic spiral the flexible exchange rate system put downward pressure on the local currency and led to decline in the purchasing power of the citizens. In this period exchange rate of Pakistan has experienced wide fluctuations as compared to earlier exchange rate regimes.

The 9/11 event had affected the Pakistan economy. The rupee started appreciating against the dollar and kept on appreciating because of abundant inflows of capital in form of remittances. During 2001 to 2003, nominal exchange rate against dollar appreciated by 6 percent.

Recent GFC which originated in US had affected the Pakistan economy like other economies of the world. The real effects of GFC such as slowdown in global demand and fall in commodity prices have been felt by Pakistan's economy through trade imbalances, and significant reduction in remittances and capital inflows. Pakistan rupee exchange rate against US dollar has lost its value by 21 percent during 2008 and this has caused the exchange rate to reach the level more than 86 Rupees per US dollar in June 2010.The fluctuations in exchange rate will further adversely affect the value of trade, amount of debt liability, economic growth and development. Therefore, a greater understanding of exchange rate fluctuations is necessary to understand the determinant of PKR- US dollar exchange rate and provide better economic stability.

Table 1, reports the internal and external shocks to Pakistan economy and exchange rate regimes adopted by Pakistan during different time periods.

Table 1: Exchange Rate Regimes in Pakistan

Time Span	Exchange Rate Regime	Internal and Internal/ External Shocks
From Aug 1947 to Dec 1981	Fixed Exchange Rate (FX)	
From Jan. 1982 to June 1998	Managed Float (MF)Managed Float	May1998 Pakistan's nuclear test
From July 1998 to April 1999	Two tier Exchange Rate System	
From May 1999 to June 2000	Dirty Float (DF)	
Since July , 2000	Flexible Exchange Rate (FL)	• 9/11 event • US war against terror in Afghanistan after 9/11 • 2005 Pakistan stock market crash • Global financial crisis 2007

Literature Review:

Before going to discuss the economic framework of exchange rate monetary model, this section provides the snapshot of literature review relating to theory, empirical estimation and forecasting of exchange rate.

Monetary approaches were initiated by Frenkel and Johnson (1976), Mussa (1976), Bilson (1978a) and Dornbusch (1976a). They have developed different models such as flexible price (FEM), sticky price and Frankel real interest rate differential monetary models. The similarity among these models is that supply and demand for money are the main determinants of exchange rate and assumes a stable money demand function. Monetary models also assumes perfect substitutability among domestic and foreign bonds and utilizes the uncovered interest rate parity condition as it holds continuously due to perfect capital mobility. Besides these similar characteristics, there are some significant differences among these models, such as, flexible price exchange rate model assumes PPP holds continuously, and commodity prices, wages and exchange rate are perfectly flexible both in short run and long run. In Sticky price monetary model (Dornbusch, 1976), introduced dynamic aspects of exchange rate via short run exchange rate volatility in terms of exchange rate overshooting above long run equilibrium exchange rate. It also considers the different speeds of adjustment in goods and asset markets, that is in short run exchange rate and prices in asset markets adjust quickly relative to prices in goods market and wages in labor market, in response to various shocks such as change in money supply. In the short run, prices in goods and wages in labor market are determined by the sticky prices. Hence, PPP does not hold continuously as assumed in the FEM. Frankel (1979) presented a real interest rate differential model (RIEM). This model has modified the Dorunbush's sticky price exchange rate model by incorporating the expected rate of inflation. The advantage of monetary model over traditional flow model motivates to take the RIEM monetary model of exchange rate as a structural model in this study.

On empirical side the advancement in econometric techniques, from simple to rigorous techniques of estimation,

enables to review the implications of monetary model of exchange rate from different dimensions. Pearce (1983) have tested the empirical validity of the monetary model using simple OLS method. The estimated parameters turned out to be statistically insignificant and residuals of the regression model had the problem of serial correlation.

The empirical results suggest that the model cannot be considered an adequate guide for economic policy. Frankel (1984) has employed the iterative Cochrane-Orcutt technique in order to correct for high serial correlation and improve the results of sticky price monetary model and portfolio balance model. However, the results of monetary and portfolio balance models do not support the theoretical expectations and indicate no improvement. With the development of time series literature particularly relating to cointegration enables the researches to re-estimate the economic theories and solve not only the spurious results of OLS technique but also explore the long run cointegrating vectors among the variables (MacDonald, 1995). Numerous studies have considered cointegration technique for the empirical validation of exchange rate monetary model. For example, Diamandis and Kouretas (1996) examined the Frenkel (1976) flexible price monetary approach for Greek currency and concluded that cointegration provides a suitable structure for investigating long-run movements of the Greek drachma.

Wong (2004) examined the long run behavior of British Sterling against per unit of US dollar. After establishing the multiple cointegrating vectors, the author proceeds to test whether the homogeneity and symmetry restriction held to support the exchange rate model in relative form or not. But have failed to accept the homogeneity and symmetry restrictions on money supply, output and interest rate coefficients.

Dibooglu and Enders (1995) documented that multiple cointegrating vectors contain valuable information and should be carefully interpreted. This paper provides convincing interpretations of multiple cointegration vectors by considering the Dornbusch(1973, 1974) monetary model in case of dollar/ Franc exchange rate. Johansen procedure revealed two independent cointegration vectors between nominal exchange rate and the fundamentals. The first long run relationship is statistically identified as money market equilibrium relationship and second cointegration relationship is identified as modified PPP relationship. Finally, the use of long run structural relationships in the dynamic error correction model provides consistent result with the Keynesian model, that is, expansionary monetary policy is related to domestic inflation, exchange rate depreciation and permanent increase in domestic output level.

According to Dornbusch (1976) Sticky-Price monetary model, an increase in money supply causes to overshoot the current exchange rate over its long run value. This overshooting effect will vanish when commodity prices adjust in long run to clear the goods market and this will result to reduce the real money supply and thus increase interest rate and would appreciate the domestic currency in the long run. Oskooee and Kara (2000) investigated that rapid increase in the relative money supply in Turkey has a tendency to overshoot the lira against US dollar not only in short run but also in the long run.

In case of Pakistan limited studies have been found that analyze the behavior of Pak-rupee via monetary models. Kemal and Haider (2004) have estimated the limited form of monetary model over a short time period from 2000 to 2004 and did not get the satisfactory estimates.

Saeed et al. (2012) examined the monetary model by considering the relative money supply, relative foreign exchange reserve, total debt of Pakistan

relative to US and political instability as explanatory variables. They suggest that along fiscal and monetary policy, political stability is required to maintain the exchange rate of Pakistan. Malik (2011) predicts the exchange rate behavior of Pakistan relative to the US dollar using a wider set of models and suggested that and in short run forecasting from monetary model performed better than other models.

From the above review, specifically for Pakistan no study has been analyzed the validity of real interest rate differential model of exchange rate. Moreover, the existing studies have not tested the homogeneity and symmetry restriction on monetary model and no one address how to get the restricted cointegrating vector. This study will not only try to fill these gaps but also verify the forecasting performance of the fundamental based monetary model against random walk models.

Model Specification

Frankel (1979) presented a real interest rate differential model (RIEM), which is modified form of Dorunbush (1976)'s sticky price exchange rate model According to Dorunbush, in short run prices in goods and wages in labor market are determined by the sticky prices, therefore, PPP does not hold continuously and retains only in the long run. Long run exchange rate is determined by PPP condition i.e.,symbolically.

$$\bar{s} = \bar{p} - \bar{p}^*$$

where $\bar{s}, \bar{p}, \bar{p}^*$ represents the log of long run exchange rate, log of domestic and foreign long run price level. Finally, it assumes regressive exchange rate expectations, which is given by

$$\Delta s^e = \theta(\bar{s} - s) \quad \text{where} \qquad (1)$$

Equation (1) implies that expected change in current exchange rate is proportional to the difference between long run exchange rate and current exchange rate. In other words exchange rate is expected to converge towards

$$\Delta s^e = \theta(\bar{s} - s) + (\pi^e - \pi^{e*}) \qquad (2)$$

Where $(\pi^e - \pi^{e*})$is expected long run differential between domestic and foreign inflation.

Utilizing UIP condition $\Delta s^e = i - i^*$ with equation (2):

$$i - i^* = \theta(\bar{s} - s) + (\pi^e - \pi^{e*})$$

Rearranging we have

$$s - \bar{s} = -1/\theta[(i - \pi^e) - (i^* - \pi^{e*})]$$

Equation (3) explains that the deviation of spot exchange rate from its long run equilibrium exchange rate is proportional to the real interest rate differential. The higher expected real interest rate on domestic assets relative to foreign assets, will attract the investors to invest in domestic asset and cause the capital inflow in domestic country. This will appreciate the domestic currency, until the real interest rates are equalized toward the long run steady state.

Frankel (1979) further argues that in long run equilibrium, $s = \bar{s}$, which implies $\bar{i} - \bar{i}^* = \pi^e - \pi^{e*}$
and terms in square brackets of equation (3) can be written as $[(i - i^*) - (\bar{i} - \bar{i}^*)]$.

Now consider the conventional money demand functions of domestic country $(\bar{p} = \bar{m} - b_y \bar{y} + b_i \bar{i})$ and foreign country $(\bar{p}^* = \bar{m}^* - b_y^* \bar{y}^* + b_i^* \bar{i}^*)$, for simplicity take $b_i = b_i^* = c$ and $b_y = b_y^* = b$ substitute in the long run PPP condition to obtain an expression for the long run exchange rate as

$$\bar{s} = \bar{p} - \bar{p}^* = \bar{m} - \bar{m}^* - b(\bar{y} - \bar{y}^*) + c(\bar{i} - \bar{i}^*)$$

use $\bar{i} - \bar{i}^* = \pi^e - \pi^{e*}$

Equation (4) is the long run steady state equilibrium value of exchange rate. To obtain the reduce form expression of short run exchange rate determination under general monetary model, substitute for from equation (3) in (4)

$$\bar{s} = \bar{m} - \bar{m}^* - b(\bar{y} - \bar{y}^*) + c(\pi^e - \pi^{e*})$$

Solve for

$$s+1/\theta[(i-\pi^{e})-(i^{*}-\pi^{e*})]=\bar{m}-\bar{m}^{*}-b(\bar{y}-\bar{y}^{*})+c(\pi^{e}-\pi^{e*})$$

Let $a=1/\theta$ and $d=(1/\theta+c)$

$$s=\bar{m}-\bar{m}^{*}-b(\bar{y}-\bar{y}^{*})-1/\theta(i-i^{*})+(1/\theta+c)(\pi^{e}-\pi^{e*})$$

Assuming that the current equilibrium money supplies and income levels are given by their current actual levels, we obtain a complete equation that represents the real interest rate model given below.

$$s=\bar{m}-\bar{m}^{*}-b(\bar{y}-\bar{y}^{*})-a(i-i^{*})+d(\pi^{e}-\pi^{e*})$$

Equation (6) is the general exchange rate equation of monetary model. It explains that short run exchange rate is determined by the relative money supply, income level and expected inflation rate. In general form the exchange rate equation under RIEM from equation (6) is

$$s=f(\overset{+}{\pi}^{e},\overset{-}{\pi}^{e*},\overset{+}{m},\overset{-}{m}^{*},\overset{-}{y},\overset{+}{y}^{*},\overset{-}{i},\overset{+}{i}^{*})$$

FEM can be obtained from RIEM model if prices in all markets are fully flexible and adjust instantaneously due to change in economic policy. FEM is depending on domestic and foreign money supply, output and interest rate.

As far as the empirical validity of the monetary model of exchange rate is concern, it can only be tested in the long run given the short run deviation of the exchange rate from its PPP. More precisely, the RIEM incorporates short run influences and hence it is only the FEM that can be tested in a long run setting (Diamandis and Koutretas, 1996). Therefore, we will use test of cointegration which provide evidence for the existence of a long run relationship between the exchange rate and money supply, real income and interest rate in the domestic and foreign economies. Moreover, in the presence of non-stationary variables, the Dornbusch's SEM can be consistent with the presence of long run equilibrium, even though a temporary overshooting of exchange rate is implied.

Estimation Methodology

Following Johansen (1988) and Johansen and Juselius (1990, 1992) the dynamic error correction exchange rate function is represented by the vector autoregressive (VAR) model as

$$z_{t}=A_{1}z_{t-1}+A_{2}z_{t-2}+.....+A_{l}z_{t-l}+\mu+\phi D_{t}+\varepsilon_{t}$$

Where $z_{t}=[s,m,m^{*},y,y^{*},i,i^{*},\pi,\pi^{*}]'$ is dimensional vector, $t=1,2,.....T$ is (9×1) vector of Gaussian random error terms and is variance covariance matrix of error terms and is consist of centered seasonal dummies and intervention dummies. Given that is vector of non-stationary and is vector of stationary variables, therefore, we can infer the following dynamic ECM of exchange rate.

$$\Delta z_{t}=\sum_{i=1}^{l-1}\Gamma_{i}\Delta z_{t-i}+\Pi z_{t-1}+\phi D_{t}+\mu+\varepsilon_{t}$$

Where is the lag length, is short- run dynamic coefficients, is matrix containing long-run information and is consisting of deterministic component.

The investigation of matrix is important to analyze the long run relationship among the exchange rate and its determinants. The number of cointegrating vectors are determines by trace and maximum eigenvalue test statistics If then it is further decompose into two matrices i.e.: is matrix contains error correction coefficients and $\varepsilon_{t}\overset{ii}{\sim}N(0,\Sigma)$ is the (9×1) matrix of long run cointegrating vectors.

After obtaining the short run dynamic exchange rate function, this study will move to compare the forecasting performance of exchange rate monetary model to random walk models. The recursive regression methodology is adopted to generate multi-step-ahead forecast. The forecasting performance of each forecast horizon will be evaluated by using standard root mean squared error (RMSE) and Theil's U statistics. Finally, Diebold and

Mariano (DM) (1995) test statistics will evaluate the statistical significance of each forecasting horizon.

Data and Construction of Variables

Quarterly data has been taken over the period of flexible exchange rate spanning from 1982:Q1 to 2014:Q2. The data are obtained from International Financial Statistics (IFS) and State Bank of Pakistan (SBP) Monthly Statistical Bulletin (various issues).

The nominal exchange rate is measured in terms of units of Pakistan rupee (PKR) per unit of US dollar. Domestic and foreign money supply is measured by broad money M2. Real Gross domestic product (GDP) is commonly used as a measure of real output level. Quarterwise nominal GDP of US is accessible from IFS. The real GDP at constant base of 2000 is found by deflating nominal GDP on GDP deflator (2000=100). In case of Pakistan quarterisation of annual real GDP is done by adopting methodology of Kemal and Arby (2004). Call money rate for Pakistan and federal fund rate for US is used as a measure of interest rate. Unobservable expected inflation rate for domestic country and for foreign country in percentage is calculated by taking the logarithmic change of the CPI (2000=100) over the preceding four quarters.

During the analysis period exchange rate of Pakistan is also influenced by the critical events such as 1998 Pakistan's nuclear test, 9/11 event in year 2001, US war against terror in Afghanistan after 9/11, 2005 Pakistan stock market crash, recent global financial crisis of 2007 and to take into account the different PKR exchange rate regimes after 1982, set of intervention dummies has been considered. these are D98 (1 for 1998:Q2 and 0 otherwise), D911 (1 for t = 2001:Q3 and 0 otherwise), Dafgwar (0 for t < 2001:Q4 and 1 otherwise), DSMC(1 for t = 2005:Q1 and 0 otherwise), $2007:Q1 \le t \le 2009:Q2$ Dfc(1 for and 0 otherwise), DFX(1 for and 0 otherwise) , DMF(1 for and 0 otherwise) and DDF(1 for and 0 otherwise).

Results and Discussion

The results of the Hylleburg, Engle, Granger and Yoo (HEGY) (1990) test both at level and at first difference of variables are presented in Table 2. It is clear that on the level of series the null hypothesis of a nonseasonal unit root cannot be rejected whereas the null hypothesis of seasonal unit root at both biannual and annual frequency are rejected at 5% critical values for all of the variables. Therefore, (1-B) is an appropriate filter to make the series stationary. After applying the HEGY (1990) test on the filtered series we found no evidence of seasonal and nonseasonal unit roots at 5 % level of significance. Therefore, all variables in our cointegration analysis are integrated of order one and we may suspect long run cointegrating vectors.

Table 2: HEGY Test for Non-Seasonal and Seasonal Unit Roots

	Regressors				Null & Alternative Hypothesis			
					$\pi_1 = 0$ $\pi_1 < 0$	$\pi_2 = 0\ \pi_2 < 0$	$\pi_3 = \pi_4 = 0$ $\pi_3 \neq \pi_4 \neq 0$	
					Test Statistic			
Variable	Lags	Drift	Trend	Seasonal Dummies	t_{π_1}	t_{π_2}	F_{π_3,π_4}	Roots (Filter)
Level of Series								
s	0	Yes	No	No	-0.81[a]	-5.76	55.37	I (1-B)
y	3	Yes	No	No	-2.10[b]	-8.81	29.61	I (1-B)
y^*	0	Yes	No	No	-3.06[a]	-4.50	101.23	I (1-B)
i	0	No	No	No	-0.23[a]	-4.74	22.96	I (1-B)
i^*	0	Yes	Yes	Yes	-3.14[a]	-8.12	73.87	I (1-B)
π^e	4	Yes	No	No	-2.26[a]	-5.20	37.09	I (1-B)
π^{e^*}	5	No	No	No	-1.37[a]	-6.08	30.89	I (1-B)
m	0	Yes	Yes	Yes	-2.13[a]	-6.47	56.63	I (1-B)
m^*	1	Yes	Yes	Yes	-1.68[a]	-4.78	19.24	I (1-B)
Filtered Series								
(1-B) s	0	Yes	No	No	-4.86	-4.79	26.77	I(0,0)
(1-B) y	2	Yes	No	No	-2.96	-8.45	36.91	I(0,0)
(1-B) y^*	1	Yes	No	No	-3.69	-4.05	39.85	I(0,0)
(1-B)i	0	No	No	No	-6.20	-3.72	13.27	I(0,0)
(1-B)i^*	0	Yes	No	Yes	-4.94	-6.31	51.09	I(0,0)
(1-B)π^e	3	No	No	No	-3.87	-5.03	36.23	I(0,0)
(1-B)π^{e^*}	4	No	No	No	-4.50	-6.09	30.69	I(0,0)
(1-B)m	0	Yes	No	Yes	-4.17	-5.12	21.63	I(0,0)
(1-B)m^*	0	Yes	No	Yes	-6.82	-7.51	20.91	I(0,0)

Multivariate Cointegration Analysis

As can be seen from Table 3, by using trace statistic, the null hypothesis of r = 0 can be rejected at 5% level of significance. It is feasible to conclude that there is one cointegrating vector, as the null hypothesis that r ≤ 1 is not rejected. Maximum eigenvalue test suggests that null hypothesis of zero cointegrating vectors (r = 0) cannot be rejected at 5% level. We continue our analysis on the basis of trace test, as it considers all k-r values of smallest eigenvalues (Kasa, 1992 and Serletris and King 1997).

Table 3: Cointegration Test Results of RIEM

Trace statistic				Maximum Eigenvalue statistic			
H_0	H_A	Chi- Square	5 % CV	H_0	H_A	Chi- Square	5 % CV
r = 0	r > 0	204.80*	197.37	r = 0	r = 1	50.71	58.43
r ≤ 1	r > 1	154.09	159.53	r = 1	r = 2	46.31	52.36
r ≤ 2	r > 2	107.78	125.62	r = 2	r = 3	43.40	46.23
r ≤ 3	r > 3	64.38	95.75	r = 3	r = 4	27.99	40.08
r ≤ 4	r > 4	36.39	69.82	r = 4	r = 5	15.99	33.88
r ≤ 5	r > 5	20.40	47.86	r = 5	r = 6	11.13	27.58
r ≤ 6	r > 6	9.27	29.80	r = 6	r = 7	6.44	21.13
r ≤ 7	r >7	2.83	15.49	r = 7	r = 8	2.82	14.26
r ≤ 8	r > 8	0.02	3.84	r = 8	r = 9	0.02	3.84

Note: '*' indicates the rejection of null hypothesis at the 5 percent level of significance.
5 quarters is chosen as optimal lag length of unrestricted VAR model by multivariate LM test statistics . Three central seasonal dummies, regime dummies and intervention dummies are also included. Most of the variables of monetary models have linear trend and grow over time. Therefore, intercept term enters unrestricted in the cointegrating analysis (Johansen, 1995; Harris and Sollis, 2003 and Qayyum, 2005). The results of Johansen's likelihood ratio test is provided after adjusting by factor (T-kl)/T to correct the small sample bias (Reimers, 1992).

Table 4: Proportionality Restrictions on Monetary Model

RIEM

$$s_t = \beta_0 + \beta_1 m_t + \beta_2 m_t^* + \beta_3 y_t + \beta_4 y_t^* + \beta_5 i_t + \beta_6 i_t^* + \beta_7 \pi_t + \beta_8 \pi_t^* + u_{1t}$$

Hypothesis	Hypothesis		χ^2 (df)	P- Value
Money Symmetry	H_1:	$\beta_1 = -\beta_2 = 1$	4.33(1)*	0.04
Output Symmetry	H_2:	$\beta_3 = -\beta_4$	4.70(1)*	0.03
Interest rate Symmetry	H_3:	$\beta_5 = -\beta_6$	1.17(1)***	0.28
Inflation Symmetry	H_4:	$\beta_7 = -\beta_8$	0.74(1)***	0.38
	H_5:	$H_1 \cap H_2$	8.59(3)*	0.04
	H_6:	$H_1 \cap H_3$	7.50(3)**	0.06
	H_7:	$H_1 \cap H_4$	5.35(3)***	0.14
	H_8:	$H_2 \cap H_3$	17.24(3)	0.00
	H_9:	$H_2 \cap H_4$	14.78(3)	0.02
	H_{10}:	$H_3 \cap H_4$	22.04(3)	0.00
	H_{11}:	$H_1 \cap H_2 \cap H_3$	22.29(5)	0.00
	H_{12}:	$H_1 \cap H_2 \cap H_4$	17.08(5)	0.00
	H_{13}:	$H_1 \cap H_3 \cap H_4$	30.04(5)	0.00
	H_{14}:	$H_2 \cap H_3 \cap H_4$	29.77(5)	0.00
Joint Symmetry	H_{15}:	$H_1 \cap H_2 \cap H_3 \cap H_4$	57.68(7)	0.00

Note: *, **, and *** indicates the significance at 1%,5% and 10%.

Based on the χ^2 values, it is found that individual proportionality restriction of money supplies (H1), output (H2), interest rate (H3) and inflation rate (H4) are not rejected. Similarly, the joint hypothesis of proportionality between money supplies and output (H5), money supplies and interest rate (H6) and money supplies and inflation (H7) are also accepted. These results provide direct support to long run monetary model in case of rupee dollar exchange rate and indirect verification of long run PPP, as PPP develops a linkage between money demand and exchange rate monetary equation.

The long-run exchange rate monetary function is estimated by normalizing the cointegrating vector on log of exchange rate is as follows

$$s_t = 76.45 + 2.66\ m_t - 0.79\ m_t^* - 3.54\ y_t - 3.03\ y_t^* - 0.10\ i_t + 0.02\ i_t^* + 0.01\ \pi_t - 0.07\ \pi_t^* \quad (10)$$

$$s_t = 23.71 + 1.61\ m_t - 0.92\ m_t^* - 2.74\ y_t + 0.57\ y_t^* - 0.04\ i_t + 0.02\ i_t^* + 0.01\ \pi_t + 0.06\ \pi_t^*$$

The estimated cointegrating vector indicates that long run exchange rate function is determined by relative money supplies, output level, interest rate and rate of inflation. Estimated parameters are according to expectation of model.

The results in equation (10) can be explained as follows

• Increase in domestic money supplies result in depreciation of domestic currency, while foreign money supplies cause the nominal exchange rate to appreciate these coefficients are according to theory.

Now we proceed to test the commonly imposed monetary restrictions on one cointegrating vector. The most important restrictions, discussed in literature, is to test whether proportionality exists between the nominal exchange rate and relative money supplies, opposite and equal coefficient restriction on relative income, interest rates and inflation rates (Diamandis et al., 1998). Table 4, summarizes the results of these hypotheses; Note: 'a' indicates the rejection of null hypothesis at the 5 percent level of significance.

5 quarters is chosen as optimal lag length of unrestricted VAR model by multivariate LM test statistics . Three central seasonal dummies, regime dummies and intervention dummies are also included. Most of the variables of monetary models have linear trend and grow over time.

The elasticity obtained for domestic money supply is greater than unity (1.61). This result is according to overshooting hypothesis and consistent with Oskooee and Kara (2000).

• An increase in domestic output level has a favorable effect on nominal exchange rate. However, the corresponding foreign real output level results into the depreciation of domestic currency.

• An increase in domestic interest rate relative to foreign interest rate appreciates the domestic currency.

• Rise in domestic and foreign inflation rate results into depreciation of the Pakistan rupee against US dollar.

The most striking result of monetary model is the high coefficients of domestic variables (except inflation rate), implies the dominant role of domestic variables in affecting exchange rate.

The critical point is whether it is possible to impose FEM relationship on equation (10) and still find reasonable values for the other behavioral coefficients. The issue is whether it is statistically possible to restrict the matrix as

$$\beta' = \begin{bmatrix} s & m & m^* & y & y^* & i & i^* & \pi & \pi^* \\ 1 & * & * & * & * & * & * & 0 & 0 \end{bmatrix}$$

However, the zero restrictions on the coefficients of domestic and foreign inflation rate cannot be rejected. The LR test statistics for these restrictions is = 2.76. The resulting Flexible exchange rate equilibrium relationship is:

$$s_t = 39.71 + 2.08\ \ m_t - 0.89\ \ m_t^* - 3.37$$

$$y_t + 0.31\ \ y_t - 0.06\ \ i_t + 0.09\ \ i_t$$

The estimated cointegrating vector indicates that long run exchange rate function is determined by relative money supplies, output level and interest rate.

Estimated parameters are according to expectation of flexible exchange rate model except the signs of domestic and foreign interest rate.

The Short-Run function For Monetary Exchange Rate: Dynamic Error Correction Model

The short-run dynamic error correction model (ECM) is estimated by using the residual deduced from long run cointegration function (11), known as error correction term. Parsimonious dynamic model is achieved by considering Hendry's (1995) general-to-specific methodology .. The parsimonious ECM model with t-ratios in parentheses is reported as follows;

$$\begin{array}{lccccccc} \Delta s_t = & 0.13 & -0.46\Delta m_{t-1} & -0.36\Delta m_{t-2} & -1.26\Delta m^*_{t-1} & -0.82\Delta m^*_{t-4} & -0.25\Delta y_{t-2} & -0.22\Delta y_{t-2} \\ & (6.95) & (-4.21) & (-3.22) & (-3.88) & (-3.18) & (-1.77) & (-1.80) \\ & -0..60\Delta y_{t-4} & -0.03\Delta i^*_{t-1} & -0.035D_{FX} & -0.038D_{MF} & -0.045D_{DF} & -0.09D_{911} & -0.05D_{dfpwar} \\ & (-4.23) & (-4.69) & (-2.81) & (-2.24) & (-2.59) & (-3.20) & (-3.75) \\ & +0.01D_{fc} & -0.06EC_{t-1} & & & & & \\ & (2.00) & (-4.46) & & & & & \end{array}$$

$Adj\ R^2 = 0.38$ prob (0.000)

Dynamic ECM passes the diagnostic test of no autocorrelation ($\chi^2_{(1)} = 0.80$ and $\chi^2_{(4)} = 4.40$) and no ARCH ($\chi^2_{(1)} = 0.43$ and $\chi^2_{(4)} = 1.78$) at 5 percent level of significance. Further the residuals are normally distributed ($\chi^2_{(2)} = 4.52$).

The estimated ECM indicates that in the short run exchange rate is responsive to change in money supplies, domestic real output level and foreign interest rate. The estimated parameters of almost all variables are found to be negative and significant in short run.

Equation 12 does not contain change in inflation rate. It indicates that there is no short run association between change in inflation rate and exchange rate as reported by Choudhri and Khan (2002).

Inclusion of intervention dummy variables in the dynamic model suggests that exchange rate is vulnerable to external shocks. The coefficients for D911 and Dafgwar are found to be negative

and significant, which represents the appreciation of rupee after September 9, 2001. This appreciation is due to high inflows of remittances and foreign reserves during this period (Kemal and Qadir, 2005). Dfc captures the effect of recent financial crisis on nominal exchange rate. The positive coefficient of Dfc suggests that 2007 financial crisis exerts downward pressure on Pakistani rupee.

Finally, the speed of adjustment comes out to be -0.06, suggests that short run deviation of nominal exchange rate from its long run equilibrium path is being corrected by 3 percent in each quarter. The time required to remove the 50 percent of disequilibrium from its exchange rate equilibrium path is 11 quarters (two years and three quarters). The slow speed of adjustment toward equilibrium path indicates the great instability and large shocks during the flexible exchange rate period which is captured by the error correction model of RIEM.

The forecasting power of the model depends on the stability of parameters. Cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) of recursive residual test are applied for this purpose. The plots of CUSUM and CUSUMSQ are provided in Figure 1 and Figure 2. Suggesting that there is no significant structural instability and residual variance is stable during the analysis period.

Figure 1 : CUSUM of Recursive Residuals

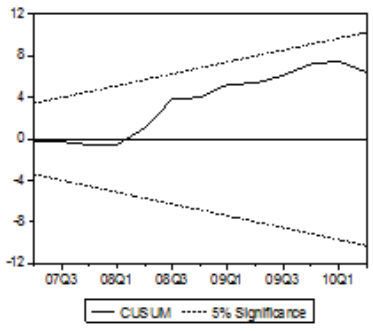
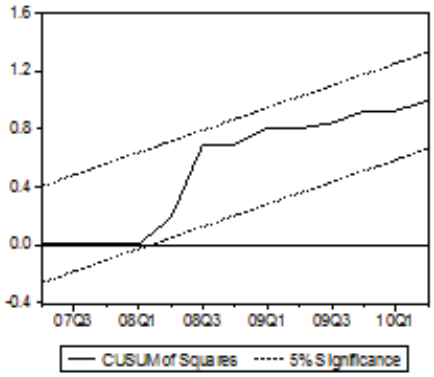


Figure 2: CUSUMSQ of Recursive Residuals



Out of Sample Forecasts

The recursive regression methodology is adopted to generate multi-step-ahead forecast from monetary and random walk exchange rate models. The basic procedure for the construction of subsample is similar to that of Mark (1995) and Cushman (2007) among others. By constructing 37 subsamples s1, s2, ….., s37 . s1 contains T-37 observations ends at period 2005:1, s2 contains T-36 data points and ends at period 2005:2 and so on the largest subsample s37 contains T-1 number of observations and ends at period 2014:1 The parsimonious error correction model equation is then estimated for each subsample and used to construct a one quarter ahead forecast to sixteen quarter ahead forecast. Forecasted values are also obtained from random walk models for each subsample.

Table 5, gives the result for RMSE of different models at 1, 4, 8, 12 and 16 forecasting horizons. It can be noted that RMSE of fundamental based monetary model is smaller than the RMSE of benchmark random walk models, with and without drift, at all out of sample forecast horizons. Therefore, it is easy to conclude that monetary model yields better forecast for exchange rate than theory less random walk models.

Theil's U^3 statistics computes the ratio of the RMSE of the monetary model to the RMSE of random walk models. This coefficient again supports the dominance

of structural model over the random walk models at every horizon (see Table 6).

RMSE and Theil's U factor do not provide any idea of the significance of the difference in the forecasting performance. Therefore, final conclusion will draw on DM test statistics. Table 7 lists the DM statistics and its associated probability values at various horizons, to significantly test whether the mean square error of one forecast is better than another.

First part of Table 7, takes random walk model without drift as benchmark model in loss differential function. The DM test statistics confirm that the predictive accuracy of monetary model is significantly more accurate than the random walk model at long forecast horizon i.e. k=12, and 16. The success of structural models at long horizons is consistent with Mark (1995) and Chinn and Meese (1992).

Second part of Table 7 is comparing the difference in the forecasting performance of the structural models to the benchmark random walk with drift model. DM test statistics clearly states that parsimonious cointegrated monetary model easily beat the random walk model with drift at every horizon except the first. This finding confirms the remarks of Faust et al.(2003) that is easy to beat the random walk model with drift than the random walk model without drift.

Table 5: Out-of- Sample Forecast Evaluation: RMSE

RMSE	Forecast Horizon				
	1	4	8	12	16
RW Model	0.030	0.089	0.152	0.177	0.199
RW with Drift Model	0.048	0.103	0.162	0.201	0.247
RIEM Model	0.032	0.025	0.030	0.030	0.032

Table 6: Out-of- Sample Forecast Evaluation: Theil's U

Model	Forecast Horizon				
	1	4	8	12	16
Benchmark: RW Model					
RIEM	1.050	0.282	0.199	0.171	0.163
Benchmark: RW with drift Model					
RIEM	0.671	0.245	0.187	0.151	0.131

Table 7: Out-of- Sample Forecast Evaluation: DM Test Statistic

	Forecast Horizon				
	1	4	8	12	16
Benchmark loss Function :RW Model					
RIEM	-0.169[a]	1.457[a]	1.847[a]	2.177	2.259
	(0.867)	(0.155)	(0.075)	(0.039)	(0.035)
Benchmark loss Function :RW with Drift Model					
RIEM	0.902[a]	3.027	4.040	3.490	2.836
	(0.373)	(0.005)	(0.000)	(0.002)	(0.010)

*Note: '[a]' represents the acceptance of null hypothesis of equal forecast.
A probability value of DM statistics is in brackets.

Conclusion

In this paper, an empirical exchange rate monetary model based on Dornbusch, (1976) and Frankel (1979) is specified for the Pakistan–US exchange rate over the flexible exchange rate period. Cointegration test found one cointegrating vector. In monetary model the estimated signs of all coefficients in the long run cointegrating equation of monetary model are significant and according to expectations. The large magnitude of coefficients of domestic variables implies the significant role of domestic variables in affecting exchange rate. In addition, the commonly imposed proportionality restrictions on the coefficients of monetary model are supported by likelihood ratio test and confirm the validity of the model.

Dornbusch, R. (1974). Real and Monetary Aspects of the Effects of Exchange Rate Changes. In National Monetary Policies and the International Financial System, edited by R. Z. Aliber. Chicago: University of Chicago Press.

Finally, error correction model revealed a slow speed of adjustment towards its equilibrium path that is 6 percent. The interesting finding of the error correction model first is the opposite sign of money supply on exchange rate. Therefore, the expansion of money supply appreciates the currency in short run and depreciates the currency in long run. Second, it overshoots itself in reaction to rapid increase in domestic money supply relative to foreign money supply not only in the short-run but also in the long-run.

Out of sample forecasting performance of monetary model was supported by RMSE and Theil's U and DM test statistics over naïve random walk models.

References

Abas, K. H. and Yusof, Z. (2009). Exchange Rate and Monetary Fundamentals: Evidence from Malaysia and Japan. International Conference on Business and Information (BAI2009).

Abbas, Z. Khan, S. and Rizvi. S.T. (2011). Exchange Rates and Macroeconomic Fundamentals: Linear Regression and Cointegration Analysis on Emerging Asian Economies. International Review of Business Research Papers, 7, 250-263.

Anaraki, N.K. (2007). Meese and Rogoff's Puzzle Revisited. International Review of Business Research Papers, 3, 278- 304.

Balke, N.S. and Famby, T.B. (1994). Large Shocks, Small Shocks and Economic Fluctuations: Outliers in Macroeconomic Time Series. Journal of Applied Econometrics, 9,181-200.

Bilson,J.F.O. (l978a). The Monetary Approach to the Exchange Rate: Some Empirical Evidence. IMF Staff Papers, 25, 48-75.

Cheung, YW. Chinn, M.D. and Pascual, A.G. (2002). Empirical Exchange Rate Models of the Nineties: Are any Fit to Survive? National Bureau of Economic Research, Working Paper 9393.

Chinn, M. and Meese, R.(1992). Banking on Currency Forecasts: How Predictable is Change in Money? University of California, Santa Cruz.

Choudhri, E.U. and Khan, M.S. (2002). The Exchange Rate and Consumer Prices in Pakistan: Is Rupee Devaluation Inflationary? The Pakistan Development Review, 41,107-120.

Diamandis, P.F. and Kouretas, G.P. (1996). Exchange Rate Determination: EmpiricalEvidence for the Greek Drachma. Managerial and Decision Economics, 17, 277-290.

Diamandis, P.F, Georgoutsos, D.A. and Kouretas, G.P. (1998). The Monetary Approach to exchange Rate: Long Run Relationships, Identification and Temporal Stability. Journal of Macroeconomics, 20, 741-766.

Dibooglu, S. and Enders, W. (1995). Multiple Cointegrating Vectors and Structural Economic Models: An Application to the FrenchFranc/U. S. Dollar Exchange. Southern Economic Journal, 61, 1098-1116.

Diebold, F.X. and Mariano, R.S. (1995). Comparing predictive accuracy. Journal of Business & Economic Statistics, 13, 253-263.

Dijk,D.V, Franses, H.S. and Lucas.A. (1999). Testing for Smooth Transition Nonlinearity in the Presence of Outliers. Journal of Business & Economic Statistics, 17, 217-235.

Dornbusch, R. (1973). Devaluation, Money, and Nontraded Goods. American Economic Review, 62, 871-80.

Dornbusch, R. (1974). Real and Monetary Aspects of the Effects of Exchange Rate Changes. In National Monetary Policies and the International Financial System,

Dornbusch, R. (1976a). The Theory of Flexible Exchange Rates and Macroeconomic Policy. Scandinavian Journal of Economics, 78, 255-75.

Engle, R.F. and Granger, C.W.J. (1987). Cointegration and Error Correction: Representation, Estimation, and Testing. Econometrica, 55, 251-76.

Faust, J., Rogers, J. H. and Wright, J. H. (2003). Exchange Rate Forecasting: The Errors We've Really Made. Journal of International Economics, 60, 35-59.

Frankel, J.A. (1979). On the Mark :A Theory of Floating Exchange Rate Based on Real Interest Differentials. American Economic Review, 69, 610-22.

Frenkel, J.A.(1976). A monetary Approach to Exchange Rate: Doctrinal Aspects and Empirical Evidence. Scandinavian Journal of Economics, 78, 200-24.

Frankel, J.A. (1984). Tests of Monetary and Portfolio Balance Models of Exchange Rate Determination. Chapter 7, Exchange Rate Theory and Practice, University of Chicago Press.

Frenkel, J. A. and Johnson, H.G. (1976). The Economics of Exchange Rate. Addison Wesley.

Harris, R. and Robert, S. Harris, R. (2003). Applied Time Series Modelling and Forecasting. John Wiley and Sons, Chichester.

Hendry, D. F. (1995). Dynamic Econometrics. Oxford University Press.

Hwang, JK. (2001). Dynamic Forecasting of Monetary Exchange Rate Models: Evidence from Cointegration. International Advances in Economics Research, 7, 51-64

Hylleburg, S., Engle, R.F., Granger, C.E.J. and Yoo, B.S. (1990). Seasonal Integration and Cointegration. Journal of Econometrics 44, 215-28.

International Monetary Fund, International financial statistics, 2010 CD-ROM, Washington, DC: International Monetary Fund.

Johansen, S. (1988), "Statistical Analysis of Cointegrating Vectors," Journal of Economic Dynamic and Control, Vol. 12, pp. 231-254.

Johansen, S. (1995a). Likelihood-based Inference in Cointegrated Vector Autoregressive Models. Oxford University Press.

Johansen, S. and Juselius, K. (1990).The Maximum Likelihood Estinmation and Inference on Cointegration- with Application to Demand for Money. Oxford Bulletin of Economics and Statistics, 52, 169-210.

Johansen, S. and Juselius, K. (1992). Testing Structural Hypothesis in a Multivariate CointegrationAnalysis of the PPP and UIP for UK. Journal of Econometrics, 53, 211-44.

Johnston, B. and Sun, Y. (1997). Some Evidence on Exchange Rate Determination in Major Industrial Countries. IMF, Monetary and Exchange Affairs Department, Working Paper 98.

Kasa, K. (1992). Common stochastic trends in international stock markets. Journal of Monetary Economics, 29, 95–124.

Kemal, A.R. and Arby, M. F. (2004). Quarterisation of Annual GDP of Pakistan. Pakistan Institute of Development Economics, Islamabad, Statistical Papers Series No. 5, December.

Kemal, M. A. and Qadir, U. (2005). Real Exchange Rate, Exports, and Imports Movements: A Trivariate Analysis. The Pakistan Development Review, 44,177-195.

Kemal, M.A. and Haider, R. M. (2004). Exchange Rate Behaviour after Recent Float: The Experience of Pakistan. The Pakistan Development Review, 43, 829-852.

Khalid. M.A. (2007). Empirical Exchange Rate Models for Developing Economies: A Study on Pakistan, China and India. Empirical Exchange Rate Models for Developing Economies, Warwick Business School.

Korap, L.(2008). Exchange Rate Determination of Tl/Us$:A Co-Integration Approach. Econometrics and Statistics, 7, 24-50.

MacDonald, R. (1997). What determines real exchange rates? The long run and short of it. International Monetary Fund, Working Paper 21.

MacDonald, R. (1995). Long-Run Exchange Rate Modelling. International Monetary Fund, Staff Paper , 42, 437-489

Malik.K.S. (2011). Exchange Rate Forecasting and Model Selectionin Pakistan (2000-2010). Journal of Business and Economics, 3, 77-101.

Mark, N. C. (1995). Exchange Rates and Fundamentals: Evidence on Long-Horizon Predictability. American Economic Review, 85, 201-218.

Cushman, D.O. (2007). A Portfolio Balance Approach to the Canadian–U.S. Exchange Rate. Review of Financial Economics, 16, 305-320.

Mussa M., 1976. The Exchange Rate, the Balance of Payments, and Monetary and Fiscal Policy under a Regime of Controlled Floating. Scandinavian Journal of Economics, 78, 229-48.

Najand, M. and Bond, C. (2000). Structural Models of Exchange Rate Determination. Journal of Multinational Finance Management, 10, 15-27.

Oskooee, M. B. and Kara, O. (2000). Exchange rate overshooting in Turkey. Economics Letters 68, 89-93.

Pearce, D.K. (1983). Alternative views of exchange rate determination. Economic Review, 1, 16–31.

Qayyum, A. (2005). Modelling the Demand for Money in Pakistan", The Pakistan Development Review, Vol.44(3), pp. 233-252.

Rashid, A. (2006). Do Exchange Rates Follow Random Walks? An Application of Variance- Ration Test. Pakistan Economic and Social Review, Vol. 44, 57-79.

Reimers, H.E. (1992). Comparisons of Tests for Multivariate Cointegration. Statistical Papers, 33, 335-59.
Meese, R.A. and Rogoff, K. (1983a). Empirical Exchange Rate Models of the Seventies: Do they Fit Out of Sample? Journal of International Economics, 14, 3-24.

Saeed, A., Awan, R. U., Sial, M.H. and Sher, F. (2012). An Econometrics Analysis of determinants of Exchange Rate in Pakistan. International Journal of Business and Social Science, 3, 184-196.

Serletis, A., King, M. (1997), "Common stochastic trends and convergence of European Union stock markets", The Manchester School, Vol. 65, pp.44-57.

State Bank of Pakistan, Monthly Statistical Bulletin (Various Issues), Karachi.

Wong, M. (2004). A Monetary Approach to the Sterling-US Dollar Exchange Rate. Middlesex University Business School.

Ms. Hafsa Hina
Assistant Professor
Department of Econometrics
Pakistan Institute of Development Economics
Islamabad
Pakistan
e-mail: hafsahina@pide.org.pk

DIVIDEND POLICY AND MARKET PRICE BEHAVIOUR IN INDIAN COMPANIES

Sandeep Goel

Abstract

The present paper looks at the dividend policy of the top Indian companies with regard to its consistency and its effect on their market price. A period of five years, viz. 2006 to 2010 has been considered for analyzing the interrelationship between corporate dividend policy and its market value. The linear relationship has been found out between dividend decision and market price of the company, but for a limited duration. Thereafter the market starts behaving efficiently and absorbs the available information.

Keywords: *dividend, dividend policy, market price, return, shareholders*

Introduction

Dividend policy has always been a subject matter of prime interest for any corporate. Dividend policy denotes the policy of the management about the amount of cash return given to shareholders over time.

Dividend payment has an informational value to the shareholders and therefore forms a crucial part of the company policy to build up trust, and re-distribute profits. What kind of dividend policy a company chooses depends upon various factors, including the growth potential and market conditions.

One of the main issues in modern finance is how a company's dividend policy affects shareholders' wealth (Black, 1976). Since, shareholders' wealth maximisation (SWM) is the key motive for every business; dividend payment assumes forms of both cash dividend and stock dividend. Managers not only have to decide how much of the company's earnings are needed for investments, but they also have to consider the effect of their decision on shareholders' wealth (Bishop, 2000).
"Shareholders' wealth" is maximizing the market value of the firm. This goal can be realised by paying them a "fair" return on their investments.

Various firms adopt different kinds of dividend policies, depending on their growth stage and how the firm wants to use its reserves and surplus. A constant dividend payout policy involves a fixed pay-out ratio of earnings. Long-run residual dividend policy is designed to give shareholders some confidence in planning the dividends.

It is determining an average pay-put ratio after forecasting the relevant variables. In Constant dividend per share policy, firms pay-out a constant dividend per share (DPS) irrespective of earnings.

Relevance of dividend

Different shareholders have different perspectives with regard to dividend payment, with some preferring a high dividend pay-out as they would have money in hand, some preferring no dividends at all and hoping for good capital gains while some preferring a low dividend pay-out and also looking for capital gains simultaneously.

Two popular theories discussing the informational value of dividends for market performance are: (i) Miller-Modigliani (MM) irrelevance theory (1958; 1961), and (ii) Gordon's (1963) and Linter's (1962) Bird- in-hand theory MM theory states that the investors are not concerned with a firm's dividend policy as they can always sell a part of their portfolio for meeting their cash

requirements. Bird-in-hand theory states that dividends are relevant in affecting the value of the firm. Investors prefer dividends to potential capital gains because of the uncertainty factor of the latter because a bird in hand is worth two in the bush. So, investors prefer stocks with high dividend pay-outs and therefore they command a higher market price.

Literature discussion

Lintner (1956) finds shareholders prefer smoothened dividend income. So, companies pay regular dividends to investors.

Modigliani and Miller (1958; 1961) proved that dividend has no influence on the value of a firm. Any investor can invest the proceeds of a dividend payment in additional shares and multiply his wealth.
Gordon (1963) was of the view that dividends may signal information about the company, and thereby an influence on the market price.

Fama and French (2001) analyzed the issue of lower dividends paid by firms over the period 1973-1999 for their changing behaviour. They found out that proportion of companies paying dividend has dropped from a peak of 66.5% in 1978 to 20.8% in 1999. This was on account of decline in the changing characteristics of firms.

Research Problem & Design
The present paper studies the Efficient Market Hypothesis, whether the markets are efficient and reflect in the market price when the dividend policy is announced by the firm.

Objectives
The study primarily aims at:
• To determine the relationship between dividend policy of the company and its market price.
•To analyse the effect of dividend decision on the share price of the company with regard to any abnormality.

A sample of 5 different sectors namely, IT, FMCG, Power, Oil & Gas and Healthcare has been taken for the period of five years (2006 -2010). The time period was purposely chosen for studying the pre and post recessionary phase impact of dividend policy on market price of the firms.

Two companies have been selected from each sector, total of 10 companies from BSE-500 index, for comparative analysis. The data has been taken from Prowess, CMIE database.
20.8% in 1999. This was on account of decline in the changing characteristics of firms.

For studying the 'abnormal price effect', regression effect was found out between script return and market return. The daily scrip return and market return is calculated as the percentage change in closing price to opening price The abnormal return is the difference between expected return and the actual return of the day.

Analysis

Following are the results of analysis of effect of DPS on stock price.

1. Sector: Power
Tables 1 and 2 depict the relationship between dividend and market price of NTPC and PGCIL.

Table 1: Relationship of DPS and Stock Price of NTPC

Year	Stock Price	Dividend Paid	Sensex
2006	115.3	2.8	**11279.96**
2007	135.26	3.2	**13072.1**
2008	169.39	3.5	**15,644.44**
2009	166.29	3.6	**9,708.50**
2010	185.09	3.8	**17,527.77**

Correlation of stock price wrt dividend: 0.98409 (good relation)

Correlation of stock price wrt Sensex: 0.572393 (good relation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**5.15%**
AD-10 TO AD-1	**6.18%**
AD	**1.54%**
AD+1-ED-1	**-4.05%**
ED	**-0.62%**
ED+1-ED+10	**-1.27%**
ED+1-ED+30	**-0.16%**
Mean Daily Ab. Return	**0.01%**

The abnormality is absorbed after effective date.

Year	Stock Price	Dividend Paid	Sensex
2006			**11279.96**
2007			**13072.1**
2008	94.44	0.7	**15,644.44**
2009	84.47	1.2	**9,708.50**
2010	100.94	1.5	**17,527.77**

Correlation of stock price wrt dividend: 0.256313 (weak correlation)

Correlation of stock price wrt Sensex: 0.985634 (strong correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**15.32%**
AD-10 TO AD-1	**0.59%**
AD	**-0.05%**
AD+1-ED-1	**0.44%**
ED	**0.17%**
ED+1-ED+10	**-0.20%**
ED+1-ED+30	**1.02%**
Mean Daily Ab. Return	**0.13%**

The abnormality is not visible. Thus the dividend decision does not affect the shareholders in this case

2. Sector: Oil & Gas

Tables 3 and 4 depict the relationship between dividend and market price of GAIL and ONGC.

Table 3: Relationship of DPS and Stock Price of GAIL

Year	Stock Price	Dividend Paid	Sensex
2006	254.95	10	**11279.96**
2007	259.65	10	**13072.1**
2008	387.23	10	**15,644.44**
2009	269.51	7	**9,708.50**
2010	390.1	7.5	**17,527.77**

Correlation of stock price wrt dividend: -0.15605 (negative correlation)

Correlation of stock price wrt Sensex: 0.885508 (strong correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**-10.08%**
AD-10 TO AD-1	**-8.89%**
AD	**1.45%**
AD+1-ED-1	**13.81%**
ED	**-0.26%**
ED+1-ED+10	**0.87%**
ED+1-ED+30	**0.41%**
Mean Daily Ab. Return	**0.04%**

The news is absorbed and abnormality goes after effective date as the price of stock falls after dividend economic value realisation.

Table 4: Relationship of DPS and Stock Price of ONGC

Year	Stock Price	Dividend Paid	Sensex
2006	130.65	22.5	**11279.96**
2007	151.89	15.5	**13072.1**
2008	171.41	16	**15,644.44**
2009	169.35	16	**9,708.50**
2010	230.2	16.5	**17,527.77**

Correlation of stock price wrt dividend: -0.50919 (negative correlation)
Correlation of stock price wrt Sensex: 0.729117 (strong correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**1.60%**
AD-10 TO AD-1	**-0.96%**
AD	**-1.82%**
AD+1-ED-1	**12.87%**
ED	**-0.22%**
ED+1-ED+10	**-4.46%**
ED+1-ED+30	**3.92%**
Mean Daily Ab. Return	**0.13%**

Again the news gets absorbed on effective date. The abnormality goes away as economic value is realised due to dividend effectiveness on ED.

3. Sector: Healthcare

Tables 5 and 6 depict the relationship between dividend and market price of Opto and Apollo Hospitals.

Year	Stock Price	Dividend Paid	Sensex
2006	273.95	4	**11279.96**
2007	181.07	5	**13072.1**
2008	181.83	5	**15,644.44**
2009	59.5	4	**9,708.50**
2010	124.46	4	**17,527.77**

Correlation of stock price wrt dividend: 0.198903 (weak correlation)

Correlation of stock price wrt Sensex: 0.023662 (weak correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**11.95%**
AD-10 TO AD-1	**-14.46%**
AD	**6.03%**
AD+1-ED-1	**-24.56%**
ED	**-1.95%**

ED+1-ED+10	**-5.09%**
ED+1-ED+30	**-8.16%**
Mean Daily Ab. Return	**-0.21%**

There was very high negative abnormality before announcement date and on AD. This information is absorbed by ED due to dividend realisation.

Table 6: Relationship of DPS and Stock Price of Apollo Hospitals

Year	Stock Price	Dividend Paid	Sensex
2006	110.99	2.25	**11279.96**
2007	117.88	2.5	**13072.1**
2008	116.22	3	**15,644.44**
2009	90.16	3.25	**9,708.50**
2010	188.35	3.5	**17,527.77**

Correlation of stock price wrt dividend: 0.477594 (weak correlation)

Correlation of stock price wrt Sensex: 0.85108 (strong correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**6.94%**
AD-10 TO AD-1	**16.66%**
AD	**-6.60%**
AD+1-ED-1	**-26.13%**
ED	**-0.25%**
ED+1-ED+10	**-6.27%**
ED+1-ED+30	**-9.23%**
Mean Daily Ab. Return	**-0.31%**

Again, very high negative abnormality on announcement date and prior AD was seen here.

4. Sector: IT

Tables 7 and 8 depict the relationship between dividend and market price of TCS and Wipro.

Table 7: Relationship of DPS and Stock Price of TCS Ltd

Year	Stock Price	Dividend Paid	Sensex
2006	899.33	13.5	**11279.96**
2007	574.28	13	**13072.1**
2008	417.23	15	**15,644.44**
2009	286.2	17	**9,708.50**
2010	719.82	20	**17,527.77**

Correlation of stock price wrt dividend: -0.12763 (negative correlation)

Correlation of stock price wrt Sensex: 0.202213 (weak correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	-19.47%
AD-10 TO AD-1	-13.23%
AD	-0.92%
AD+1-ED-1	-10.31%
ED	-51.54%
ED+1-ED+10	2.97%
ED+1-ED+30	10.37%
Mean Daily Ab. Return	-0.22%

On ED the abnormality was almost -52% but within 10 days after ED the stock becomes positive which means there was huge selling pressure due to dividend realisation on ED and after that the information got absorbed and the stock stabilised.

Table 8: Relationship of DPS and Stock Price of Wipro

Year	Stock Price	Dividend Paid	Sensex

Correlation of stock price wrt dividend: 0.797279 (strong correlation)

Correlation of stock price wrt Sensex: 0.764725 (strong correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	**-11.30%**
AD-10 TO AD-1	**-8.01%**
AD	**3.61%**
AD+1-ED-1	**-14.97%**
ED	**-2.43%**
ED+1-ED+10	**5.38%**
ED+1-ED+30	**13.34%**
Mean Daily Ab. Return	**-0.09%**

A similar trend is seen in TCS. The companies in this sector follow a similar trend of selling pressures

5. Sector: FMCG

Tables 9 and 10 depict the relationship between dividend and market price of HUL and Colgate.

Table 9: Relationship of DPS and Stock Price of HUL

Year	Stock Price	Dividend Paid	Sensex
2006	261.48	5	**11279.96**
2007	179.39	6	**13072.1**
2008	205.75	9	**15,644.44**
2009	211.01	7.5	**9,708.50**
2010	220.75	6.5	**17,527.77**

Correlation of stock price wrt dividend: 0.43986 (weak correlation)

Correlation of stock price wrt Sensex: -0.183 (negative correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	3.75%
AD-10 TO AD-1	-0.46%
AD	-1.78%
AD+1-ED-1	11.52%
ED	-0.59%
ED+1-ED+10	6.65%
ED+1-ED+30	18.15%
Mean Daily Ab. Return	0.33%

On ED, huge selling pressure is seen due to dividend realisation which lead to decrease in the positive abnormality.

Table 10: Relationship of DPS and Stock Price of Colgate

Year	Stock Price	Dividend Paid	Sensex
2006			**11279.96**
2007			**13072.1**
2008	352.99	15	**15,644.44**
2009	423.29	20	**9,708.50**
2010	678.49	22	**17,527.77**

Correlation of stock price wrt dividend: 0.847535(strong correlation)
Correlation of stock price wrt Sensex: 0.52248 (good correlation)

Time Window	% Cum. Ab. Return
AD-30 TO AD-01	8.49%
AD-10 TO AD-1	1.65%
AD	0.64%
AD+1-ED-1	-10.79%
ED	-1.11%
ED+1-ED+10	-1.88%
ED+1-ED+30	-4.00%
Mean Daily Ab. Return	-0.05%

On ED, there is a huge selling pressure due to which the positive abnormality becomes negative. After ED it gets stable.

Interpretation

In Power sector, companies have shown mixed results. NTPC presented a good relationship between its dividend per share and market price. The abnormality in the price behavior is also absorbed after the effective dividend date. It is a good sign for the investors. But, PGCIL depicted a week relationship between its dividend per share and market price. Thus, the dividend decision does not affect the shareholders in this case.

In Oil & Gas sector, both GAIL and ONGC showed a negative relationship between their dividend per share and market price. It signifies that market price reacts opposite to the dividend policy of the company though the abnormality in the price behavior gets also absorbed after the effective dividend policy of the company though the abnormality in the price behavior gets also in IT sector, TCS presented a negative correlation between dividend policy and market price, whereas Wipro showed a strong interrelationship. It has been found out that the high abnormality gets absorbed after the effective date and the stock becomes positive in both the companies.

FMCG sector again presented diverse results. HUL showed a week correlation between dividend policy and market price, whereas Colgate showed a strong interrelationship.

On an average, the empirical results of this study showed week or negative relationship between the dividend per share and the share price movement. This result is contrary to (Baskin, 1989)'s study which showed a significant relationship between the share price and dividend yield, as well as dividend payout.

There is empirical support for poor or negative linkage between share price and dividend per share. Companies with high dividend would react less to discount rate fluctuations and therefore companies with small dividend payout are considered to be more valuable due to their growth potential.

Conclusion and Recommendations

There was found to be little correlation between the dividend paid by the company and the market price of the company. It was observed that the market price of the company mainly fluctuated with that of BSE and a high correlation was found between those two parameters in the analysis, which is expected of mid-cap companies.

The information about the corporate dividend policy has an abnormal effect in the market price initially but later the market performs efficiently.

In the light of the above, following recommendations are being made:

1. In formulating an optimal dividend policy, the firms should consider all the factors that affect dividend policy for shareholders' wealth maximization.

2. To the maximum possible extent, the firms should follow a regular dividend policy for meeting shareholders' expectations.

3. There should be a balance between dividend payment and retained earnings for shareholders and the company growth.

Limitation of the study

The study is limited to five setters and 10 companies from BSE-500 index only. The sample could be broad-based for future research.

The results of the analysis might differ if models other than CAPM (Regression Model) is/are used.

While studying the effect of corporate dividend policy on the market price of the script, it is assumed that all the other factors affecting the market price are staying constant.

The time period is of five years, i.e. 2006-2010. It was selected in order to analyze the pre and post recessionary phase impact of dividend policy on market price of the firms. It could be expanded for future orientation.

References

Baskin, J. (1989). Dividend policy and the volatility of common stocks. The Journal of Portfolio Management, 15(3): 19-25.

Black, F. (1976). The dividend puzzle. J Portfolio Manage, 2: 5-8.

Bishop, S.R., Crapp, H.R., Faff, R.W., Twite, G.J. (2000). Corporate Finance. Prentice Hall Inc., Sydney.

Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay. Journal of Financial Economics, 60: 3-43.

Gordon, M.J. (1963). Optimum investing and financing policy. Journal of Finance, 18(2):264–272.

Lintner, J. (1956). Distribution of Incomes of Corporations among Dividends, Retained Earnings and Taxes. Am Econ Rev, 46: 97-113.

Lintner, J. (1962). Dividends, Earnings, Leverage, Stock Prices and Supply of Capital to Corporations, The Review of Economics and Statistics, 64: 243-269.

Miller, M.H., & Modigliani,F. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. The

American Economic Review, 48(3): 261-297.

Miller, M.H., & Modigliani, F.(1961). Dividend Policy, Growth and the Valuation of Shares, Journal of Business, 34: 411-433. https://prowess.cmie.com.

Dr. Sandeep Goel
Assistant Professor (Accounting and Finance)
Address: Management Development Institute, Sukhrali, Mehrauli Road, Gurgaon. Haryana-122001. INDIA
E-mail: sandeep@mdi.ac.in, sandeepgoel18@rediffmail.com

TESTING THE STATIONARITY OF BETA FOR BANKING SECTOR STOCKS IN INDIAN STOCK MARKETS: A PANEL REGRESSION ANALYSIS

Mihir Dash

Abstract

Beta is the central concept in the CAPM model. If betas vary considerably across time, the CAPM model's explanatory power would be undermined. The objective of the study is to test the stationarity of beta for banking sector stocks in different market regimes in Indian stock markets. The study was performed using a sample of six banking sector stocks out of fourteen banking sector stocks that are part of the Nifty 50 Index, listed on the National Stock Exchange (NSE), India, over a study period of six years. The study period was sub-divided into phases based on overall market trends: Boom phase (Apr. 2005 - Dec. 2007), Recession phase (Jan. 2008 - Mar. 2009), and Recovery phase (Apr. 2009 - Mar. 2011). The analysis was performed through the application of panel regression analysis. The results indicate that there were significant differences in betas over the different market phases. This suggests that betas of banking sector stocks in Indian stock markets are non-stationary.

Keywords: *time-varying beta, banking sector, Indian stock markets, panel regression analysis.*

Introduction

The Capital Asset Pricing Model (CAPM), developed by Sharpe (1964), Lintner (1965), and Mossin (1966), has been the dominant capital market equilibrium model since its inception. The model predicts that the expected return for any asset is a positive function of three quantities only: beta (the rate of change of asset return with respect to market return), the risk-free rate and the expected market return. Mathematically, it relates the expected return of an asset with its systematic risk, specifically , where ß is the asset's beta, rf is the risk-free rate, and E(rM) is the expected market return. This implies that an asset's responsiveness to general market movements is the only variable to cause systematic differences in return between assets.

Beta measures the part of the asset's variance that cannot be removed by the diversification provided by the portfolio of many risky assets, because of the correlation of its returns with the returns of the other assets that are in the portfolio. It is also referred to as the systematic risk. On an individual asset level, measuring beta can give clues to volatility and liquidity in the marketplace. In fund management, measuring beta is thought to separate a manager's skill from his or her willingness to take risk. Beta can be estimated for individual stocks and portfolios using regression analysis of asset returns against market returns.

Beta is a measure of the sensitivity of the asset's returns to market returns or equivalently, the asset's volatility in relation to that of the market.

By definition, the market has a beta of unity, and individual stocks are ranked according to how much they deviate from the market. A stock that fluctuates more than the market over time has a beta greater than unity, while a stock that fluctuates less than the market has a beta less than unity. High-beta stocks are expected to be riskier, but provide a potential for higher returns; low-beta stocks pose less risk, but yield lower returns.

An asset has a beta of zero if its returns change independently of changes in the market's returns. A positive beta means that the asset's returns generally follow

the market's returns, in the sense that they both tend to be above their respective averages together, or both tend to be below their respective averages together. A negative beta means that the asset's returns generally move opposite the market's returns: one will tend to be above its average when the other is below its average.

Beta is often used via the CAPM to calculate the cost of capital, which represents the discount rate used to arrive at the present value of a company's future cash flows. All things being equal, the higher a company's beta is, the higher its cost of capital/discount rate, and in turn the lower the present value placed on the company's future cash flows. Thus, beta can impact a company's share valuation.

Literature Review

The temporal behavior of beta is a widely-studied area in the asset pricing literature. Specifically, several studies have addressed the issues of stationarity and stability of beta. Stationarity of beta examines fluctuations in beta due in different phases, while stability studies the fluctuations in beta due to the choice of differencing interval (Gooding and O'Malley, 1977). Some of the pertinent literature in this area is reviewed in the following.

Some of the pioneering studies examining the stationarity of beta include Blume (1971) and Levy (1971). Blume (1971) found that asset betas for individual securities were poor estimates of betas in subsequent periods, and that the correlation between periods increased with portfolio size. Blume (1975) examined the mean reversion property of betas. Levy (1971) also found that betas were stationary for larger portfolios, less stationary for smaller portfolios, and non-stationary for individual securities, and also that predictability improves as the forecast period lengthens. Similar results were obtained by Levitz (1974) and Altman et al (1974). Scott and Brown (1980) explored reasons for the instability of beta and concluded that instability resulted on account of concurrent auto-correlated residuals and inter-temporal correlation between market returns and residuals. Onour (2010) analyzed beta coefficients for five sectors in the Kuwait Stock Market and found that the banking and real estate sectors exhibit relatively wider range of systematic risk variation compared to the other sectors, which in turn implies more exposure to risk and additional difficulty in managing and controlling risk.

Several studies have examined the impact of changes in market conditions on beta stationarity. Fabozzi and Francis (1977) found that there was no significant impact of alternating bull and bear markets on beta, using a modified version of the single index model, the dual beta market model. On the other hand, Gooding and O'Malley (1977) found that beta coefficients were significantly influenced by major market trends.

There have been several studies on beta stationarity in Indian stock markets. Garbade and Rentzler (1981) tested the beta stationarity using a variable parameter regression, compared with a random coefficients model, as proposed by Fabozzi and Francis (1977). Gupta and Mallick (1996) found year-to-year variation in beta among stocks on the Bombay Stock Exchange, and further found that this variation could not be explained by any accounting information.

Chawla (2001) found evidence against the stationarity of beta for a considerable percentage of stocks in Indian stock markets using regression with slope dummy variables. Moonis and Shah (2002) examined the time-varying beta through two approaches: the Kalman filter, and the bivariate GARCH model. They found evidence against beta stationarity for a considerable percentage of stocks. Chawla (2003) found evidence for

non-stationarity of alpha, but only limited evidence of non-stationarity of beta over bull and bear phases in Indian stock markets. Singh (2007) found considerable variation in the value of beta, and its stationarity and stability, depending on the method used for its computation.

Beta is the central concept in the foundation of CAPM model. If betas vary considerably across time, the CAPM model's explanatory power would be undermined. The objective of the study is to test the stationarity of beta, i.e. to examine how stable beta is for different stocks and how betas vary across time phases and in different market regimes. The null hypothesis for the study is that betas are stationary across different market phases.

Methodology

The study was performed using a sample of six banking sector stocks out of fourteen banking sector stocks that are part of the Nifty 50 Index, listed on the National Stock Exchange (NSE), India. The sample stocks included Axis Bank Ltd., HDFC Bank Ltd., ICICI Bank Ltd., Kotak Mahindra Bank Ltd., Punjab National Bank, and State Bank of India. The sample banking sector stocks all represent large-cap stocks, and the underlying banks are among the top ten best-performing banks in India. The data for the study consisted of the closing stock prices as well as the closing NSE Nifty index prices in the study period. The data was collected from the NSE website.

The study period considered was Apr. 1, 2005 - Mar. 31, 2011. This was subdivided into three sub-phases, by identifying macroeconomic and market trends (Nagaraj, 2013). The following phases were used to test the stationarity of alphas and betas:

• Boom phase: Apr. 2005 - Dec. 2007:- This phase can be referred to as a "boom" phase. Here the growth was at its peak. It was a rapid growth phase for the economy as a whole and the market in particular.

• Recession phase: Jan. 2008 - Mar. 2009:- In this phase, the market was impacted by the downturn, as a result of the global recession. Thus, it can be referred to as a "recessionary" phase.

• Recovery phase: Apr. 2009 - Mar. 2011:- In this phase, the market was recovering from the recession.

The daily returns of each stock as well as of the index were calculated using the usual log-returns formula $r_t = \ln(S_t/S_{t-1})$. The beta and alpha represent the slope and intercept, respectively, of the regression of each stock return on index returns. The beta of each stock was calculated using the regression slope formula $\beta(r) = \frac{COV(r_t, r_{Mt})}{V(r_{Mt})}$, where rt is the rate of return of the asset and rMt is the rate of return of the market portfolio, and the alpha of each stock was calculated by using the formula $\alpha(r) = \bar{r} - \beta(r).\overline{r_M}$ .This was performed for each phase separately, as well as overall.

In order to test the stability of beta across the phases, fixed-effects panel regression analysis/General Linear Model was performed taking stock returns as the dependant variable, the stocks and the phases as the fixed factors, and index returns as the covariate, along with interaction effects between the stocks and phases. The models were sequentially developed as follows. The initial model, model I, considered intercept and slope dummies for each stock, viz. ,
$r_{it} = \alpha + \alpha_i + (\beta + \beta_i) r_{Mt} + \epsilon_t$ where rit is the returns of stock i at time t, rMt is the returns of the index at time t, and α, αi, ß, and ßi were parameters to be estimated. Subsequently, in model II, phase effects were introduced by intercept and slope dummies for each phase, viz.
$r_{it} = \alpha + \alpha_i + \alpha_j + (\beta + \beta_i + \beta_j) r_{Mt} + \epsilon_t$
, where rijt is the returns of stock i in phase j at time t, and α, αi, αj, ß, ßi, and ß

j were parameters to be estimated. Finally, in model III, interactions of $r_{ijt} = \alpha + \alpha_{ij} + (\beta + \beta_{ij})r_{Mt} + \epsilon_{t,}$, viz.

, where α, αij, ß, and ßij were parameters to be estimated. The significance of the parameters indicates that the stock alphas and betas in specific phases were significantly different from the respective (industry) averages.

Findings

The alphas of the sample stocks across the different phases are presented in Table 1 below.

Table 1: Beta Regressions of banking stocks

	α	$\alpha_{Recession}$	$\alpha_{Recovery}$	β	$\beta_{Recession}$	$\beta_{Recovery}$	R^2
Axis Bank Ltd.	0.0664	-0.0499	0.0165	0.8605**	0.4087**	0.3647**	45.5%**
HDCF Bank Ltd.	0.0275	0.0104	0.0356	0.8747**	0.0987*	-0.2176**	46.3%**
ICICI Bank Ltd.	0.0061	-0.0851	0.0474	1.0023**	0.5117**	0.4316**	62.3%**
Kotak Mahindra Bank Ltd.	0.1310	-0.3229*	-0.0708	1.0245**	0.3007**	0.3085**	44.7%**
Punjab National Bank	-0.0891	0.1526	0.1928*	1.0311**	-0.0818	-0.1731*	46.9%**
State Bank of India	0.0267	-0.0478	0.0120	0.9992**	0.0362	0.1549*	56.2%**

Only two of the sample stocks were found to have statistically significant differences in alphas across phases: Kotak Mahindra Bank, which had significantly lower (and negative) alpha in the Recession phase vis-à-vis the Boom phase, and Punjab National Bank, which had significantly higher (and positive) alpha in the Recovery phase vis-à-vis the Boom phase. Further, all of the sample stocks were found to have statistically significant and positive betas, and three of the sample stocks were found to have a beta greater than unity. Further, four of the sample stocks had significantly higher beta in the Recession phase as compared to the Boom phase, and four of the sample stocks had significantly higher beta in the Recovery phase as compared to the Boom phase, while two of the sample stocks had significantly lower beta in the Recovery phase as compared to the Boom phase. Finally, all of the sample stocks had statistically significant beta regressions, with R2 of at least 40%.

The tests and estimates of the panel regression models are presented in Table 2a, 2b, 3a, 3b, 4a, and 4b below.

Table 2a: results of fixed effects regression model I - Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F Stat	p-value
Corrected Model	36909.213[a]	11	3355.383	794.907	0.000
Intercept	2.402	1	2.402	0.569	0.451
Stocks	3.716	5	0.743	0.176	0.972
Index returns	36127.529	1	36127.529	8558.797	0.000
Stocks * Index returns	778.790	5	155.758	36.900	0.000
Error	37736.625	8940	4.221		
Total	74724.654	8952			
Corrected Total	74645.838	8951			

Dependent Variable: Stock returns
a. $R^2 = 0.494$ (adjusted $R^2 = 0.494$)

Table 2b: results of fixed effects regression model I - Parameter Estimates

Parameter	coeff.	Std. Error	t Stat	p-value
Intercept	0.022	0.053	0.418	0.388
[Axis Bank]	0.017	0.075	0.224	0.412
[HDFC Bank]	0.005	0.075	0.073	0.471
[ICICI Bank]	-0.047	0.075	-0.620	0.268
[Kotak Mahindra Bank]	0.003	0.075	0.043	0.483
[Punjab National Bank]	-0.014	0.075	-0.185	0.427
[State Bank of India]	0[a]	.	.	.
Index returns	1.053	0.029	36.251	0.000
[Axis Bank] * Index returns	0.080	0.041	1.951	0.026
[HDFC Bank] * Index returns	-0.185	0.041	-4.513	0.000
[ICICI Bank] * Index returns	0.285	0.041	6.946	0.000
[Kotak Mahindra Bank] * Index returns	0.186	0.041	4.535	0.000
[Punjab National Bank] * Index returns	-0.102	0.041	-2.483	0.007
[State Bank of India] * Index returns	0[a]	.	.	.

Dependent Variable: Stock returns
a. This parameter is set to zero because it is redundant.

The results of regression model I were statistically significant, explaining 49.4% of the overall variation in sample stock returns. The overall alpha of the sample stocks was found to be not statistically significant, and there were no statistically significant differences between the overall alphas of the sample stocks. The overall beta of the sample stocks was found to be statistically significant, with an average value of 1.097. Further, there were significant differences between the overall betas of the sample stocks, with HDFC Bank having the lowest overall beta (in particular, less than unity), and ICICI Bank having the highest overall beta.

The results of regression model II were statistically significant, explaining 49.8% of the overall variation in sample stock returns. The overall alpha of the sample stocks was found to be not statistically significant, and there were no statistically significant differences between the overall alphas of the sample stocks and across phases. The overall beta of the sample stocks was found to be statistically significant, with an average value of 1.089.

Table 3a: results of fixed effects regression model II - Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F Stat	p-value
Corrected Model	37174.030[a]	15	2478.269	590.999	0.000
Intercept	3.859	1	3.859	0.920	0.337
Stocks	3.716	5	0.743	0.177	0.971
Phases	10.398	2	5.199	1.240	0.290
Index returns	32691.983	1	32691.983	7796.143	0.000
Stocks * Index returns	778.790	5	155.758	37.144	0.000
Phases * Index returns	248.702	2	124.351	29.654	0.000
Error	37471.808	8936	4.193		
Total	74724.654	8952			
Corrected Total	74645.838	8951			

Dependent Variable: Stock returns

a. $R^2 = 0.498$ (adjusted $R^2 = 0.497$)

Table 3b: results of fixed effects regression model II - Parameter Estimates

Parameter	coeff.	Std. Error	t Stat	p-value
Intercept	0.073	0.061	1.188	0.118
[Axis Bank]	0.017	0.075	0.225	0.411
[HDFC Bank]	0.005	0.075	0.073	0.471
[ICICI Bank]	-0.047	0.075	-0.622	0.267
[Kotak Mahindra Bank]	0.003	0.075	0.044	0.483
[Punjab National Bank]	-0.014	0.075	-0.185	0.477
[State Bank of India]	0[a]	.	.	.
[Boom phase]	-0.039	0.049	-0.788	0.216
[Recession phase]	-0.096	0.061	-1.574	0.058
[Recovery phase]	0[a]	.	.	.
Index returns	1.066	0.036	29.680	0.000
[Axis Bank] * Index returns	0.080	0.041	1.957	0.025
[HDFC Bank] * Index returns	-0.185	0.041	-4.527	0.000
[ICICI Bank] * Index returns	0.285	0.041	6.969	0.000
[Kotak Mahindra Bank] * Index returns	0.186	0.041	4.550	0.000
[Punjab National Bank] * Index returns	-0.102	0.041	-2.491	0.007
[State Bank of India] * Index returns	0[a]	.	.	.
[Boom phase] * Index returns	-0.145	0.032	-4.477	0.000
[Recession phase] * Index returns	0.068	0.030	2.248	0.013
[Recovery phase] * Index returns	0[a]	.	.	.

Dependent Variable: Stock returns

a. This parameter is set to zero because it is redundant.

Table 4a: results of fixed effects regression model III - Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F Stat	p-value
Corrected Model	37583.082[a]	35	1073.802	258.319	0.000
Intercept	3.859	1	3.859	0.928	0.335
Stocks * Phases	42.977	17	2.528	0.608	0.889
Index returns	32691.983	1	32691.983	7864.545	0.000
Stocks * Phases * Index returns	1390.776	17	81.810	19.681	0.000
Error	37062.757	8916	4.157		
Total	74724.654	8952			
Corrected Total	74645.838	8951			

Dependent Variable: stock returns

a. $R^2 = 0.503$ (adjusted $R^2 = 0.502$)

Table 4b: results of fixed effects regression model III - Parameter Estimates

Parameter	coeff.	Std. Error	t Stat	p-value
Intercept	0.039	0.092	0.422	0.337
[Axis Bank] * [Boom phase]	0.028	0.120	0.230	0.409
[Axis Bank] * [Recession phase]	-0.022	0.149	-0.149	0.441
[Axis Bank] * [Recovery phase]	0.044	0.130	0.340	0.367
[HDFC Bank] * [Boom phase]	-0.011	0.120	-0.093	0.463
[HDFC Bank] * [Recession phase]	-0.001	0.149	-0.005	0.498
[HDFC Bank] * [Recovery phase]	0.024	0.130	0.188	0.426
[ICICI Bank] * [Boom phase]	-0.033	0.120	-0.270	0.394
[ICICI Bank] * [Recession phase]	-0.118	0.149	-0.791	0.215
[ICICI Bank] * [Recovery phase]	0.015	0.130	0.114	0.455
[Kotak Mahindra Bank] * [Boom phase]	0.092	0.120	0.766	0.222
[Kotak Mahindra Bank] * [Recession phase]	-0.231	0.149	-1.550	0.061
[Kotak Mahindra Bank] * [Recovery phase]	0.022	0.130	0.166	0.434
[Punjab National Bank] * [Boom phase]	-0.128	0.120	-1.061	0.245
[Punjab National Bank] * [Recession phase]	0.025	0.149	0.167	0.434
[Punjab National Bank] * [Recovery phase]	0.065	0.130	0.501	0.308
[State Bank of India] * [Boom phase]	-0.012	0.120	-0.100	0.461
[State Bank of India] * [Recession phase]	-0.060	0.149	-0.402	0.344
[State Bank of India] * [Recovery phase]	0[a]	.	.	.
Index returns	1.154	0.059	19.459	0.000
[Axis Bank] * [Boom phase] * Index returns	-0.294	0.079	-3.722	0.000
[Axis Bank] * [Recession phase] * Index returns	0.115	0.073	1.571	0.058
[Axis Bank] * [Recovery phase] * Index returns	0.071	0.084	0.847	0.199
[HDFC Bank] * [Boom phase] * Index returns	-0.279	0.079	-3.542	0.000
[HDFC Bank] * [Recession phase] * Index returns	-0.181	0.073	-2.467	0.007
[HDFC Bank] * [Recovery phase] * Index returns	-0.497	0.084	-5.926	0.000
[ICICI Bank] * [Boom phase] * Index returns	-0.152	0.079	-1.924	0.027
[ICICI Bank] * [Recession phase] * Index returns	0.360	0.073	4.913	0.000
[ICICI Bank] * [Recovery phase] * Index returns	0.280	0.084	3.336	0.001
[Kotak Mahindra Bank] * [Boom phase] * Index returns	-0.130	0.079	-1.642	0.051
[Kotak Mahindra Bank] * [Recession phase] * Index returns	0.171	0.073	2.336	0.010
[Kotak Mahindra Bank] * [Recovery phase] * Index returns	0.179	0.084	2.133	0.017
[Punjab National Bank] * [Boom phase] * Index returns	-0.123	0.079	-1.559	0.059
[Punjab National Bank] * [Recession phase] * Index returns	-0.205	0.073	-2.795	0.003
[Punjab National Bank] * [Recovery phase] * Index returns	-0.296	0.084	-3.531	0.000
[State Bank of India] * [Boom phase] * Index returns	-0.155	0.079	-1.964	0.025
[State Bank of India] * [Recession phase] * Index returns	-0.119	0.073	-1.620	0.053
[State Bank of India] * [Recovery phase] * Index returns	0[a]	.	.	.

Dependent Variable: Stock returns

a. This parameter is set to zero because it is redundant.

The results of regression model III were statistically significant, explaining 50.2% of the overall variation in sample stock returns. The overall alpha of the sample stocks was found to be not statistically significant, and there were no statistically significant differences between the overall alphas of the sample stocks in different phases. The overall beta of the sample stocks was found to be statistically significant, with an average value of 1.084. Further, there were significant differences between the betas of the sample stocks in different phases. HDFC Bank was found to have beta less than unity in all three phases, while the other sample stocks were found to have mixed betas. Axis Bank, ICICI Bank, Kotak Mahindra Bank, and State Bank of India were found to have significantly lower beta in the Boom phase than in other phases, while HDFC Bank and Punjab National Bank were found to have significantly lower beta in Recovery phase than in other phases.

In fact, the phase-wise beta estimates from model III exactly match the beta estimates for each stock, in Table 1 above. Thus, panel regression model III is equivalent to a collection of individual regressions for each sample stock.

Discussion

The results of the study reject the hypothesis of beta stationarity for banking stocks in Indian stock markets. Thus, historical betas for banking sector stocks may not provide reliable estimates of stock betas for use in financial analysis, especially valuation analysis. However, there was no uniform pattern of beta variation across the phases.

The results of the study indicate that most banking sector stocks have betas greater than unity. Thus, banking sector stocks would be expected to move with the market as a whole, and to be more volatile than the market. Overall, this suggests that banking sector stocks yield higher returns to investors in boom phases, but may be riskier in recession and recovery phases. Thus, banking sector stocks may be more suitable for speculators than for long-term investors. These results seem to be similar to those of Onour (2010), suggesting that banking sector stocks may be highly volatile in global markets.

There are some limitations inherent in the present study. The study considers a small sample of banking sector stocks for the analysis, all of which are large-cap stocks. The small sample size was considered in part for convenience, in terms of both tractability and presentability.

Of course, the methodology may be readily applied for a larger sample size; however, it is not clear whether the results would be affected by including mid- and small-cap stocks. Also, the study period selected was relatively short, only six years. The results of the study may be specific to the study period considered, particularly as the global financial crisis was primarily a banking crisis worldwide. Also, though the phases considered in the study were generally in accordance with the literature, there is a degree of ambiguity in the identification of structural breaks in stock market trends, and the results may be sensitive to the choice of phases. The analysis should be further corroborated with other methods such as dummy variable regression and the Chow test. Also, the analysis should be performed for other sectors to assess the stationarity of beta in general. Further, stationarity should be investigated for extensions of the market model such as the Fama-French three-factor model and other multi-factor models.

References

Altman, E.I., Jacquillat, B. and Levasseur, M. (1974). Comparative Analysis of Risk Measures: France and the United States. Journal of Finance, 29(5): 1495-1511.

Blume, M.E. (1971). On the Assessment of Risk. Journal of Finance, 26: 1-10.

Blume, M.E. (1975). Betas and Their Regression Tendencies. Journal of Finance, 30: 785-795.

Chawla, D. (2001). Testing Stability of Beta in the Indian Stock Market. Decision, 28(2): 1-22.

Chawla, D. (2003). Stability of Alphas and Betas over Bull and Bear Markets: An Empirical Examination. Vision: The Journal of Business Perspective, 7: 57-77.

Fabozzi, F.J. and Francis, J. C. (1977). Stability tests for alphas and betas over bull and bear market conditions. Journal of Finance, 32: 1093–1099.

Garbade, K. and Rentzler, J. (1981). Testing the hypothesis of beta stationarity. International Economic Review, 22(3): 577-587.

Gooding, A.R. and O'Malley, T.P. (1977). Market Phase and the Stationarity of Beta. Journal of Financial and Quantitative Analysis, 12(5): 833-857.

Gupta, A. and Mallick, A.K. (1996). Interrelation between Market-Based Security Risk Measure and Accounting Information: A Study on Selected Indian Companies. Decision, 23: 1-24.

Levitz, G.D. (1974). Market Risk and the Management of Institutional Equity Portfolios. Financial Analysts Journal, 30(1): 53-60.

Levy, R.L. (1971). On the Short-Term Stationarity of Beta Coefficients. Finan-

Financial Analysts Journal, 27(6): 55-62.

Moonis, S.A. and Shah, A. (2002). Testing for time variation in beta in India. Journal of Emerging Markets and Finance, 2(2): 163-180.

Nagaraj, R. (2013). India's Dream Run, 2003-08. Economic & Political Weekly, 48(20): 39-51.

Onour, I.A. (2010). Exploring Stability of Systematic Risk: Sectoral Portfolio Analysis. Middle Eastern Finance and Economics, 6: 1450-2889.

Scott, E. and Brown, S. (1980). Biased Estimators and Unstable Betas. Journal of Finance, 25(1): 49-55.

Singh, R. (2008). Beta Estimation in the Indian Stock Market: Stability, Stationarity and Computational Considerations. Decision, 35(2): 63-85.

Prof. Mihir Dash
Department of Quantitative Methods
School of Business, Alliance University
Chikkahagade Cross,
Chandapura-Anekal Road,
Bangalore, India – 562106
e-mail: mihida@rediffmail.com

MITIGATING CREDIT RISK: AN EMPIRICAL STUDY OF INDIAN PUBLIC SECTOR BANKS

Renu Arora, Archana Singh

Abstract

The purpose of this paper is to study the core credit risk management processes and procedures of the Indian public sector banks and identify the grey areas to improve effectiveness of these systems for risk mitigation. Credit risk management is a key banking system to control non-performing loans, and the banks need efficient alignment of credit strategy, credit policy and processes, and efficient channels of sharing risk information to mitigate credit risk. Through factor analysis, ANOVA and post-hoc studies, the managerial perceptions on credit risk management practices of these banks have been analyzed for three groups of credit and risk managers – managers in large and small banks, managers with different lengths of banking experience, and managers at different levels of management. The research finds that key areas which need improvement are HR potential development through risk trainings, data management, integration across credit departments, increasing consistencies in risk rating approaches, reducing subjectivity in credit ratings, reducing loan processing time, and increasing focal attention on problem loans.

Keywords: *India, Risk infrastructure, System disintegration, Risk-based appraisals, Inconsistencies in risk-ratings.*

Introduction

A Credit asset quality problem is one of the obstacles limiting the further development of commercial banks (JIN, 2011). Indeed, the large number of non-performing loans is the main cause of bank failure (Lin & Mei, 2006). Driven by RBI (Reserve Bank of India) pressures and profitability thrust, it is imperative for Indian banks especially for public sector banks to focus on core credit risk management processes and procedures to determine problem areas. Successful credit risk management (CRM) requires understanding the issues which credit and risk managers at different levels deem important and providing the mechanisms by which maximum participation in risk management can be undertaken in a productive manner. There may be different perceptions of credit risk conceptualization, on risk factors, during risk analysis, assessments, collateral valuation, loan reviews and risk control processes. In CRM processes, it is highly essential to ensure the highest standards of risk communication and coordination namely; the content and process of sharing of risk information among different hierarchy levels meeting certain ments. This will ensure maximum participation and confidence in CRM systems and processes and should ultimately be very effective and efficient in achieving good quality credit assets and minimizing credit losses. While there are many studies on determinants of credit risk, risk and productivity changes in Indian banks, little has been written about perceived obstacles by different categories of risk managers to improve effectiveness of these systems.

This research aims to understand how the existing CRM systems and procedures for business loans in Indian public sector banks (PSBs) are perceived by their credit and risk managers and to find the grey areas which need improvement and control. For this purpose the three-dimensional managerial perceptions of 337 credit and risk managers of these banks on a set of 23 CRM practices for commercial loans have been gathered. An attempt has been made to examine how these practices may be managed for credit risk mitigation.

The research article has been organized

introduction of the study, section two reviews the literature, section three identifies the research objectives, section four discusses the data and research methodology, section five presents the empirical analysis and results, section six concludes and defines the managerial implications of the study.
section six concludes and defines the managerial implications of the study.

Review of literature

Commercial banks are mainly faced with credit risk, and loans are the largest and the most obvious source of credit risk (Al-Tamimi & Al-Mazrooei, 2007). Many theoretical and empirical studies have verified that internal organizational management and strategies are the determinants of a business's profitability (Lin & Mei, 2006), and the banks shall have a 'differential treatment, differential control' loan policy to reduce credit risk (JIN, 2011).

According to Lepus (2004), the key components of effective credit risk management are robust technology, defined business processes, detailed policies, and sophisticated analytics. Information Technology (IT) is a key productive factor in the banking and finance industry (BFI) as almost the entire production and delivery of services can in principle be digitized (Gewald et al., 2006). Njanike (2009) highlighted the potential obstacles to the successful implementation of effective credit risk management systems by banks namely, lack of resources, disintegration of systems across departments, inconsistency in risk-rating approaches, data management, and stringent regulatory requirements.

According to Lau (2006), the level of effectiveness (of risk analysis) does not always have to be expressed in terms of level of risk (or in terms of either risk components). For instance, merely indicating that a security control is inadequately implemented is sufficient to inform a managerial decision-maker that something needs to be done to lower the level of risk involved (Lau, 2006). Oesterreichische (2004) suggested an optimal design of credit approval processes which shall minimize substantive and procedural errors by incorporating all possible risk mitigation measures. Lehmann (2003) found that the disadvantages of credit rating systems that rely heavily on expert judgments and subjective information are the difficulties in objectively comparing and re-examining past credit assessments. On integration and standardization, Lepus (2004) observed thatmany banks have yet to integrate the disparate components of their credit risk systems, for a consistent framework. Greuning and Bratanovic (2009) favored setting and enforcing clear assignment of responsibilities, decision making authority, and accountabilities appropriate for the bank's selected risk profile.

Das and Ghosh (2007), Thiagarajan et al. (2011), and Ghosh(2011) studied the problem loans of the Indian PSBs for the period from 1997-2010 and had diverse views about relationship between the size of banks and their credit risk. Kumar and Kotreshwar (2005) suggested that the Indian banks must develop a competitive early-warning system (EWS) which combined strategic planning, competitive intelligence, management action. Bhavaniprasad and Veena (2011) stressed upon the need for organizational restructuring, improvement in the managerial efficiency to assess the credit worthiness of borrowers in Indian banks. RBI reports (2011-14) had maintained that economic slow-down is not the sole reason for deteriorating asset quality but also the inadequate appraisal and monitoring of credit proposals by banks.

Thus, there is an immediate challenge before Indian public sector banks to improve their internal CRM systems and procedures to track credit delinquencies and build asset quality.

Managerial decision-making and rationality are impacted and influenced by perceptual processes, and perception causes people to make wrong choices based on false information, and incorrect decisions result in a great deal of negative effects (Cheah, 2012). The risk management institutions must institute a broad-based participatory process of high quality (MacGregor, 1994) as risk managers may be sensitive to loss of control, unfairly bearing risk for which someone else receives benefit (MacGregor, 1994).

The review of literature shows that there in not much work on how bank managers perceive the adequacy, efficiency and effectiveness of CRM strategies and processes in their organizations and there is little empirical work to directly address this issue in the context of credit risk decision making process for commercial loans in Indian public sector banks (PSBs). Since most of the credit risk management is influenced by subjectivity and experiential factors, understanding managerial perceptions on bank's credit risk management systems will help enhance goal alignment, risk sensitivity and potential development among risk managers.

Research objectives

The research objective of the study is to understand the managerial perceptions in Indian public sector banks towards various credit risk management practices in commercial credit and to delineate the problem areas for risk mitigation.

Data and research methodology

The managerial perceptions on CRM obstacles and risk mitigation measures in business loans in Indian public sector banks (PSBs) have been studied for three groups of credit and risk analysts – credit managers in large and small PSBs, credit managers with different lengths of banking experience, and credit managers at different levels of management, through a survey polled on 337 such managers. For understanding perceptional differences between and within groups, the data has been subjected to statistical analysis to find out the most prominent obstacles and most effective or ineffective risk mitigation measures in these banks.

4.1 Sample

The study empirically examines the problems and obstacles in credit risk mitigation and control in grant of commercial loans by Indian public sector banks through a sample of their 337 credit and risk managers, 172 from large PSBs and 165 from small PSBs. Both banks and respondents were selected through non-probability convenience sampling method. Large banks' respondents were from the State Bank of India, Punjab National Bank, Bank of Baroda, Oriental Bank of Commerce, IDBI Bank, the Syndicate Bank, and the small banks' respondents were from the Vijaya Bank, Dena Bank, United Bank of India, Punjab and Sind Bank, Andhra Bank, and the State Bank of Bikaner and Jaipur, covering 46 per cent of 26 Indian PSBs. One more PSB, Bhartiya Mahila Bank has also started functioning (November, 2013), but not made part of the study for want of audited annual reports and credit results. The banks in large and small categories have been divided on the basis of their share in total assets of public sector banks with 2.5 per cent as a cut-off. The respondents were primarily dealing with SME and mid-corporate business loans, and polled through a structured questionnaire, from June to December, 2013, in and around Delhi. The 39 per cent respondents had up to seven years of banking experience, 25 per cent from eight to 20 years, and 36 per cent had more than 20 years' experience. The 14.8 per cent respondents were junior managers, 53.4 per cent middle level managers, and 31.8 per cent senior level managers.

4.2 Measures

Based on the literature review and through personal discussion with respondents, a theoretical framework of CRM systems of the Indian public sector banks was modeled (Figure 1) which was the basis of a logically structured representation of 11 obstacles in implementation of various CRM systems in these banks and 12 risk mitigation measures adopted by them. Part 1 of the research instrument tested the intensity of such obstacles (responses scaled to: very much-5, somewhat- 4, cannot say- 3, a little bit- 2, not at all- 1) and part 2 tested the effectiveness of risk mitigation measures (scored as very good- 5, good-4, average-3, below average-2, bad-1).

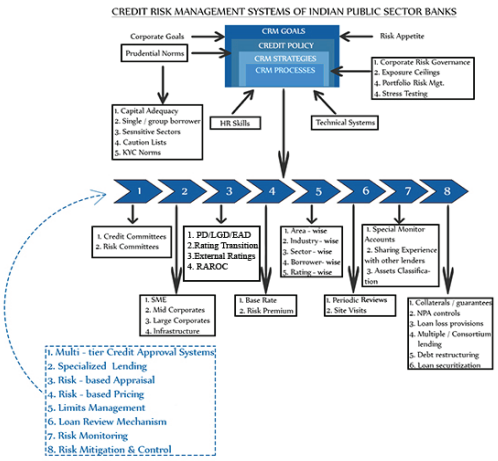


Figure 1: Modeling CRM Systems in Indian Banks.

(Source: Author's analytical studies)

4.3 Statistical Techniques Used

Data collected for the study was analyzed through Likert scale analysis, descriptive statistics, factor analysis, one-way ANOVA, and Tukey's HSD post hoc tests, using SPSS, at 0.05 level of significance. A Likert scale, a psychometric scaling technique used in structured questionnaires, was the basis of all statistical analysis in the study.

Factor analysis was used to reduce the 12 CRM obstacles into two underlying factors, and to reduce the 11 risk mitigation measures again into two factors, to select the surrogate variables and to calculate the factor scores for each of the Data collected for the study was analyzed through Likert scale analysis, descriptive statistics, factor analysis, one-way ANOVA, and Tukey's HSD post hoc tests, using SPSS, at 0.05 level of significance. A Likert scale, a psychometric scaling technique used in structured questionnaires, was the basis of all statistical analysis in the study.

Factor analysis was used to reduce the 12 CRM obstacles into two underlying factors, and to reduce the 11 risk mitigation measures again into two factors, to select the surrogate variables and to calculate the factor scores for each of the 337 respondent on the derived factors. The derived factor scores was used in one-way analysis of variance (ANOVA) to find the significant differences in perception of three groups of credit managers and in post-hoc tests. Factor analysis is a multivariate statistical technique used primarily in data reduction and in summarizing information into a smaller number of subsets or factors. Principal component analysis has extracted principal factors explaining maximum variation in the responses.

This study used one-way ANOVA or F statistic to test the significance of various CRM variables with responses of three categories of credit managers in Indian public sector banks as independent variables. Tukey's HSD post hoc tests clarified which groups in specific had significant differences.

5. Results and discussion

For confirming the reliability of the measures, the Cronbach's α value was calculated, which came to 0.803 (23 variables), exceeding the minimum standard of 0.7. Cronbach alpha coefficient is an indicator of internal consistency in response pattern and repeatability of the measures. The analytical results for obstacles and risk mitigation measures have been explained further.

5.1 Data Analysis and Results - Part 1- Obstacles

5.1.1 Descriptives

The mean score tally among 337 respondent credit analysts (Table I) shows that most of them were feeling insufficient training (3.42), overload (3.19), lack of risk awareness (3.17), and lack of resources (3.06) as serious obstacles in implementation of credit risk management systems and processes in their banks. To analyze the responses further, data was subjected to factor analysis and ANOVA.

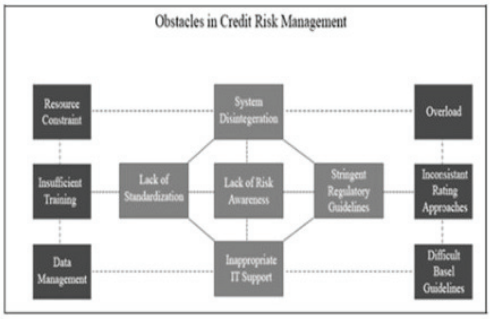


Figure 2: Obstacles in CRM Systems and Processes. (Source: Author's analytical studies)

Table I. Descriptive Statistics-Obstacles

	N	Mean	Std. Deviation
1. Lack of resources	337	3.06	1.338
2. Lack of risk awareness	337	3.17	1.299
3. Insufficient training	337	3.42	1.213
4. Disintegration of systems across departments	337	2.98	1.234
5. Inconsistencies in risk-rating approaches	337	2.81	1.222
6. Data management	337	2.92	1.256
7. Inappropriate IT support	337	2.73	1.316
8. Lack of comprehension of Basel guidelines	337	2.69	1.270
9. Lack of standardization of risk-rating and review processes	337	2.63	1.285
10. Overload	337	3.19	1.325
11. Stringent regulatory requirements	337	2.86	1.269

5.1.2 Factor analysis

The factor analysis was applied on part 1 of the questionnaire relating to obstacles in credit risk management in sample banks. Factor analysis with principal component extraction, was applied with varimax rotation to understand the factor loadings across the derived components. Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and Bartlett's test of sphericity for examining the correlation matrix based on chi-square transformation, was conducted. The KMO measure of sampling adequacy came out to be 0.882 which was above 0.65 (the acceptable level). The chi- square value of Bartlett's test of sphericity was found to be significant, with chi square (df 55) = 1570.160 at p= 0.000. This showed the appropriateness of factor analysis. The varimax rotation clubbed the 11 variables on two principal factors, and using the Rotated Component Matrix, factor loadings (Table II) and Scree Plot (Figure 3) were derived. Total variance explained in two factors was 56.95% (cumulative).

The key obstacles in implementation of credit risk management systems and processes in Indian PSBs was grouped in two components for further analysis:

1. Gaps in risk infrastructure (7 variables).
2. Bottlenecks due to regulatory framework, work distribution & lack of standardization (4 variables).

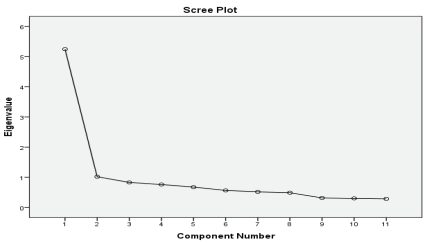


Figure 3: Scree Plot – Obstacles.

Table II. Rotated Component Matrix and Factor Loadings: CRM Obstacles

	Component	
	Gaps in risk infrastructure	Other bottlenecks
1. Lack of resources.	.690	
2. Lack of risk awareness.	.845	
3. Insufficient training.	.732	
4. Disintegration of systems across departments.	.525	
5.Inconsistencies in risk-rating approaches.	.675	
6.Data management.	.549	
7.Inappropriate IT supports.	.516	
8. Lack of comprehension of Basel guidelines.		.557
9. Lack of standardization of risk-rating and review processes.		.687
10. Overload.		.731
11. Stringent regulatory requirements.		.770

To analyze the risk perception of bank managers on these two categories of CRM obstacles, two approaches have been adopted. The first approach was to select a surrogate variable (the dependent variable) in each obstacle category and conduct ANOVA/ F test on three independent variables, managers in large or small PSBs; managers in three experience groups – 'Up to 7 Years', '8 to 20 Years' and 'Above 20 years'; and managers at three levels – junior, middle and senior levels. ANOVA compares the between estimates of mean variance with the within estimates. The second approach was to calculate factor scores (the dependent variable) for each respondent for two categories of CRM obstacles, and conduct ANOVA on the above three independent variables. Tukey's HSD post hoc tests were conducted in those cases where significant differences was observed in risk perceptions to find which groups among the sample, in specific had significant perception differences.

Surrogate Variables Approach. Surrogate or substitute variable is the variable with highest factor loading in each factor category. Conducting statistical analysis on surrogate variables facilitates interpreting results in terms of original variables rather than the factor scores.

The two surrogate CRM obstacles for each of two factors were 'Lack of Risk Awareness' (factor loadings 0.845) and 'Stringent Regulatory Requirements' (factor loadings 0.770) (Table II). One-way analysis of variance (ANOVA) was conducted on surrogate obstacles to identify the significant difference in risk perceptions of three managerial groups.

The results showed statistically significant difference in managerial perception for 'Lack of Risk Awareness' in large and small banks, with $F(2, 334) = 3.544$, at $p = 0.030$ and the mean score for large banks was 2.97 (S.D. 1.324) against mean score for small banks is 3.38 (S.D. 1.242). Credit and risk managers in small PSBs were perceiving lack of risk awareness as significant obstacle in managing credit risk in their banks. Though no significant difference was observed among other managerial groups viz. at different levels of management or in different experience brackets. Thus, credit managers needed more education on risk issues, to understand the risk technicalities and learn the ways of commercial borrowers, business markets, government policies and economic scenarios. There may be imbalance of risk awareness among different banks, among different ranks within banks and their risk and credit departments, and this could create problems in accurate assessment of credit risk.

Towards the second surrogate variable 'Stringent Regulatory Requirements', no significant difference in perception of any group of managers was observed. Any difference in groups mean scores were random or by chance. In other words, the groups were similar in their opinion. The mean score for all respondents on this variable was 2.86, signifying stringency of regulatory guidelines was not perceived as a serious problem in CRM operations in PSBs.

Factor Scores Approach. Factor scores were composite scores estimated for each respondent on each of the two derived factors - 'Gaps in Risk Infrastructure' and 'Bottlenecks due to Regulatory Framework, Work Distribution & Lack of Standardization'. Factor scores were computed through SPSS, under principal component method. One way ANOVA (Tables III to V) and post-hoc tests (Table VI) was conducted on factor scores to study the differences in managerial perceptions towards two categories of CRM obstacles among the three groups.

The results of one-way ANOVA with bank size category and management levels indicated that there was significant difference in risk perception of the management in large and small public

sector banks towards 'Gaps in Risk Infrastructure' factor.

For large vs. small PSB credit managers, F was 12.629 (df 1,335) at p=.000. For different management levels, F was 6.404 (df 2,334) at p=.002. F statistic was not significant for differential experience groups.

Table III. ANOVA of Obstacles by Size of Bank: Large vs. Small

		Sum of Squares	df	Mean Square	F	Sig.
1. Gaps in Risk Infrastructure.	Between Groups	12.207	1	12.207	12.629	.000
	Within Groups	323.793	335	.967		
	Total	336.000	336			
2. Bottlenecks due to Regulatory Framework, Work Distribution and lack of Standardization.	Between Groups	2.343	1	2.343	2.353	.126
	Within Groups	333.657	335	.996		
	Total	336.000	336			

Table IV. ANOVA of Obstacles by Experience of Managers

		Sum of Squares	df	Mean Square	F	Sig.
1. Gaps in Risk Infrastructure.	Between Groups	3.283	2	1.641	1.648	.194
	Within Groups	332.717	334	.996		
	Total	336.000	336			
2. Bottlenecks due to Regulatory Framework, Work Distribution and lack of Standardization.	Between Groups	4.226	2	2.113	2.127	.121
	Within Groups	331.774	334	.993		
	Total	336.000	336			

Table V. ANOVA of Obstacles by Management Levels

		Sum of Squares	df	Mean Square	F	Sig.
1. Gaps in Risk Infrastructure.	Between Groups	12.409	2	6.205	6.404	.002
	Within Groups	323.591	334	.969		
	Total	336.000	336			
2. Bottlenecks due to Regulatory Framework, Work Distribution and lack of Standardization.	Between Groups	.835	2	.417	.416	.660
	Within Groups	335.165	334	1.003		
	Total	336.000	336			

Table VI. Post- hoc Multiple Comparisons

Dependent Variable: Factor - Gaps in Risk Infrastructure.

Tukey HSD

(I) Management Level	(J) Management Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Junior Managers	Middle Level Managers	-.46402776*	.15735021	.010	-.8344632	-.0935923
	Senior Level Managers	-.59671870*	.16861554	.001	-.9936751	-.1997623
Middle Level Managers	Junior Managers	.46402776*	.15735021	.010	.0935923	.8344632
	Senior Level Managers	-.13269093	.12015379	.512	-.4155582	.1501763
Senior Level Managers	Junior Managers	.59671870*	.16861554	.001	.1997623	.9936751
	Middle Level Managers	.13269093	.12015379	.512	-.1501763	.4155582

*. The mean difference is significant at the 0.05 level.

Tukey's post-hoc tests reveal significant differences in risk perceptions between junior credit managers with middle and senior level credit managers, but not between middle and senior level managers. Credit managers in small PSBs were given higher mean scores on all variables in 'Gaps in risk infrastructure' factor. Similarly, mean scores tally among different levels of management show higher scores on all variables at senior managerial positions, followed by middle level and then by junior levels. They were thus feeling more intensely about these CRM obstacles hampering their CRM systems and procedures in mitigating and controlling credit risk. If more banks and more senior managers were perceiving these obstacles seriously in their CRM systems and processes, was cause of worry for their PSBs.F statistics are, however, not significant for any managerial group for second obstacles factor 'Bottlenecks due to Regulatory Framework, Work Distribution & Lack of Standardization'.

5.2 Data analysis and Results - Part 2- Risk Mitigation Factors

5.2.1 Descriptives.

Mean scores analysis (Table VII) showed that most of the respondents were optimistic about the effectiveness of risk mitigation measures in their banks. They were, however, more satisfied on implementation of KYC norms (4.31), multi-tier credit approval process (4.07), risk-based appraisals and loan sanctions (4.06), and internal audit (4.0) than on reduction in processing effort per loan application (3.54) and reduction of subjectivity in credit ratings (3.56). To analyze the response patterns for underlying factors and significance tests, the data was subjected to factor analysis, ANOVA and post-hoc tests.

Table VII. Descriptive Statistics-Risk Mitigation Measures

	N	Mean	Std. Deviation
1. Regular discussions, reviews and feedback	337	3.95	.817
2. Restriction on responsibility for volume-based credit approvals and reviews	337	3.76	.816
3. Independence of credit risk assessment from credit sanctioning process	337	3.82	.952
4. Reduction in processing effort per loan application	337	3.54	.893
5. Regular rating reviews	337	3.99	.816
6. Reduction of subjectivity in credit rating	337	3.56	.878
7. Internal audits	337	4.00	.730
8. Risk-based appraisal and sanctions	337	4.06	.752
9. Independence of loan review mechanism	337	3.95	.850
10. Implementation of KYC norms	337	4.31	.801
11. Multi-tier credit approval process	337	4.07	.884
12. Focused attention on problem/weak credit exposures	337	3.87	.871

5.2.2 Factor Analysis

Factor analysis has been applied on 12 variables in part 2 of the questionnaire to test effectiveness of various credit risk mitigation measures. The KMO measure of sampling adequacy was 0.886 and above the acceptable level (0.65). The chi-square value of Bartlett's test of sphericity was found to be significant, with chi square (df 66) = 1071.289 at p= 0.000, signifying the appropriateness of factor analysis.

The varimax rotation has clubbed the 12 variables on two principal factors (Table VIII). Total variance explained in two factors is 47.83% (cumulative) with scree plot graphing the eigenvalues (Figure 4). The effectiveness of 12 credit risk mitigation measures in PSBs was grouped in two factors for further analysis:

1. Improving credit risk management systems (9 variables).
2. Improving internal controls (3 variables).

Table VII. Descriptive Statistics-Risk Mitigation Measures

	N	Mean	Std. Deviation
1. Regular discussions, reviews and feedback	337	3.95	.817
2. Restriction on responsibility for volume-based credit approvals and reviews	337	3.76	.816
3. Independence of credit risk assessment from credit sanctioning process	337	3.82	.952
4. Reduction in processing effort per loan application	337	3.54	.893
5. Regular rating reviews	337	3.99	.816
6. Reduction of subjectivity in credit rating	337	3.56	.878
7. Internal audits	337	4.00	.730
8. Risk-based appraisal and sanctions	337	4.06	.752
9. Independence of loan review mechanism	337	3.95	.850
10. Implementation of KYC norms	337	4.31	.801
11. Multi-tier credit approval process	337	4.07	.884
12. Focused attention on problem/weak credit exposures	337	3.87	.871

Table VIII. Rotated Component Matrix & Factor Loadings-Risk Mitigation Measures

	Component	
	Improving CRM systems	Improving internal controls
1.Regular discussions, reviews and feedback.	.439	
2. Restriction on responsibility for volume-based credit approvals and reviews.	.480	
3. Independence of credit risk assessment from credit sanctioning process.	.662	
4. Reduction in processing effort per loan application.	.722	
5. Regular rating reviews.	.550	
6. Reduction of subjectivity in credit rating.	.650	
7. Internal audits.		.642
8. Risk-based appraisal and sanctions.	.526	
9. Independence of loan review mechanism.	.686	
10. Implementation of KYC norms.		.777
11. Multi-tier credit approval process.		.776
12. Focused attention on problem/weak credit exposures.	.528	

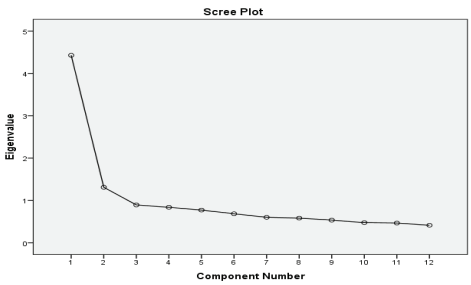


Figure 4: Scree Plot of Risk Mitigation Measures.

Again surrogate variables and factor scores approaches were adopted to analyze the risk perception of bank managers on these two components. ANOVA/F tests and Tukey's HSD post-hoc tests conducted to find the statistically significant different perceptions among managerial groups.

Surrogate Variables Approach. The two surrogate risk mitigation variables for each of the two factors are:

1. Reduction in processing effort per loan application (factor loadings 0.722).
2. Implementation of KYC norms (factor loadings 0.777).

The results of one-way analysis of variance (ANOVA) on three groups of credit managers, managers in large and small PSBs, managers with different

managers at different levels of management showed that perceptions of risk managers for 'Reduction in Processing Effort per Loan Application' were significantly different for all the three groups of managers. Whereas their perceptions for 'Implementation of KYC Norms' was not statistically significant for any group of managers. To find exactly in which managerial group, the differences for 'Reduction in Processing Effort per Loan Application' were significant, Tukey's post-hoc tests together with F test, revealed significant differences in risk perceptions:

1. Between large (mean 3.66, S.D. 0.833) and small banks' managers (mean 3.42, S.D. 0.938), showing better satisfaction in large PSBs towards effectiveness of this risk mitigation measure.

2. Between 'up to 7 years' (mean 3.35, S.D. 0.913) and 'above 20 years' (mean 3.76, S.D. 0.753) banking experience groups, but not between them with ' 8 to 20 years' (mean 3.53, S.D. 0.980) experience group of risk managers.

3. Between junior credit managers (mean 3.32, S.D. 0.913) and senior level credit managers (mean 3.70, S.D. 0.767), but not between them with middle level managers (mean 3.51, S.D. 0.942).

The statistical results indicated that senior positioned managers, managers with long banking experience and those working in large PSBs were more satisfied that they had been able to reduce loan processing time, may be by better risk inputs, IT networking, data management or sharing of risk information. Though their junior counterparts and managers in small PSBs were not as optimist and wanted more efforts in this regard to rationalize the credit risk assessment operations on each borrower.

Factor Scores Approach. One-way ANOVA (Tables IX to XI) and post-hoc tests (Tables XII & XIII) were conducted on 337 factor scores towards each of the two factors of risk mitigation measures 'Improving Credit Risk Management Systems' and "Improving Internal Controls' amongst the three groups of credit managers to study the differences in management's risk perceptions. The results indicated that there were statistically significant differences in perceptions of all managerial categories towards 'Improving Credit Risk Management Systems' factor and none for the other factor 'Improving Internal Controls'.

Table IX. ANOVA of Risk Mitigation Factors by Bank Size

		Sum of Squares	df	Mean Square	F	Sig.
1. Improving Credit Risk Management Systems.	Between Groups	12.203	1	12.203	12.625	.000
	Within Groups	323.797	335	.967		
	Total	336.000	336			
2. Improving internal controls.	Between Groups	.576	1	.576	.576	.449
	Within Groups	335.424	335	1.001		
	Total	336.000	336			

Table X. ANOVA of Risk Mitigation Factors by Experience of Managers

		Sum of Squares	df	Mean Square	F	Sig.
1. Improving Credit Risk Management Systems	Between Groups	11.380	2	5.690	5.854	.003
	Within Groups	324.620	334	.972		
	Total	336.000	336			
2. Improving internal controls	Between Groups	1.054	2	.527	.525	.592
	Within Groups	334.946	334	1.003		
	Total	336.000	336			

Table XI. ANOVA of Risk Mitigation Factors by Levels of Management

		Sum of Squares	df	Mean Square	F	Sig.
1. Improving Credit Risk Management Systems	Between Groups	7.354	2	3.677	3.737	.025
	Within Groups	328.646	334	.984		
	Total	336.000	336			
2. Improving internal controls	Between Groups	1.056	2	.528	.527	.591
	Within Groups	334.944	334	1.003		
	Total	336.000	336			

Table XII. Post –hoc Multiple Comparisons

Dependent Variable: Factor- Improving Credit Risk Management Systems.

Tukey HSD

(I) Banking Experience(years)	(J) Banking Experience(years)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Upto 7 years	8 to 20 years	-.17425809	.13790387	.417	-.4989128	.1503966
	Above 20 years	-.42294278*	.12385479	.002	-.7145230	-.1313626
8 to 20 years	Upto 7 years	.17425809	.13790387	.417	-.1503966	.4989128
	Above 20 years	-.24868470	.14050695	.181	-.5794676	.0820982
Above 20 years	Upto 7 years	.42294278*	.12385479	.002	.1313626	.7145230
	8 to 20 years	.24868470	.14050695	.181	-.0820982	.5794676

*. The mean difference is significant at the 0.05 level.

Table XIII. Post-hoc Multiple Comparisons

Dependent Variable: Factor- Improving Credit Risk Management Systems.

Tukey HSD

(I) Management Level	(J) Management Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Junior Managers	Middle Level Managers	-.00337565	.15857448	1.000	-.3766933	.3699420
	Senior Level Managers	-.31997956	.16992746	.145	-.7200245	.0800654
Middle Level Managers	Junior Managers	.00337565	.15857448	1.000	-.3699420	.3766933
	Senior Level Managers	-.31660391*	.12108865	.025	-.6016720	-.0315358
Senior Level Managers	Junior Managers	.31997956	.16992746	.145	-.0800654	.7200245
	Middle Level Managers	.31660391*	.12108865	.025	.0315358	.6016720

*. The mean difference is significant at the 0.05 level.

For first factor 'Improving credit risk management systems', ANOVA on factor scores for each of the 337 respondents showed F was 12.625 (df 1,335) at p=.000 for large vs. small PSB credit managers (Table IX). For different experience groups, F was 5.854 (df 2,334) at p=.003 (Table X). For different management levels, F was 3.737 (df 2,334) at p=.025 (Table XI). ANOVA and Tukey's post hoc tests revealed significant differences in risk perceptions for this factor:

1. Between large and small PSBs.
2. Between credit managers 'up to 7 years' and 'above 20 years' banking experience groups only.
3. Between middle level and senior level credit managers, but not between them with junior level managers.

The mean scores analysis of all variables under the factor 'Improving credit risk management systems' for risk mitigation showed that except for 'Regular discussions, reviews and feedback' higher scores had been given by the large banks' managers on all variables.

Thus credit managers at large PSBs are most satisfied with their CRM systems to improve credit risk mitigation. Small banks' credit officers though feeling positive about regular discussions and feedback systems, were feeling need for improvement in other CRM systems and processes. Similarly, managers with lower banking experience and at junior managerial positions who had more operational responsibilities were feeling that higher loan processing time, more scope of subjectivity in credit ratings, and weak focus on problem loans among other things was hampering their CRM systems and procedures in mitigating credit risk, though they were more satisfied with their banks' internal audit systems than their senior counterparts.
For the second factor/component, the mean score differences in managerial perceptions or opinions was not statistically significant, only random or chance differences.

Conclusions and managerial implications

The study has investigated the managerial perceptions of different categories of risk and credit managers engaged in commercial bank credit in Indian PSBs, on problems/ obstacles in credit risk management and on effectiveness of their risk mitigation measures. Understanding perceptual processes is fundamental in understanding the impact perception has on decision-making. The study provides empirical evidence that the small Indian public sector banks were facing more problems and obstacles in managing credit risk and require better risk inputs and restructuring of various credit appraisal and loan review processes.

They are feeling short on resources, training and HR development, data management and IT support, finding disintegration across departments and inconsistencies in risk rating approaches more than the large PSBs. On effectiveness of risk mitigation measures in their banks, though they are more satisfied than large PSBs regarding regular discussions and feedback systems, they are not perceiving as good on responsibility framework for loan approvals, separation of risk assessment from loan sanctions, focused attention on problem loans, on reduction in subjectivity in credit ratings and loan processing time.

The study has also observed statistically significant perceptional differences between junior and senior level credit managers, and between 'up to 7 years' and '20 years and above' categories of managers on CRM obstacles, and between middle and senior level managers on risk mitigation measures in all banks.

Further problems and obstacles in credit risk management are being felt more seriously at senior levels. Since the banks shall maintain high standards of CRM practices for achieving competitive

advantage and good asset quality, and since credit risk management is highly subjective, there is an emergent need that senior managers provide for efficient channels of communications between all operative and managerial levels, enhance consistent access to risk information, business related trainings, update data management and IT capabilities. There is also the need rigorous feedback and staff accountability framework, and continuous watch on compliance of credit risk policy and procedures. Risk audit of banks' risk management systems and procedures would also provide banks with good feedback for reduction in processing effort, subjectivity in ratings or on restructuring of risk departments. As Lepus (2004) suggested, there should be active board and senior management oversight, comprehensive internal controls and there should be strategy, policy and business processes alignment.

References

Al-Tamimi, H., and Al-Mazrooei, F.M. (2007). Banks risk management - A comparison study of UAE national and foreign banks. Journal of Risk Finance, 8(2): 394-409.

Bhavaniprasad, G.V., and D. Veena. (2011). NPA reduction strategies for commercial banks in India", International Journal of Management and Business Studies, 1 (3), Retrieved from http:// www.ijmbs.com

Cheah,E. (2012). Managerial decision – making. Cross-sections, 8:19-27, Retrieved from http:// www.eview.anu.edu.au

Das, Abhiman., and Ghosh, S. (2007). Determinants of credit risk in Indian state owned banks: An empirical investigation. RBI, Retrieved from http://www.mpra.Ubi-unimuenchen.de/17301

Gewald,H., Wullenweber, K., and Weitzel,T. (2006). The influence of perceived risks on banking managers' intention to outsource business processes – A study of the German banking and finance industry. Journal of Electronic Commerce Research, 7 (2):78-96.

Ghosh, Saibal. (2011). A Simple index of banking fragility: Application to Indian data. Journal of Risk Finance, 12 (2):112- 120.

Greuning, H.V., and Bratanovic, S.B. (2009). Analysing banking risk: A framework for assessing corporate governance and financial risk. 3rd Ed., Washington D.C: The World Bank.

JIN, Jia-jia. (2011). Commercial bank credit risk management based on grey incidence analysis. Retrieved from http:// www.IEEE.com

Kumar, A. R., and Kotreshwar, G. (2005). Risk management in commercial banks :A case study of public and private sector banks. Conference paper - Ninth Capital Market Conference, December 19/20, Mumbai , Retrieved from http:// www. ssrn.com

Lau, M.H. (2006). Research on the relationship between risk perception, risk propensity and risk-reducing decision-making in an e-government environment. Thesis: 1-83, Erasmus University of Rotterdam, Retrieved from http://www.jbisa.nl

Lehman, B. (2003). Is it worth the while-The relevance of qualitative information in credit rating", Working Paper Series, Centre of Finance and Econometrics, KANSTANZ, Germany, 17 April.

Lepus, S. (2004). Best practices in strategic credit risk management: 1-26, October, USA:SAS.

Lin, P. W., and Mei, A.K. (2006). The internal performance measures of bank lending: A value-added approach. Benchmarking:

An International Journal, 13(3): 272-289.

MacGregor, D.G. (1994). Risk perception, communication and community relations. Decision Research, Workshop Report no. 94-11: 1-29, Eugene,Oregon.

Njanike, K. (2009). The impact of effective credit risk management on bank survival. Economics, Annals of University of Petrosani, 9(2):173-184.

Oesterreichische National Bank, Vienna, Austria. (2004) .Guidelines on credit approval process and credit risk management. Retrieved from http://www.oenb.at

RBI. (2010-2014). Financial stability reports and reports on trends and progress of banking in India, Retrieved from http://rbidocs.rbi.org.in

Thiagarajan, S., Ayyappan., and Ramachandran. (2011). Credit risk determinants of public and private sector banks in India. European Journal of Economics, Finance and Administrative Sciences, 34:147-153.

Ms. Renu Arora
Assistant Professor in Commerce
Mata Sundri College for Women,
University of Delhi, New Delhi,
India.
e-mail: 28.renuarora@gmail.com

Dr. Archana Singh
Assistant Professor
Delhi School of Management,
Delhi Technological University, India.
e-mail: sarchana03@yahoo.co.in

AN EMPIRICAL ANALYSIS OF THE VULNERABILITY OF THE GCC COUNTRIES TO THE FINANCIAL CRISIS OF 2008

Zaheda Ronak

Abstract

The financial crisis of 2008 initiated itself as a crisis in the housing segment of the United States and then spread rapidly across most of the world, although some economies were more vulnerable than others. It engulfed advanced economies, emerging markets and various other countries alike. Even the oil-rich gulf countries, with their massive oil revenues and large sovereign funds were not immune to the impacts of this external shock.

This study analyzes the impact of the crisis of 2008 on the short-term macroeconomic outlook of the GCC countries and measures the damage caused to the region due to this external shock. It suggests that while aiming for the benefits of financial integration, they would have to bear the risk of being vulnerable to the contagious effects due to such financial integration. Moreover, the research emphasizes the importance of the financial sector for their economic stability and growth.

Keywords: *Financial crisis 2008, GCC countries, contagion, quantitative impact, vulnerability to external crisis, financial stress.*

Introduction

In September 2008, the world saw the emergence of the global financial crisis with the downfall of several large financial firms in the United States. Thereafter, the crisis spread rapidly to neighbouring countries and other countries around the world, leading to a global downturn of uncertain severity and duration. At the beginning of the crisis, it appeared that the worst damage would occur in the United States (US) and Europe only, the place where the crisis had originated and the countries well connected to it financially and economically. However, by November 2008 the impact was felt in economies far and wide, like India, China, Russia, the GCC countries and many more. In the years that followed, the impact of the financial sector failure was seen on the real economic sectors of not only the epicentres of the crisis, but also on other advanced economies, emerging markets and the oil rich Gulf Co-operation Council (GCC) countries alike.

It is pertinent to note that the perception at that time in the GCC countries was that their countries might be able to stay safe entirely and not be affected by this crisis. However, to the contrary, the last quarter of 2008 saw GCC stock markets begin their downward trends, oil prices dropping precipitously and financing beginning to dry up and thereafter the impact of the crisis on the region's real economy was observed. The economies of Dubai, Kuwait, and Bahrain were more affected by the crisis as compared to the others in the region. Certain industry sectors, such as financial services, real estate and tourism were among the more affected ones. The GCC region as a whole suffered from the slowdown in their economies due to a sharp contraction in global trade, a decline in capital flows to the GCC, drop in oil revenues and losses to their sovereign wealth funds.

For most of the GCC countries, the effect of this crisis was mild and short-lived as compared to the rest of the world. However, its impact cannot be ignored and the need to understand the same, is nonetheless pertinent,to be able to apply

appropriate macro fiscal and monetary policies for future measures of protection against any such future external shocks. Many GCC countries have begun taking steps in strengthening their policy frameworks and robustness to shocks by ways of stimulating healthy economic growth and strengthening the financial systems. However, there are several areas which need to be addressed, not failing to note that many of these countries remain highly vulnerable to a deep global downturn that is so closely linked to oil price falls.

Literature Review

Implications of Financial Integration

The benefits of financial development and globalization are coupled with a risk of vulnerability of the financial sectors to external crises. It has been experienced in the past that crises have had real welfare impacts on economic development of affected countries. Although it has been studied that international financial integration and globalization are good for poverty reduction in the longer-term (Prasad, E., Rogoff, K.et.al 2007), it is significant to realize that this positive long-run relationship can coexist with a negative short-run relationship through financial fragility. Arguably, greater financial openness may assist economies in sourcing capital but may well increase their vulnerability to external shocks.

Countries are faced with a trade off between attaining the benefits of financial integration and being vulnerable to contagious effects of external shocks. The terms of this important trade off depend on a number of aspects of the financial integration process, including but not limited to, how much the country relies on foreign direct investment (FDI) versus other types of private capital flows, the extent of reliance on short-term debt and whether the country is part of the portfolio of international investors.

The Financial Crisis of 2008

The recent financial upheaval which begun in the United States (US), initially led by sharp declines in house prices, transformed into a severe credit crunch with substantial losses in financial markets. It did not remain confined within the US boundaries and spread to a number of advanced and emerging countries, becoming the most severe global financial crisis since the Great Depression as described by the International Monetary Fund (IMF) in their World Economic Outlook series (2008).

The IMF reported that the global economy went through a period of unprecedented financial instability in 2008 – 2009, followed by the worst global economic downturn and fall in trade, in many decades. This economic storm touched many a countries around the world. Its contagion spread like wildfire from sector to sector and country to county, to devastate the entire financial system.

The ramifications of the credit crunch and the sharp drop in asset prices were quickly passed on through banking systems to all sectors and countries in the global economy and were magnified by the fall in consumer and business confidence. The Financial crisis was soon transformed to a Global Financial Crisis and then leading to a Global Economic Downturn.

Peer Review

A thorough examination has been conducted of the previous studies undertaken by researchers and economists from around the world in related topics, as part of the literature review for this study. The previous studies include the following which are detailed below.

Studies related to the Transmission of Crisis from one Economy to another

(1) Study by Danninger, B. & Others (2009 April) which confirmed how financial stress, defined as periods of impaired financial intermediation, is transmitted from advanced to emerging economies.

(2) Study by Kenji, M. (2010 January) which estimated the spillover of the global crisis to the Middle East and North Africa Region (MENA) to be nearly two-thirds of the increased financial stress in MENA countries after the Lehman shock and attributable to direct or indirect spillovers of financial stress in advanced economies.

(3) Study by Boyd & De Nicolò (2010) which showed evidence of a positive relation relationship between financial openness and systemic bank shocks from crisis.

Studies related to the Damage caused due to Financial Crisis

(4) Study by Cardarelli, R., Elekdag, S. & Lall, S. (2009), where the researchers have concluded that financial turmoil characterized by banking distress is more likely to be associated with severe and protracted downturns.

(5) Study by Čihák & Schaeck (2007) which confirms that real GDP per capita consistently shows the anticipated positive relationship with the timing of banking crises.

(6) Study by Aizenman, P. & Sushko (2012 May) which explained how financial expansion and contraction cycles affect the broader economy through their impact on real economic sectors.

The problem Statement

The impact of the financial crisis of 2008 on the economies of the gulf region resulted in reduced economic activity. The region experienced a sharp decline in capital flows, a weakening in oil prices and sharp falls in asset prices as well. All this together with the banking systems under stress in these countries, brought about a lowering of their economic outlook. This study uses the recent financial crisis of 2008 as a contemporary laboratory, to evaluate the adverse impact that an external financial crisis can have on the GCC region in the short to medium term. Thus, emphasizing the need of having a stable and well regulated financial sector, to mitigate the risks of external shocks.

This study endeavours to find answers to the following questions:

(1) Was increased financial stress in advanced economies transmitted to the GCC region after the financial crisis of 2008 was triggered?

(2) Is there a relation between the financial stresses in advanced economies with that of the GCC economies? If yes, how strong is the correlation in times of financial crisis?

(3) Did increased financial stress lead to economic activity slow down and by how much?

(4) What is the impact of the external crisis on the GCC economies?

Main aims and Objectives

The main aim of the study is:

'To measure the direct and indirect adverse impact of the financial crisis of 2008 on the GCC countries and to assess the damage caused to their economies due to the financial integration with Advanced economies in the short to medium term, which would motivate policy makers to take corrective actions for both macroeconomic and financial sector stability.'

Objectives

Following are the main objectives:

• To analyze the short to medium term impacts of the financial crisis on the oil rich GCC countries.

• To develop an analytical framework as a background for an empirical evaluation to measure the impact of the crisis on the GCC economies.

• To determine whether there was a correlation between the financial stress in Advanced and the GCC countries and if yes, how strong was this correlation.

• To emphasize the importance of financial sector vulnerabilities in the GCC countries, in order to limit future disruptions to development plans and real economic growth.

• To measure the damage caused to their economies due to this contagion.

Hypotheses of the Study

The study will test the following two hypotheses:

(1) 'There is a correlation between the financial stresses in advanced countries and the GCC countries.'

(2) 'Financial stress due to external crisis led to economic activity slowdown in GCC countries in the short to medium term.'

Research Methodology of the Study

The methodology of this research uses the recent financial crisis of 2008 as a contemporary laboratory to evaluate the damage caused to the region due to external financial crisis. Two types of research methods are used to accomplish the main purpose of the study which includes (1) a situational analysis and (2) a correlation analysis.

Situational Analysis

• Firstly, a situation or event is examined, namely the recent 'Financial Crisis of 2008' which plays the role of a contemporary laboratory to test the two hypotheses stated above. The exhaustive and chronological description of the events that occurred as the crisis unfolded is detailed. The causes of the origin of the crisis and its effects are systematically collected and evaluated and the transformation of a regional crisis to a global one is elucidated by summarizing the effects it had on almost every part of the world. This study devises an analytical framework of the impact of the crisis on the GCC countries in the short to medium term. This analytical framework evidences the impact on the GCC outcomes which is a result of the stress in the banking sector and the decline in stock markets and also a decrease in oil prices due to the external crisis.

Correlation Analysis

• Secondly, to confirm the contagion of the external financial crisis on the GCC countries, a statistical correlation is performed on the financial sector variables. The financial sector variables are carefully identified, including the banking sector variables and the stock market indices of both, the Advanced and the GCC countries. It is determined whether there was a co-movement of these variables and the direction and strength of the co-movement between the variables was captured by using the coefficient of correlation, such that systematic changes in the value of one variable accompanied by systematic changes in the other was determined to confirm a correlation between the financial stress in Advanced countries to the financial stress in GCC countries.

• Thirdly, the damage caused due to the external crisis is quantified in terms of decline in economic activity in the GCC countries, to measure the adverse impact of such an external financial crisis. The contribution of the financial sector to this damage is emphasized.

Data Sources

Banking Sector Variables

To evaluate the correlation of financial stress between the Advanced and the GCC countries, this study uses the IMF

Financial Soundness Indicators (FSI) from the period 2005 to 2010. The core set of the Financial Soundness Indicators compiled by the IMF are comprised of banking sector indicators considered highly relevant in a wide range of countries due to their importance for assessing risk to financial stability, reflecting its central role in all financial systems. The following six FSI's are used in the analysis:

1. Tier 1 Capital to Risk -weighted Assets
2. Total Capital to Risk-weighted Assets
3. Nonperforming Loans (NPLs) to Total Gross Loans
4. Banks Provisions to Nonperforming Loans
5. Return on Assets
6. Return on Equity

To evaluate stress in a region namely that of the Advanced countries, this study has calculated each of the above six ratios or FSIs for Advanced countries by finding the weighted average of the four major countries of the United States of America (US), the United Kingdom (UK), France & Germany. As the crisis initiated in the US and the bankruptcy of Lehman Brothers based in the US led to the rapid spread of the financial crisis, the researcher feels it is justifiable to give more weight to the US, that of 40 percent as compared to the other countries where weights of 20 percent each are assigned. The above mentioned six financial soundness indicators of Saudi Arabia, Oman, Kuwait & the United Arab Emirates (UAE) are averaged to arrive at the ratios or FSIs for the GCC countries.

Stock Market Variables

The monthly data of stock exchange indices for the NYSE Composite Index are taken from the NYSE Market Data Services, which represents the advanced countries. The Dubai Financial Market Index from 'Gulfbase GCC stock market indices' is taken as a representation for the GCC countries. The monthly indices from January 2005 to December 2010 are used in all cases.

Oil Prices

The data source of oil prices in US dollars is taken from IMF's historical databank on commodity prices. It is the Crude Oil (petroleum), price per barrel in US dollars, which is the simple average of three spot prices of Dated Brent, West Texas Intermediate, and the Dubai Fateh. The monthly oil prices for the years from 2005 to 2010 are used.

Real GDP of GCC countries

The annual real GDP of the six oil producing and exporting GCC countries of Saudi Arabia, Kuwait, Oman, United Arab Emirates, Qatar and Bahrain, for the period 2005 to 2010 from the database of International Monetary Fund (IMF) or the World Bank databank is employed for the study.

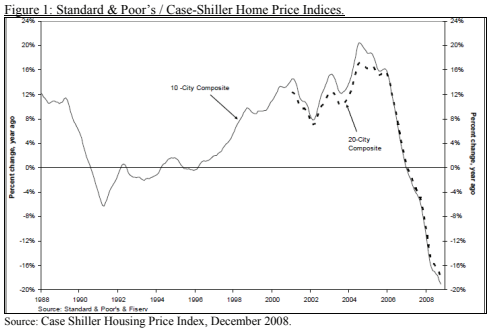
Understanding the Financial Crisis 2008

The US Subprime Mortgage Crisis

The crisis began with turbulence in the US housing market which marked its peak in 2005-2006 (Lahart, J., 2007), characterized by a rise in subprime mortgage delinquencies and foreclosures. In the years prior to the crisis, from 2002 to 2004, large amounts of foreign money had flown into the US from fast-growing economies in Asia and oil-producing countries. These were attracted by low interest rates in the US leading to easy credit conditions that fuelled both housing and credit bubbles, increasing the overall demand for housing and driving prices higher. The price of the typical American house increased by 124 percent between 1997 and 2006, according to a survey conducted by 'The Economist' dated 18 October 2007. The credit and house price explosion led to an investment by home builders in houses leading to a building boom, which caused US housing prices to peak. When eventually the bubble burst in 2005, there was a

surplus of unsold homes and the home prices began declining in mid 2006 and thereafter, as shown in Figure 1 below.

Figure 1: Standard & Poor's / Case-Shiller Home Price Indices.



Source: Case Shiller Housing Price Index, December 2008.

The vicious circle of defaulting mortgages and foreclosures

As house prices began to decline, refinancing became more difficult and borrowers, who found themselves unable to escape higher monthly payments by refinancing, began to default, resulting in increased foreclosures hence bringing into the market a greater supply of homes and further bringing down the prices of homes.

The Onset of the Financial Crisis

The financial crisis began in early 2006, when the subprime mortgage market in the US experienced an increasing rate of mortgage delinquencies. Collateralized Mortgage Obligations (CMO), which played a prominent role in subprime mortgage financing, facilitated the spread of problems from the mortgage market to the financial sector of the economy. As the value of mortgages fell due to increasing default rates, the value of these securities (CMOs) also fell. There were not enough mortgage payments coming in, to even pay the interest on the higher tranches, let alone the middle or lower ones. The problem was compounded by another financial product, the Credit Default Swap (CDS), which were originally designed to be insurance contracts on CMOs (should they default). Two subprime mortgage funds run by Bear Stearns collapsed in mid June 2007 due to the rising defaults in the subprime mortgages and caused the near-freezing up of the highly risky US$2.6 trillion Collateralized Debt Obligations (CDOs) market, according an article in 'The Executive Intelligence Review' (Freeman, R. 2007 July 6). On 16 August 2007, The New York Times reported that Countrywide Financial was heading towards bankruptcy. The last quarter of 2007 was full with news of many financial institutions revealing losses. Several major institutions failed, were acquired under duress or were subject to government takeover, namely Lehman Brothers, Fannie Mae, Freddie Mac, Merrill Lynch, AIG, Washington Mutual and Wachovia.

Financial Crisis Going Global

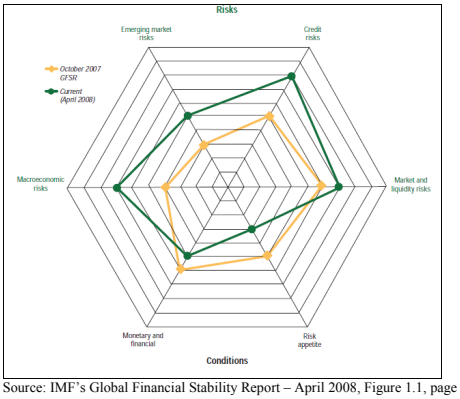
European banks held sizable amounts of complex structured products such as mortgage-backed securities (MBS) and Collateralized Debt Obligations (CDOs). The first sign of the financial crisis spreading globally was revealed when German banks with bad investments in the US real estate market were caught up in the crisis as early as August 2007, which included IKB Deutsche Industriebank, Sachsen LB (Saxony State Bank) and Bayern LB (Bavaria State Bank). The emerging markets also felt the pinch of the crisis and The New York Times reported on 23 October 2008 that 'the Asian economic powerhouse appeared threatened by an international financial contagion that began elsewhere' referring to the drop in South Korean stock markets.

The Global Financial Stability Map

The Global Financial Stability Map shown in Figure 2 below from IMF's Global Financial Stability Report issued in April 2008 which presents an overall assessment of how changes in underlying conditions and risk factors affected the global financial stability since October 2007. Nearly all the elements of the map pointed to a degradation of financial

stability, with credit and macroeconomic risks having aggravated the most during this period.

Figure 2: The Global Financial Stability Map – April 2008



Source: IMF's Global Financial Stability Report – April 2008, Figure 1.1, page 2.

The Global Recession

Since a year and half of the onset of the subprime crisis in the US, December 2007 saw the beginning of the global economic decline. Over the year of 2008, the global economy experienced further deepening of the crisis in financial markets, by continued corrections in housing markets and surges in commodity prices in a number of economies around the world. The ramifications of sharp falls in asset prices and the credit crunch were quickly passed on through banking systems to all sectors and countries in the global economy and were further amplified by the drop in consumer and business confidence. The ripple effects of the financial crisis ranged far beyond the financial sector. Governments fell in Iceland and Latvia. The Chinese kept on hold their pleas for accommodating human rights and currency valuation policies. The progress towards a European political union came to a standstill. Japan proposed only weak measures to combat climate change. The financial crisis struck individual countries with an impact that depended heavily on two factors: (a) whether local institutions had ties to the US financial sector and (b) whether the local economy depended on export sales to the US. Most of the developed countries had close financial and/or trade relations with the US.

As the crisis spread, it advanced further and faster than expected in 2009, leading to an unprecedented contraction in global output and trade. The global economy slowed notably in 2009 wherein the world output fell by 0.6 percent as shown in Table I below and the advanced economies being the major contributors thereof, whose output declined by the maximum of 3.2 percent.

Table I: Overview of the World Economic Outlook Projections (% change, unless noted otherwise)

	2008	2009
World Output[1]	**2.8**	**–0.6**
Advanced Economies	**0.2**	**–3.2**
United States	0.0	–2.6
Euro Area	0.5	–4.1
Germany	1.0	–4.7
France	0.1	–2.5
Italy	–1.3	–5.0
Spain	0.9	–3.7
Japan	–1.2	–5.2
United Kingdom	–0.1	–4.9
Canada	0.5	–2.5
Other Advanced Economies	1.7	–1.2
Newly Industrialized Asian Economies	1.8	–0.9
Emerging and Developing Economies[2]	**6.0**	**2.5**
Central and Eastern Europe	3.0	–3.6
Commonwealth of Independent States	5.3	–6.5
Russia	5.2	–7.9
Excluding Russia	5.4	–3.2
Developing Asia	7.7	6.9
China	9.6	9.1
India	6.4	5.7
ASEAN-5[3]	4.7	1.7
Latin America and the Caribbean	4.3	–1.7
Brazil	5.1	–0.2
Mexico	1.5	–6.5
Middle East and North Africa	5.0	2.0
Sub-Saharan Africa	5.5	2.6

Source: IMF World Economic Outlook October 2010 "Recovery, Risk & Rebalancing", Table 1.1 pg.2.

The advanced economies grew at a collective annualized rate of only 1 percent during the period from the fourth quarter of 2007 through the second quarter of 2008, down from 2½ percent during the first three quarters of 2007 according to IMF's World Economic Outlook October 2008.

An Analysis of the Impact of the Financial Crisis 2008 on GCC Countries

This analytical framework, with the facts presented, evidence the impact on the GCC outcomes which is a result of the stress in the banking sector and the stock markets decline and also a decrease in oil prices due to the external crisis.

The Pre-crisis Scenario in the GCC

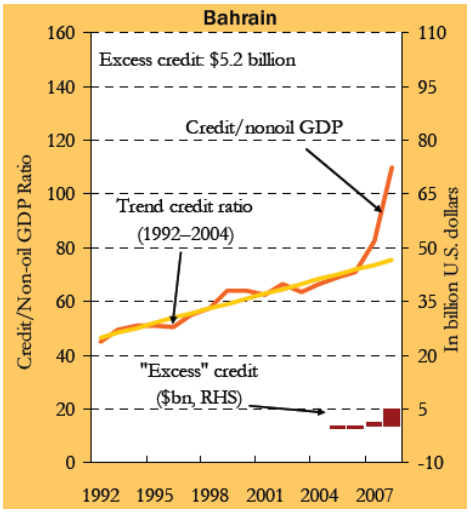
It is imperative that the period prior to the crisis be taken into consideration, to evaluate the impact of the crisis on the GCC, as previous studies in the field have suggested that: 'initial conditions are crucial in determining whether a financial stress episode is followed by a downturn. In particular, the likelihood that financial stress will be followed by a downturn is associated with the extent to which house prices and aggregate credit have risen prior to the stress episode.'(Cardarelli 2009)

Since 2002, the GCC countries kept increasing their oil production year on year till 2008 to keep up to the increasing demand of oil in the world market. The rapid rise in oil consumption was accompanied by a high rate of increase in oil prices, which reached US$140.73 per barrel in July 2008, compared to US$84 per barrel in January 2008 according to OPEC oil prices. In 2008, GCC oil revenues amounted to US$575 billion compared to US$328 billion in 2007, and only US$137 billion in 2003. The large increase in oil revenues resulted in surpluses in 2008. Oil proceeds by all six GCC countries were directed to building and modernizing the necessary infrastructure that would support and sustain their economic growth. Investment in all sectors showed increased growth, and the sector that dominated all six states was construction, which included the building of new cities, real estate and tourism projects, as well as establishing the necessary infrastructure to support the governments' development plans.

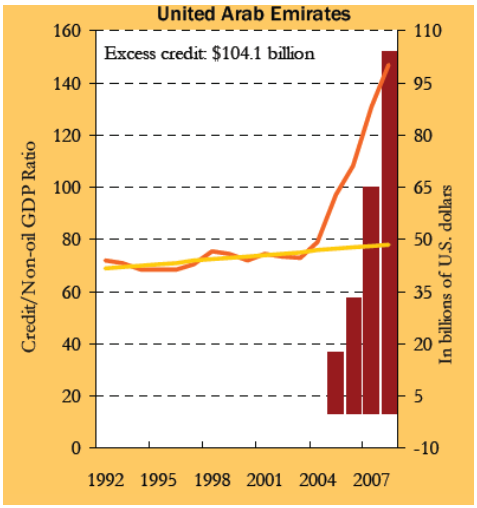
The region experienced high rates of credit growth in the period 2002 – 2008, preceding the crisis. These high credit growth rates, together with strong economic activity supported by positive investor and consumer sentiment, resulted in inflationary pressures.

The real average credit growth rate in the GCC was around 23 percent a year, during 2003-2008, which showed increasing bank leverage and almost doubling the ratio of private sector credit to non-oil GDP, according to IMF in 2010. Most GCC countries, in particular, Qatar and United Arab Emirates (UAE), experienced significant increases in banking system credit to the private sector during the period between 2003 and 2008. Figure 3 below shows the sharp increase in private sector credit (Credit/non-oil GDP) from 2005 to 2007, much more in the UAE, compared to Bahrain.

Figure 3: GCC Trends in Private Sector Credit, 1992 – 2008

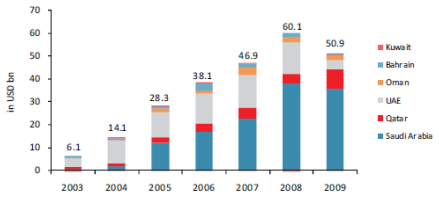


Source: IMF Staff estimates from 2010 Publication 'Impact of the Global Financial Crisis on the Gulf Cooperation Council countries and Challenges Ahead'.



Foreign Direct Investment (FDI) in the GCC grew from just US$ 6.1 billion in 2003 to US$ 60.1 billion in 2008 (a near ten-fold increase in five years). Over 2003-2008, Saudi Arabia was the biggest recipient of the FDI, followed by the UAE, Qatar, Oman, Bahrain and Kuwait. Taken together, Saudi Arabia and the UAE accounted for about 82 percent of total FDI attracted by the GCC during this period according to a report prepared by Al Masah Capital (Dubai) in May 2011.

Figure 4: Country-wise FDI in the GCC during 2003 - 2009



Source: UNCTAD ('GCC Real Estate: Back on Growth Track?' created & published by Al Masah Capital Management Limited, DIFC, Dubai in 2011.)

To summarize, the pre-crisis scenario in the GCC, there were high levels of economic activity, rising consumer and investor confidence, and abundant liquidity coupled with excessive credit growth, inflation and soaring asset price. Such was the economic scenario in the GCC countries just prior to the crisis.

The Impact on the GCC

As the financial crisis spread through the advanced economies in mid 2008, positive projections continued in the GCC countries. However, when oil prices suddenly crashed in October 2008 from the highs of approximately US$ 131 per barrel in July 2008 to US$ 69 per barrel and then further crashed to nearly US$ 40 per barrel in late 2008, all the positive projections gave way. The collapse of Lehman Brothers in mid September 2008 increased the worldwide panic and the GCC economies could no longer escape the global financial crisis. The huge financial liquidity that existed in these economies since 2004 evaporated almost immediately. Along with oil prices, stock markets also collapsed sharply and a gloomy economic atmosphere spread and in March 2009, where the Financial Times reported an employee of Dubai International Capital stating and I quote:

"It's a nightmare. We go into the office unsure if we will have a job at the end of the day."

The GCC economies comprising of Saudi Arabia, UAE, Kuwait, Qatar, Oman & Bahrain were all adversely impacted by the financial crisis of 2008, with all states showing contraction in their economies due to the sharp decline in oil prices, flight of foreign capital, sudden tension in international credit markets and liquidity shortages. The global liquidity shortages affected banking and corporate liquidity alike, triggering a steep fall in asset prices and weakening the financial systems in the GCC too. In general, about half of the 'mega-projects' in the GCC came to a halt due to the recession as reported in the Gulf News on 3 February 2010.

Impact on the Banking Sector

Only a limited number of banks in the GCC publicly admitted and quantified their direct exposure to the subprime crisis, of which some of them include:

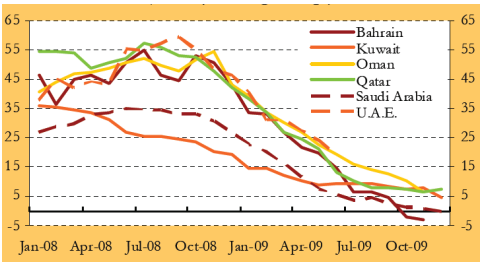
•Abu Dhabi Commercial Bank announced an exposure of US$ 272 million and sued Morgan Stanley and other banks for wrong advice in the case of an ill-fated Structured Investment Vehicle (SIV) deal as reported by Gulfbase.

• Bahrain's Arab Banking Corporation had write-downs of US$ 1.2 billion as reported by MEED.

• Kuwait-based Gulf Investment Corporation also announced write-downs of US$ 246 million at the end of 2007 and expected to add another US$ 200 million by the end of 2008 (MEED).

The real problem for the GCC banks was in the indirect exposure to increased costs of funding amidst maturity mismatches and credit exposure to local consumer, project and real estate financing. With increasing shortage of global liquidity, the international financial institutions and banks became more risk averse and the cost of borrowing in the GCC increased sharply and some were even forced to deleverage, as shown in Figure 5 below.

Figure 5: GCC Credit to the Private Sector from Jan 2008 to Dec 2009. (Annual % change)

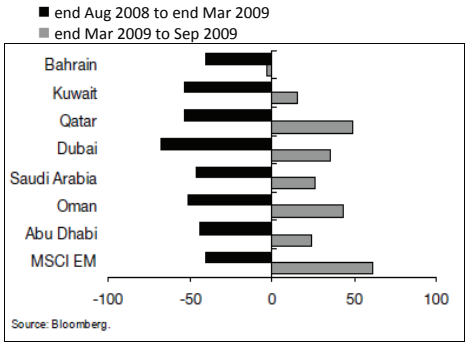


Source: 'Impact of the Global Financial Crisis on the Gulf Cooperation Council countries and Challenges Ahead', prepared by the Middle East and Central Asia Department - Washington, D.C., International Monetary Fund, 2010, pg 26.

Impact on the Stock Markets

All the stock markets in the GCC region witnessed a sharp fall during second half of 2008 which wiped off all the gains made during the first half and turned into negative performance as shown in the Figure 6 below:

Figure 6: Stock Market Indices Aug 2008 – Sep 2009 (% change)



Source: The Institute of International Finance, GCC Regional Overview, 28 September 2009.

The crisis affected oil prices negatively through two main channels:

(a) as the financial crisis unfolded, many operators liquidated their positions in the commodity markets, in part to cover losses or margins; which affected oil prices.

(b) oil demand declined as the global economy entered into stagnation.

Analysis of Correlation of Financial Stress Between the Advanced & GCC Countries

Correlational Analysis

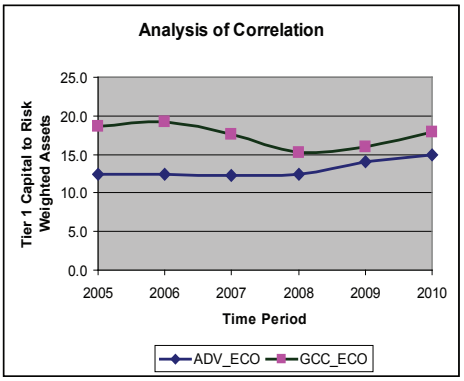
To test the first hypothesis: 'There is a correlation between the financial stress in Advanced countries to the financial stress in GCC countries', the financial sectors of the Advanced and GCC economies have been studied with it's two major components, the banking sector and the stock market. Factors that determine the level of financial stress in the banking sector and the stock market are determined and sourced. This study uses the Financial Soundness Indicators (FSIs) proposed by the IMF to analyze the correlation of stress in the banking sectors between the Advanced and the GCC countries.

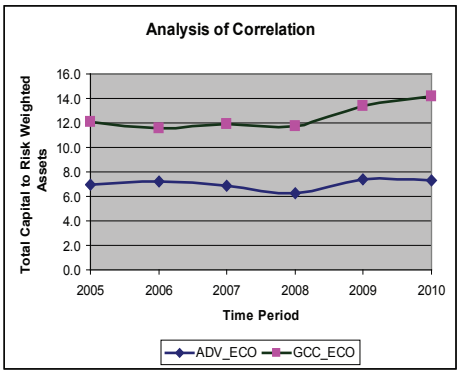
• The time period of analysis between the years 2005 and 2010 is ascertained (as short to medium term).
• Correlation between each of these factors that determine financial stress is analyzed, which confirms a positive correlation of stress in Advanced and GCC countries during the given period.
• The strength and direction of such a relationship is measured statistically by calculating the coefficient of correlation of the variables.
• Below the empirical results are presented and analyzed.

Correlation of Capital Based Ratios between Advanced & GCC Economies

These variables measure the capacity of the banking sector to absorb losses, in other words to determine the financial strength of the sector. A low aggregate capital ratio for the banking sector should give some indication of the potential for a systemic crisis triggered by banking failures, a bank run or general loss of access to liquidity. The two capital based ratios used for the study are (a) Tier 1 Capital to Risk Ratio and (b) Total Capital to Risk Weighted Assets.

Figure 7: Analysis of Correlation of Capital Based Ratios

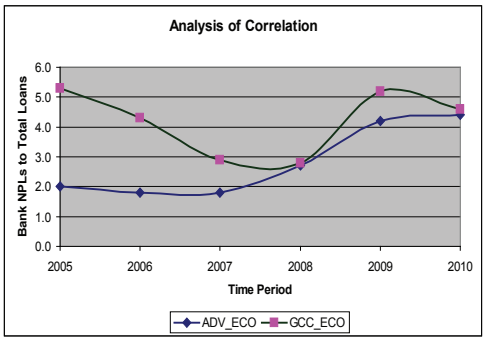


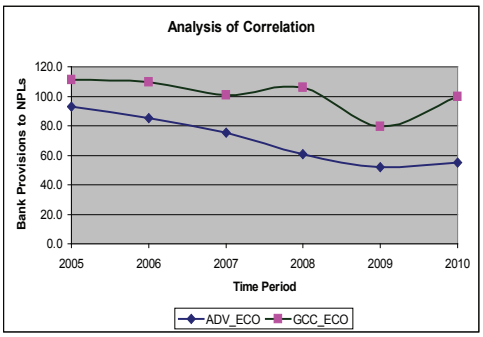


Correlation of Asset Based Ratios between Advanced & GCC Economies

These variables give an indication of the asset quality or loan quality of the banking sector. Risks to the solvency of financial institutions most often originate from an impairment of assets, which in turn can arise from deterioration in the financial health and profitability of the borrowers. The two asset based ratios used for the study are (a) Bank Non-performing Loans (NPLs) to Total Loans and (b) Bank Provisions to Non-performing Loans (NPLs).

Figure 8: Analysis of Correlation of Asset Based Ratios

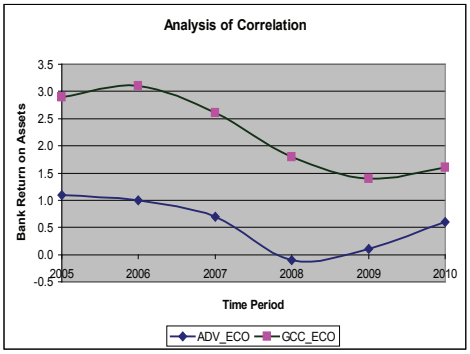


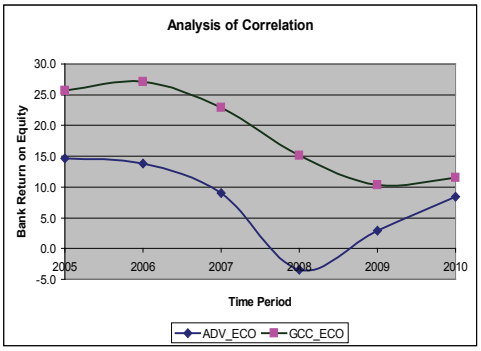


Correlation of Income/Expense Based Ratios between Advanced & GCC Economies

These variables measure the profitability of the financial sector in an economy. Accounting data on bank margins, income and expenses are widely used indicators of bank profitability. The two income/expense based ratios used for the study are (a) Bank return to Assets and (b) Bank Return to Equity.

Figure 9: Analysis of Correlation of Income/Expense Based Ratios

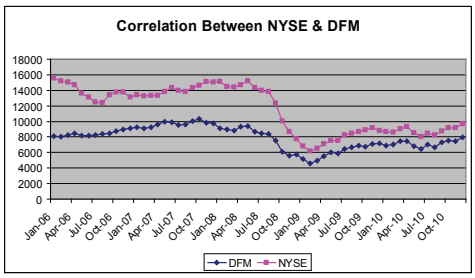




Correlation of Stock Markets between Advanced & GCC Economies

Now, this study proceeds with analysing the stock market correlation between the Advanced and the GCC economies during the financial crisis of 2008 which is the second major component of financial stress. Here, the New York Stock Exchange Composite Index (NYSE) is taken as a representation for the Advanced economies and the Dubai Financial Market Index (DFM) as a representation for the GCC economies.

Figure 10: Analysis of Correlation between Stock Markets:



Interpretation

This study analysed the correlation of the financial sector stress in the short to medium term of the crisis period between Advanced countries and the GCC countries, wherein it was found that:

• The banking sector variables consisting of capital, asset and profitability ratios, tested for an overall strong positive correlation from 0.62 to 0.82 for almost all the six variables that studied.

• It is also observed that the correlation of capital based ratios remained quite strong in the medium term after the financial crisis, especially after the Lehman Brothers bankruptcy in late 2008 and up to 2010 with both the ratios showing a coefficient of 0.92 each.

• The lowest correlation was observed for the Nonperforming Loans (NPLs) to Total Gross Loans of 0.38 for the period between 2005 and 2010. However this correlation becomes much strong after the crisis period of 2008 – 2010, indicating the contagion of the crisis from the Advanced to the GCC region.

• It is also observed that the correlation of income/expense based ratios becomes stronger reaching 1.0 in both the profitability ratios just prior and immediately after the crisis struck.

• The stock markets of both these regions also showed a strong positive correlation of 0.68 for the period.

Hence, the first hypothesis of this study: 'There is a correlation between the financial stresses in advanced countries and the GCC countries.' was therefore tested to be true. It also answered the question – 'how strong is the link between the financial stress in Advanced countries and the GCC countries', as the correlation coefficient in most cases showed a strong relationship and specially the crisis period revealed a lock and step movement between the financial sectors of these two regions under study.

Measuring Impact of the Financial Crisis 2008 on the GCC Countries

There have been many studies in the past that prove a great interaction between the financial sector and the real sector of economies. The financial sector mobilizes savings and allocates credit across space and time. Studies have shown that an efficient financial sector reduces the cost and risk of producing and trading goods and services and thus making an important contribution to raising the standards of living within an economy. (Herring & Santomero 1996 July) and some explained how financial expansion and contraction cycles affect the broader economy through their impact on real economic sectors. (Aizenman & Sushko 2012 May). Others revealed that external financial crises carry severe adverse real effects on inflicting economies (Cardarelli & Lall 2009), these effects would be reflected in sharp declines in real activity of the economies impacted by the crises, at least in the short to medium term.

Given the implications of financial stress on the real economy, this study deems it important to measure the impact of the financial stress received from Advanced Economies onto the inflicted GCC countries.

The characteristics of mostly all GCC countries being similar to each other have supported the identification of two major factors that mainly influence economic activity in any of the economies of the region, which are detailed as below:

• First being the financial sector stability and growth, subdivided further into two main sectors which include the banking sector profitability and the stock market performance.

• Second being the influence of oil prices, as all these economies thrive on oil as they are the oil producing and exporting economies.

Based on the analytical framework evidencing the impact of the crisis on the GCC and the correlational analysis conducted above, showing a strong correlation between the financial sectors of the GCC with that of the Advanced economies, the study now proceeds to measure the impact of this crisis on the GCC.

Analysis of Measuring the Impact
Variables used in the analysis include:

- **Real Gross Domestic Product** (Real GDP) (in percent) of the GCC economies, where the effect of the crisis is measured by the variability (decline) in the Real GDP. The average of the annual Real GDP of the six oil producing and exporting GCC countries of Saudi Arabia, Kuwait, Oman, United Arab Emirates, Qatar and Bahrain is taken, for the years from 2008 and 2009.

The cause of this decline in Real GDP is attributed to three major factors:

- B**anking Sector Profitability** (in percent) through Bank Return on Equity (ROE). This model includes averaged bank ROE of four GCC countries of Saudi Arabia, Kuwait, Oman and United Arab Emirates, for the years of 2008 and 2009 respectively.

- Stock Market Index: The monthly index values of the UAE DFM Index are averaged to get an average index value for the year 2008 and 2009 respectively.

- Oil Price US (in Dollars): The monthly oil prices for the years 2008 and 2009 are averaged respectively to get annual oil prices in US Dollars.

Summary of the variables:

	Annual Real GDP (%) of GCC	Annual Bank ROE (%) of GCC	Stock Market Index	Annual Average Oil Price
2008	5.63	15.10	5175.00	97.04
2009	2.19	10.40	1729.00	61.78

The calculation of the drop in each variable is shown as below:

	Real GDP (%) of GCC	ROE (%) of GCC	Stock Market Index	Oil Price
Drop in stated values from 2008 to 2009	3.44	4.70	3446.00	35.26

The relative percentage drop from 2008 to 2009 in each of these is shown below:

	Real GDP of GCC	ROE of GCC	Stock Market Index	Oil Price
Percentage Decline from 2008 - 2009	61.10	31.13	66.59	36.34

Hence, it can be observed that Real GDP falls by 1 percent for approximately half a percent in drop of bank returns and approximately 1 percent drop in stock market indices. A fall of approximately 60 percent in oil prices could cause the drop in Real GDP to 1 percent. (Shown in the table below)

	Real GDP of GCC	ROE of GCC	Stock Market Index	Oil Price
	1.00	0.51	1.09	0.59
Financial Sector Aggregate		1.60		0.59
Percent Contributor		**73.05**		**26.95**

Interpretation

The analysis revealed that 3/4th or 73 percent of the drop in Real GDP in the GCC countries was due to the direct and the indirect impact of the financial sector immediately after the external crisis of 2008 struck. In other words, it indicates that the increased financial stress in GCC countries after the financial crisis 2008 contributed to the three-fourth of the whole damage caused due to direct or indirect impact of external financial shock from the advanced economies.

Recommendation & Conclusion

Recommendations

This study puts forth some recommendations to assist the economists and policy makers of GCC governments to design policies to support growth and mitigate risks to the financial system from external shocks.

• To introduce a requirement for banks to keep a certain level of reserves as a share of total loans and practical limits on banks strictly enforced.

• To take steps to avoid excessive corporate sector leverage.

• To monitor risks from offshore financial centres continuously and pro-actively.

• To undertake regular stress testing, to determine whether the level of capital support is sufficient along with a more comprehensive set of banking sector financial soundness indicators.

• Central banks to regulate and supervise deposit-taking institutions to limit their risk-taking, and/or limit their exposure to sectors such as real estate.

• To develop local and regional debt markets.

• To use counter-cyclical fiscal policy measures to control overheating in the economy.

• To restructure nonbank institutions (particularly in Kuwait and the UAE) to supporting viable entities and a smooth exit of nonviable institutions.

• To put in place a more comprehensive, explicit legal framework for government intervention in banks and other financial institutions to increase the reliability and assurance climate in the financial sectors.

Conclusion

This study emphasizes the importance of the external financial contagion to the GCC economies, and contradicts the perceptions held prior to the crisis of 2008, that these economies were immune to such impacts, due to their stockpiles of oil wealth and continuous high demand for oil.

The findings stress on the importance of the banking sector, which forms a major part of the financial system of the GCC countries, emphasizing the need for policymakers to support their banking systems and preventing their collapse.

Finally, the results should help GCC policymakers reassess the benefits of global financial integration by focusing not solely at the positive aspects of such integration but also recognizing the risks it presents to the stability of their financial markets and their development.

Looking ahead, the challenges are formidable, as largely, the world has not yet fully overcome the after effects of the last global financial crisis at the time of writing this research. The GCC economies, however, suffered mildly from the crisis, thanks to the rapid recovery of oil prices supported by demand in emerging economies and also the ability of the respective governments to counter the impacts due to the stock pile of oil wealth. This region is now quite strongly connected to the world through various channels which makes them vulnerable to external crises, hence much more needs to be done to safeguard their interests in the coming future.

References

• Brahmbhatt, Milan (2008 November). "Weathering the Storm: Economic Policy Responses to the Financial Crisis", World Bank.

• Cower, David (2006 August). "Financial Integration in Asia – Recent Developments & Next Steps", International Monetary Fund Publication.

• Fasano, Ugo & Iqbal, Zubair (2003). "GCC Countries: From Oil Dependence to Diversification" International Monetary Fund Publication.

• Felton A. & Reinhart K. (2008). "The First Global Financial Crisis of the 21st Century". A VoxEU.org Publication. Available at www.voxeu.org.

• Freidman J. & Posner R. (2011). "What Caused the Financial Crisis", University of Pennsylvania Press, Philadelphia, USA.

• Cower, David (2006 August). "Financial Integration in Asia – Recent Developments & Next Steps", International Monetary Fund Publication.

• Fasano, Ugo & Iqbal, Zubair (2003). "GCC Countries: From Oil Dependence to Diversification" International Monetary Fund Publication.

• Felton A. & Reinhart K. (2008). "The First Global Financial Crisis of the 21st Century". A VoxEU.org Publication. Available at www.voxeu.org.

• Freidman J. & Posner R. (2011). "What Caused the Financial Crisis", University of Pennsylvania Press, Philadelphia, USA.

• Herring, R.J. & Santomero, A.M. (1996 July 24). "The Role of the Financial Sector in Economic Performance" The Wharton School, University of Pennsylvania, Philadelphia, USA.

• Kolb, Robert (2010). "Lessons from the Financial Crisis: Causes, Consequences, and Our Economic Future", Kolb Series in Finance, Essential Perspectives, John Wiley & Sons Inc., New Jersey, USA.

• Liebscher K., Christl J., Mooslechner P. & Ritzberger-Grünwald D. (2006). "Financial Development, Integration & Stability" Edward Elgar Publishing Ltd, UK.

• Puddu, S. (2009 April). "Real Sector and Banking System: First and Second Round Effects. A Non-Linear VAR Approach" HEC Lausanne, Switzerland.

• Sherman, H. J. (2009). "The Roller Coaster Economy: Financial Crisis, Great Recession, and the Public Option" M. E. Sharpe Inc, USA.

• Truman, Edwin (2009). "Sovereign Wealth Funds: Threat or Salvation?" Peterson Institute for International Economics, Washington DC, USA.

Reports from National & International Organizations

• Al Masah Capital Management Limited (2011 May). "GCC Real Estate: Back on Growth Track?" DIFC, Dubai, United Arab Emirates.

• Al Otaibi, B. & Sylwester, K. (2007 December). "Oil price movements and GDP growth in GCC countries: is the relationship symmetric?" Indian Journal of Economics and Business.

• Balakrishnan, R., Danninger, S., Elekdag, S. & Tytell, I. (2009 June). "The Transmission of Financial Stress from Advanced to Emerging Economies", International Monetary Fund Working Paper, Research Department.

• Cardarelli, R., Elekdag S. & Lall S. (2009 May). "Financial Stress, Downturns, and Recoveries", International Monetary Fund Working Paper.

• Chailloux, A. & Hakura, D. (2009 December). "Systemic Liquidity Management in the U.A.E.: Issues and Options", IMF working paper number WP/09/261.

• Chui, Michael K.F., Hall S. & Taylor A. (2004). "Crisis Spillovers in Emerging Market Economies: Interlinkages, Vulnerabilities and Investor Behaviour", Bank of England Working Paper No.212, London: Bank of England.

• Čihák, M. & Schaeck, K. (2007 December). "How Well Do Aggregate Bank Ratios Identify Banking Problems?" International Monetary Fund Working Paper, Monetary and Capital Markets Department.

• Espinoza, R. & Senhadji, A. (2011 March). "How Strong are Fiscal Multipliers in the GCC? An Empirical Investigation", International Monetary Fund Working Paper.

• Global Investment House (2009). "Global Market Report 2009" & "GCC Economic Report 2009".

• Global Investment House (2009). "Global Market Report 2009" & "GCC Economic Report 2009".

• Hagan S. & Towe C. (2009 April 17). "An Overview of the Legal, Institutional, and Regulatory Framework for Bank Insolvency", International Monetary Fund, available at www.imf.org.

• Husain, M.A., Tazhibayeva, K. & Ter-Martirosyan, A. (2008 November). "Fiscal Policy and Economic Cycles in Oil-Exporting Countries", International Monetary Fund.

• International Monetary Fund (2008). "World Economic Outlook: Housing and the Business Cycle".

• International Monetary Fund (2009 April). "World Economic Outlook: Crisis and Recovery -- Chapter 4. How Linkages Fuel the Fire: The Transmission of Financial Stress from Advanced to Emerging Economies".

• International Monetary Fund Middle East and Central Asia Department (2010). "Impact of the Global Financial Crisis on the Gulf Cooperation Council countries and Challenges Ahead".

• Khamis, M. & Senhadji, A. (2010). "Impact of the Global Financial Crisis on the Gulf Cooperation Council", International Monetary Fund.

• Mehrara, M. & Mohaghegh, M. (2011 November). "Macroeconomic Dynamics in the Oil Exporting Countries: A Panel VAR study", University of Tehran-Iran for International Journal of Business and Social Science, Vol. 2 Number 21 Special Issue.

• Moriyama, K. (2010 January). "The Spillover Effects of the Global Crisis on Economic Activity in MENA Emerging Market Countries—An Analysis Using the Financial Stress Index", International Monetary Fund Working Paper, Middle East and Central Asia Department.

the Financial Stress Index", International Monetary Fund Working Paper, Middle East and Central Asia Department.

• Nanto, D.K. (2009 July 2). "The Global Financial Crisis: Analysis & Policy Implications", Congressional Research Service.

• Stephanou, C. (2009 June). "Crisis Response – Public Policy for the Private Sector", World Bank.

• The International Journal of Banking and Finance (2010). "Stock Market Contagion in the Early Stages of the Global Financial Crisis: The Experience of the GCC Countries".

• The Saudi Gazette (2008 August 1). "Regional Economic Outlook, Middle East and North Africa".

• United Nations (2009). "World Economic Situation and Prospects 2009: Global Outlook 2009", New York, USA.

• Woertz, E. (2008 October). "Impact of the US Financial Crisis on the GCC Countries", A Gulf Research Centre Report, Dubai, United Arab Emirates.

Dr. Zaheda Ronak (CMA)
Assistant Professor of Finance & Accounting (Adjunct) - Faculty of Business
Jumeira University- Dubai - United Arab Emirates.
Email: zahida1712@gmail.com

ASSESSING THE PERFORMANCE OF CLOUD-BASED CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS

Prerna Lal, Sangeeta Shah Bharadwaj

Abstract

Cloud-based services has changed the dynamics of delivering information technology services to the customer and has enabled organizations to be more flexible. The intent of this study is to empirically test the performance of cloud-based customer relationship management systems using DeLone and McLean's Information System Success Model. In this study performance of cloud-based CRM systems is evaluated using six constructs, i.e. system quality, service quality, information quality, use of cloud-based CRM, user satisfaction, and organizational benefits. Relationships between constructs were assessed using structural equation modeling techniques. In this quantitative study, data was collected using a survey questionnaire method from 235 Indian organizations using a cloud-based customer relationship management system. Analysis of the data suggests that in case of the cloud-based CRM system, the quality of service provided by the cloud vendor is the one that has a stronger impact on the user satisfaction while the quality of cloud-based CRM systems has stronger influence on the use of cloud-based CRM systems in the organization. Furthermore, the study reveals that the use of the cloud-based CRM systems in addition to the satisfaction of the user's results in achieving both financial as well as non-financial benefits in an organization.

Keywords: *Cloud Computing, Cloud-based Services, Customer Relationship Management, Adoption, DeLone and McLean IS model of Success*

Introduction

Recent advancement in technologies, globalization, and industry convergence are posing challenges for organizations to survive in highly competitive business environments. In this competitive environment, organizations need to understand the importance of customers as they are "constituents" who can help organizations in increasing profitability and achieving sustainable growth. They need to identify new ways to interact with their customers and create integration between marketing, sales, and customer service functions. Customer Relationship Management (CRM) provides a way to deal with these challenges. CRM encompasses set of processes, which can help in developing mutually beneficial, long-term associations between the customer and the seller. CRM helps organizations in identifying the right consumer whom they can target with the right proposal using the right channel, at the right time [Ling & Yen, 2001; Sheth & Sisodia, 1995; Swift, 2001].

The advent and large-scale adoption of the Internet and Web-based innovative technologies and applications have enabled organizations to transform the way interactions between them and their customers are accomplished across platforms, networks and channels [Ngai, 2005]. The foundation of this relationship is based on the kind of data, organization captures regarding their customer, and the information technology (IT) tools used for doing so. The use of IT-based CRM solutions can aid organizations in discovering innovative business models for improving customers' engagement and satisfaction levels. This will lead the increase in sales as well as customer loyalty [Dien & Douglas, 2010].

Cloud computing is regarded as one of the most favorable technologies, which can help organizations to gain strategic advantage in this competitive environment [Zissis & Lekkas, 2011]. The model of cloud computing is dynamic, flexible and modular.

It provides a shared syndicate of IT resources ranging from hardware, software applications, networks and storage, which can be accessed by organizations on-demand. More importantly, these resources can rapidly be scaled up or down as required by the organization [Mell & Grance, 2011].

The latest surge of cloud-based CRM applications (e.g. Sales cloud by Salesforce, Microsoft Dynamics CRM, Sage CRM, etc.) can now be delivered through the Internet which can be accessed by agents, supervisors, and executives in real time. Business of all sizes, small, medium or large can take advantage of cloud-based CRM systems. One of the biggest benefits of cloud-based CRM systems is that they can be integrated with existing enterprise systems. These systems may be an Enterprise Resource Planning system or a Supply Chain Management system. Integration of CRM with enterprise systems can provide complete information of the customer with respect to sales, marketing and customer engagement service as well as financial status of customer accounts. Ultimate aim is to provide useful cloud-based CRM systems that are not only easy to manage but also enhance business value [Wardley & Mahowald, 2011].

Literature Review: Cloud Computing

The coming of the Information Age and the transition from an Industrial Era economy in the 90s brought about many changes in running businesses. IT paradigms, solutions, and systems were introduced and adopted at different time intervals in order to help organizations and businesses to operate in a global market, reengineer existing business processes, and introduce new products and services. Cloud computing is the latest IT innovation and is a revolutionary paradigm. The introduction of cloud-based solutions has verily altered the method of using IT as services and the [Marston et al., 2011]. Customers adopting cloud-based services look to certain well-defined gains and benefits through better utilization of distributed IT resources and achieve higher throughput [Rimal et al., 2009]. This model of IT management of networks, services, and other IT assets is carried out on offsite centers or locations that organizations and businesses do not necessarily operate or own [Wu et al., 2011].

Organizations can adopt Cloud-based services delivered through three models namely: (1) Software-as-a-Service (SaaS), (2) Infrastructure-as-a-Service (IaaS), and (3) Platform-as-a-Service (PaaS). SaaS is the conduit for organizations to software running on servers through Web browsers. Critically, SaaS outsources the complex task of deploying, operating and managing software to third-party services. Some familiar and popular SaaS applications for business are Salesforce, Google Apps and Dropbox. One of the biggest benefits of SaaS services which are provisioned on a subscription model is the reduction of the cost of software ownership as well as licensing software. PaaS provides the platform on which software can be developed, tested and deployed. PaaS is an innovative paradigm in which PaaS providers manage the back-end and offsite processes of the operating system, server software, an underlying network and hardware infrastructure while organizational users are free to concentrate on the business side, including scalability and the application development of their varied services and products. PaaS' advantage is that it is built on top of virtualization technology, thereby enabling customers to requisition resources as per changing needs and requirements. Some of the main PaaS providers include RedHat's OpenShift, Google App Engine and Heroku. IaaS comprises highly automated and scalable compute resources implemented by network capability and cloud storage, which are metered, provisioned and

made available on-demand. IaaS services can be accessed through dashboard and/or API. IaaS's strength lies in its flexibility that facilitates automated deployment of processing power, storage and networking. IaaS customers have better control over their infrastructure than SaaS or PaaS service users. Main IaaS providers include CloudSigma, HPCloud, and Softlayer.

Cloud technology can be deployed in different ways for different objectives. These models can be classified as Public, Private or Hybrid cloud. The Selection of any of these models depends on the criticality of the application organization is planning to move to the cloud. The cloud-based model in which common and integral IT services such as storage and applications are available for general use to customers over the Internet coupled with pay-per-usage mode is called as the public cloud. This public cloud is the most preferred cloud deployment model among the organizations. IBM's Blue Cloud is an example of a public cloud. A private cloud, on the other hand, is a virtualized data center coalesced together by large IT infrastructure and privately owned and managed. Finally, the hybrid cloud embodies characteristics of both private and public cloud model.

Cloud-based Customer Relationship Management Systems

A CRM system plays a significant part in maintaining an organization's association with its customers and ensuring not only acquisition but the retention of existing customers [Sen & Sinha, 2011]. IT- based CRM systems are used to manage customer data captured through various marketing activities such as segmentation, targeting, sales, order details, services provided to them, etc. Customer data captured from different sources like Websites, telephones, emails, etc. may have different formats. Thus, it is important that the chosen CRM system should have capabilities to manage such diverse formats and be able to analyze customer data to give useful insights. Today organizations are looking for end-to-end CRM systems, which can easily be integrated with other enterprise solutions like enterprise resource planning (ERP). By having these integrated solutions, sales, operations and finance organizations can work together as a team to manage their customers, orders, payments, etc.

Cloud-based CRM systems can be implemented as SaaS which will help organizations in minimizing their investments in IT infrastructure. These cloud-based systems not only help organizations to get off the ground rapidly but are best suited for sales persons as they are generally on the move and can access these solutions from any location and on any device, be it a laptop or a smart phone. Salesforce.com, Microsoft Dynamic CRM, Oracle CRM on demand, Rightnow, Sugar CRM are some of the examples of cloud-based CRM systems offering features like contact management, sales and marketing and employee tracking.

Motivation

CRM systems are a must-have for organizations to keep in touch with their clientele. Advantages of CRM are not limited to operational issues. In this day and age, organizations are using CRM to deliberate on the improvement of customer interaction processes to gain useful insights and design strategies accordingly. Traditionally, CRM was relegated to large enterprises owing to their maintenance and cost risk factors involved. However, things have changed today as a number of cloud-based CRM systems are available in the market, which are apt for organizations of any size and scale of operations.

There are a number of studies, which talk about CRM implementation, but there is hardly any study assessing the success of cloud-based CRM systems

adopted by organizations. This gap in literature motivates this study and thus this study aims to understand what factors impact the performance of the cloud-based CRM systems and how the adoption of cloud-based CRM systems benefits organizations.

Theoretical Foundation

Number of researchers suggested different models to describe "success" of an information system implemented in an organization. Most of these models have tried to link the success with the acceptance of information system. For example, Technology Acceptance Model (TAM) proposed by Davis's (1989) was developed using the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 1975) and is widely used for understanding why some information systems are more eagerly accepted by users than others. Acceptance, on the other hand, is not same as success, and thus this study uses the DeLone and McLean Information Systems Success Model (D&M IS Success Model) as a theoretical grounding for evaluating the performance of cloud-based CRM systems adopted by the organizations.

DeLone and McLean Information Systems Success Model

DeLone and McLean Information Systems Success Model was first introduced in 1992, which conceptualized and operationalized the success of information systems. According to DeLone and McLean [1992], success of any information systems is affected by the quality of information as well as the system, which impacts both the use of the system and user satisfaction. Additionally, the use of an information system may result in positive or negative impact on user satisfaction. This will impact the individual which in turn will impact the organizational performance.

DeLone and McLean revised this model in 2003 (see Figure 1) and suggested that the performance of an information system depends on the quality of the information system that can be defined using three dimensions - information quality, system quality, service quality. This will subsequently influence use as well as user satisfaction, which will result in net benefits. These net benefits can be defined at the individual as well as at the organizational level [DeLone and McLean, 2003].

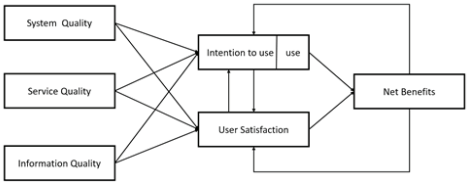


Figure 1: ***D&M IS Success Model***

Conceptual model building and hypothesis development

The conceptual model of this study was developed on the basis of updated D&M IS Success Model [DeLone and McLean, 2003]. Figure 2 represents six constructs used to evaluate the performance of cloud-based CRM systems used in this study. It is important to note that these constructs are interrelated and may influence positively or negatively based on the quality of the information system.

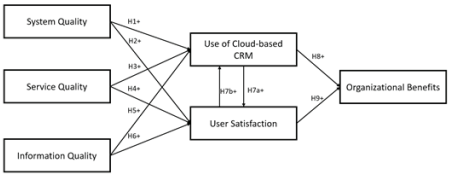


Figure 2: ***Conceptual Model***

System Quality. Quality of an information system impacts not only the use of an information system, but also the user satisfaction. In case of cloud-based CRM systems quality of information system can be measured in terms of how easy or difficult it is to adopt cloud-based

CRM systems as compared to traditional CRM systems. Unlike traditional CRM systems cloud-based CRM systems can be implemented easily as organizations need not worry about setting up IT infrastructure to deploy cloud-based applications. Availability and accessibility of cloud-based CRM service also influences the use as well as satisfaction of the user as these services are available 24/7 by the cloud service provider. Moreover, cloud-based CRM systems can be accessed using any device, i.e. smart phone, laptop, tablet, or desktop from any location. This will not only impact the user satisfaction but will increase the use of cloud-based CRM systems. Thus, it can be hypothesized that system quality will positively impact the use as well as user satisfaction in case of cloud-based CRM systems.

H1: System quality will positively affect the use of cloud-based CRM systems.

H2: System quality will positively affect user satisfaction in case of cloud-based CRM systems

Service Quality. In case of cloud-based services quality of the service provided by the cloud service provider plays a significant role. The quality of service provider can be assessed on the basis of IT expertise they possess in providing cloud-based services, how often they update technology as well as functions and features of cloud-based applications. Additionally, the capability of a cloud service provider in providing 24/7 customer support and prompt response to customer queries also influences the use as well as user satisfaction of cloud-based CRM systems. Finally, the brand of cloud service provider also impacts the decision to use cloud-based CRM systems as it will reflect the expertise of the cloud service provider and its reputation in the market. Thus, it can be hypothesized that service quality will have positive impact on the use and well as the user satisfaction of the organisations using cloud-based CRM systems.

H3: Service quality will positively affect the use of cloud-based CRM systems.

H4: Service quality will positively affect user satisfaction in case of cloud-based CRM systems.

Information Quality. Quality of information produced by the IT application is crucial as this information is used by managers at different levels and from different functions for making decisions and designing strategies. Quality of information produced by cloud-based CRM systems can be assessed in terms of ability to customize CRM systems according to organizational requirements, availability of easy to understand functions, security of data, and ability to generate relevant information for the end users so that they can make operational as well as managerial decisions influences the use as well as the satisfaction of the users. Thus, we propose the following hypothesis

H5: Information Quality will positively affect the use of cloud-based CRM systems.

H6: Information quality will positively affect user satisfaction in case of cloud-based CRM systems.

Use of Cloud-based CRM. An organization can use information systems for performing internal operations as well as for interacting with their stakeholders, be it suppliers, distributors or customers. Cloud-based CRM systems provide an opportunity to interact not only with the existing and potential customers, promote new products and services, but also manage their sales force without any limits of geographical boundaries and time zones.

User Satisfaction. Satisfaction with the information system will have a lot of influence on the success of the information system.

User satisfaction depends a lot on the quality of the information system, if the system is found to have met the expectations of the organization, and if the implementation of the system enhances employee's performance.

According to DeLone & McLean [2003] positive experience with 'Use' of the information system will lead to greater 'User Satisfaction' and increase in the 'User Satisfaction' will lead to increased 'Intention to Use' and thus 'Use'. Thus, we propose following hypothesis

H7a: Use of cloud-based CRM systems will positively affect the user satisfaction.
H7b: User satisfaction will positively impact the use of cloud-based CRM systems.

Organizational Benefits. The review of literature suggests that a successful implementation of the information system will result in both financial as well as non-financial benefits in an organization. Success of Cloud-based CRM systems can be assessed on the basis of various parameters such as: reduction in customer response time, improvement in the quality of customer service, increase in customer satisfaction, reduction in the IT implementation and maintenance cost, and increase in the market share. These benefits are directly impacted by the use of information system in the organization as well as by the satisfaction of users. Therefore, organizational benefits of a cloud-based CRM system will depend a lot on what level the organization is using a cloud-based CRM system to interact with customers and reach to the new market in addition to how satisfied sales force and customers are with the use of cloud-based CRM systems. Thus, we propose following hypothesis

H8: Use of cloud-based CRM systems will positively affect the organizational benefits.

H9: User satisfaction will positively affect the organizational benefits in case if cloud-based CRM systems.

Research Methodology

This quantitative study was conducted using a questionnaire survey method. Data was collected from those Indian organizations that have been using cloud-based CRM systems for at least 3 months at the time of study. Respondents included IT executives who were involved in deploying and managing cloud-based CRM systems in their organisations. Six point Likert scale was used to capture views of the respondents regarding six constructs system quality, service quality, information quality, use, satisfaction and benefits of cloud-based CRM system implemented in their organizations through 29 measurement items. Total 235 usable responses were collected, which were further analysed for missing values, outliers and normality. Further, structural equation modeling technique was applied using two step approach. First step involved assessing the fit of the measurement model and checking the construct validity. Second step involved assessing the fit of the structural model as well as testing the hypothesized relationships between the constructs.

Data Analysis

Preliminary analysis of data involved checking for missing values, outliers, and normality of the data. There were very few items that have less than one percent missing values, which were imputed using the regression imputation method. Data normality of items was also confirmed as values of skewness were observed between ±1 and values of kurtosis were observed between ±2 [Kline, 2011].

Further data was analysed using two step approach of structural equation modeling.

First step involved confirming the reliability and validity of the measurement items. Second step involved examining the structural relationship between constructs. In this study maximum likelihood estimation method is used for parameter estimates because it provides a consistent approach to parameter estimation [Anderson & Gerbing, 1988].

Measurement Model

Measurement model involved checking the reliability and construct validity. Reliability of the constructs was found high with all the values of Cronbach's alpha as well as composite reliability greater than 0.7 [Hair et al., 2009] as presented in Table I. Further data was analysed for convergent validity. Table 1 shows that standardized loadings of items were found significant as they exceeded the threshold value of 0.50 [Hair et al., 2009]. The average variance extracted (AVE) of latent constructs exceeded the recommended cut-off value of 0.50 [Hair et al., 2009],

Table I: ***Reliability and Validity Analysis***

Construct	Items	Standardized Loadings	Cronbach's alpha	Composite Reliability	Average Variance Extracted (AVE)
System Quality			**0.768**	**0.816**	**0.584**
	SQ1	0.712			
	SQ2	0.753			
	SQ3	0.742			
	SQ4	0.774			
	SQ5	0.784			
Service Quality			**0.801**	**0.887**	**0.612**
	SERQ1	0.768			
	SERQ2	0.712			
	SERQ3	0.764			
	SERQ4	0.792			
	SERQ5	0.731			
	SERQ6	0.758			
Information Quality			**0.765**	**0.862**	**0.542**
	IQ1	0.752			
	IQ2	0.781			
	IQ3	0.738			
	IQ4	0.714			
Use of Cloud-based CRM			**0.755**	**0.873**	**0.527**
	USE1	0.706			
	USE2	0.736			
	USE3	0.711			

ranged from 0.524 to 0.612, which signifies that more than one-half of the variances observed in the items were accounted for by their hypothesized constructs. Thus, the data displayed good convergent validity.

Discriminant validity of the data was assessed by comparing the shared variances between factors with the square root of AVE for each construct. Table II presents the results of discriminant validity and descriptive statistics of latent constructs. In this study discriminant validity was confirmed as shared variances of one construct with others were lower than the square root of AVE of the individual factors [Fornell & Larcker, 1981].

Table II: ***Discriminant validity***

	Constructs	1	2	3	4	5	6
1	System Quality	**0.764**					
2	Service Quality	0.225	**0.782**				
3	Information Quality	0.352	0.265	**0.736**			
4	Use of Cloud-based CRM	0.265	0.201	0.226	**0.726**		
5	User Satisfaction	0.145	0.365	0.364	0.201	**0.731**	
6	Organisational Benefits	0.225	0.121	0.356	0.324	0.325	**0.724**
	Mean	4.23	4.31	4.58	4.69	4.22	4.26
	Standard deviation	0.562	0.658	0.552	0.756	0.745	0642
	Skewness	-0.456	-0.685	-0.556	-0.762	-0.652	-0.563
	Kurtosis	0.962	0.852	1.235	1.103	0.956	0.882

Note: *Diagonal elements in bold show the square root of Average Variance Extracted (AVE)*

Measurement model with 29 items representing five latent constructs was further analysed to assess the fit. Table III presents a summary of fit indices for measurement model with their threshold values. Results verify the fit of measurement model with values of $\chi 2/df = 1.53$, comparative fit index (CFI) =0.96, Tucker Lewis Index (TFI) =0.96, Incremental fit index (IFI) = 0.95, Standardized root mean residual (SRMR) = 0.034, and root mean square error of approximation (RMSEA) = 0.026.

Table III: ***Measurement model fit indices***

Fit Indices	Model Values	Recommended Values	References
$\chi 2/df$	1.53	< 3.0	
SRMR	0.034	<0.08	(Hu & Bentler, 1999)
RMSEA	0.026	<0.1	(Browne & Cudeck, 1992)
CFI	0.96	≥ 0.90	(Hu & Bentler, 1999)
TFI	0.96	≥0.90	(Tucker & Lewis, 1973)
IFI	0.95	≥0.90	(Bollen, 1990)

Structural model

After assessing the fit of measurement model next step involves checking the fit of structural model developed based on the conceptual model proposed in this study and testing the proposed hypothesized relationships between the constructs. Results of the structural model fit are presented in Table IV. Results of structural model fit indices are $\chi 2/df = 1.42$, comparative fit index (CFI) =0.95, Tucker Lewis Index (TFI) = 0.95, Incremental fit index (IFI) = 0.94, Standardized root mean residual (SRMR) = 0.040, and root mean square error of approximation (RMSEA) = 0.028. These results validate the fit of structural model developed for this study with values of fit indices within specified threshold limits.

Table IV: ***Structural model fit indices***

Fit Indices	Model Values	Recommended Values	References
$\chi 2/df$	1.42	< 3.0	
SRMR	0.04	<0.08	(Hu & Bentler, 1999)
RMSEA	0.028	<0.1	(Browne & Cudeck, 1992)
CFI	0.95	≥ 0.90	(Hu & Bentler, 1999)
TFI	0.95	≥0.90	(Tucker & Lewis, 1973)
IFI	0.94	≥0.90	(Bollen, 1990)

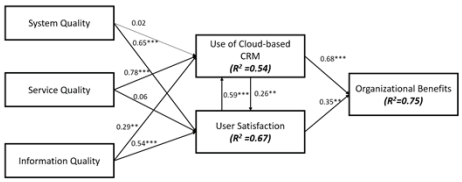
Table V represents the results of hypothesis testing. While hypothesis H2, H3, H5, H6, H7a, H7b, H8, H9 were found statistically significant, H1 and H4 failed to show a positive statistically significant relationship between system quality (SQ) and use of cloud-based systems (USE) in addition to service quality (SERQ) and user satisfaction (US) respectively.

Table V: ***Results of Hypothesis Testing***

Hypothesis	Path	β	S.E.	*p*
H1	SQ→USE	0.02	0.05	0.515
H2	SQ→US	0.65	0.04	***
H3	SERQ→USE	0.78	0.03	***
H4	SERQ→US	0.06	0.09	0.364
H5	IQ→USE	0.29	0.02	**
H6	IQ→US	0.54	0.06	***
H7a	USE→US	0.26	0.05	**
H7b	US→USE	0.59	0.07	***
H8	USE→OB	0.68	0.04	***
H9	US→OB	0.35	0.08	**

Note: ****p<0.001, **p<0.05, *p<0.01*

Figure 3 represents the values of standardized path coefficients indicating the strength of the relationship between latent constructs. Data reveals a strong relationship between system quality (SQ) and user satisfaction (US) (SQ→US: β =0.65, p=***), while service quality (SERQ) has a strong influence on the use of cloud-based CRM systems (USE) (SERQ→USE: β=0.78, p=***). On the other hand, the influence of information quality (IQ) was found stronger on the user satisfaction (US) (IQ →US: β= 0.54, p= ***) than the use of cloud-based CRM systems (USE) (IQ→ USE: β=0.29, p= **). Though the relationship between the use of cloud-based CRM systems and user satisfaction was found significant but the influence of user satisfaction (US) on the use of cloud-based CRM systems (USE) was found stronger (US→USE: β=0.59, p=***) than the use of cloud-based CRM systems (USE) on user satisfaction (US) (USE→ US: β=0.26, p=**). Finally, the impact of the use of cloud-based CRM systems (USE) was found stronger on the organizational benefits (OB) (USE→OB: β =0.68, p=***) than user satisfaction (US) (US→OB: β=0.35, p=**).



Note: Path significance: ***p<0.001, ** p<0.05, *p<0.01

Figure 3: ***Results of Hypothesis Testing***

The results of data analysis as represented in Figure 3 indicate that all independent variables accounted for 54% of the total variance in the use of cloud-based CRM systems (R2 = 0.54) and 67% of the total variance of user satisfaction (R2 =0.67). Further, the use of cloud-based CRM systems and user satisfaction account for 75% of the total variance in organizational benefits (R2 = 0.75). Thus, the results display an adequate model fit between the proposed conceptual model and empirical data.

Discussion

The study was conducted to assess the performance of cloud-based CRM systems in Indian organizations using D&M IS Success Model. The results of this study reveals that in case of cloud-based CRM systems, the quality of system is very important factor because availability and accessibility of cloud-based CRM systems from any device and from any location increases user satisfaction. On the other hand quality of the service provided by the cloud service provider for accessing and managing cloud-based CRM systems have a strong impact on the use of the system. Thus, the findings of this study will be useful for the organizations who are still in the process of making the decision and are weighing their options for the implementation of CRM systems in their organizations can use these results for understanding the factors that influence user satisfaction as well as the use of cloud-based CRM systems as compared to traditional CRM systems. Further, it will also help them to select the cloud service provider carefully as the impact of expertise and experience of the cloud service provider is substantial in the use of cloud-based CRM systems.

This study also reveals that user satisfaction has a stronger impact on the use of cloud-based CRM systems than the impact of use of the system on user satisfaction. This implies that even if the quality of service and information will make users use cloud-based CRM systems but the quality of system and information will influence the satisfaction of the user and have stronger impact on the use i.e. more satisfied the user is, more they will use the system. Thus, cloud-based CRM service providers should ensure that their CRM systems provide essential features to manage data related to the customer, sales force and the market, which are easy to access and available 24/7.

Finally, success of a cloud-based information system is reflected in the benefits an organization can achieve in terms of reach to new customers and market, increase in market share, reduction in the cost of IT implementation and maintenance. Analysis of the data collected from Indian organizations under this study reveals that Indian organizations using cloud-based CRM systems are able to reach new customers and market within no time as deploying cloud-based CRM systems does not require a lot of cost and time as compared to traditional CRM systems. This is also supported by the trend in India as not only old organizations but startups are also using cloud-based CRM systems for interacting with their customers besides creating as well as increasing their market without investing a lot in creating IT infrastructure.

Research Implications

This study give a significant direction to the managers who are still in the process of making decision regarding implementation of CRM systems in their organizations and are weighing benefits of both traditional as well as cloud based CRM systems. The model developed in this study can help them in analysing both types of CRM systems in terms of quality of system, service and information provided by the vendor. On the other hand, this model can also help managers of those organizations that have already implemented cloud-based CRM systems where in performance of these systems can be evaluated in terms of net benefits achieved by implementing cloud-based systems.

Conclusion

Cloud-based CRM solutions not only provide functions of traditional CRM systems,

but also provide capabilities which can help organizations in designing strategies related to customer relationship management. This study endeavoured to assess the performance of cloud-based CRM systems implemented in Indian organizations. This study can help organizations in understanding the factors important to make the decision regarding adoption as well as benefits of deploying cloud-based CRM services. This study may provide future direction for conducting a field study with a large sample size of organizations and investigate the performance of cloud-based CRM systems in greater depth.

Appendix a. Constructs and measures

System Quality
SQ1: Cloud-based CRM systems are easy to adopt.
SQ2: Cloud-based CRM systems are available 24/7.
SQ3: Cloud-based CRM systems can be accessed from any location.
SQ4: Cloud-based CRM systems can be accessed from any device.
SQ5: Cloud-based CRM systems are reliable.

Service Quality
SERQ1: Cloud service provider is expert.
SERQ2: Cloud service provider provides 24/7 customer service.
SERQ3: Cloud service provider keeps updating the technology.
SERQ4: Cloud service provider keeps updating the functions and features of CRM system.
SERQ5: Cloud service provider promptly responses to customer queries.
SERQ6: Cloud service provider's reputation is very good.

Information Quality
IQ1: Cloud-based CRM systems can be customized according to our need.
IQ2: Cloud-based CRM systems provide security of data.
IQ3: Cloud-based CRM systems are easy to understand.
IQ4: Cloud-based CRM systems provide relevant information.

Use of Cloud-based CRM
USE1: We are using cloud-based CRM systems to interact with the customers.
USE2: We are using cloud-based CRM systems for lead management.
USE3: We are using cloud-based CRM systems for managing sales force.
USE4: We are using cloud-based CRM systems for promoting our products/ services.

User Satisfaction
US1: We are satisfied with the Cloud-based CRM systems.
US2: Cloud-based CRM systems are of high quality.
US3: Cloud-based CRM systems have met our expectations.
US4: Cloud-based CRM systems enhances employees' performance.

Organizational Benefits
OB1: Cloud-based CRM systems have helped in the reduction of customer response time
OB2: Cloud-based CRM systems have helped in the improving the quality of customer service.
OB3: Cloud-based CRM systems have increased customer satisfaction
OB4: Cloud-based CRM systems have helped in the reduction of IT implementation cost.
OB5: Cloud-based CRM systems have helped in the reduction of IT maintenance cost.
OB6: Cloud-based CRM systems have helped us in increasing the market share.

References

Anderson, J. C., & Gerbing, D. W. 1988. Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411–423.

Bollen, K.A. 1989. Structural Equations with Latent Variables, New York: John Wiley & Sons, Inc.

Browne, M. W., & Cudeck, R. 1992. Alternative Ways of Assessing Model Fit. Sociological Methods & Research, 21(2), 230-258.

Davis, F. D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 318–346.

DeLone, W. H., and McLean, E. R. 1992. Information Systems Success: The Quest for the Dependent Variable. Information Systems Research, 3(1), 60–95.

DeLone, W. H., and McLean, E. R. 2003. The DeLone and McLean Model of Information Systems Success: A Ten-Year Update, Journal of Management Information Systems, 19(4), 9–30.

Dien, D. P. and Douglas, R. V. 2010. A model of customer relationship management and business intelligence systems for catalogue and online retailers. Information & Management, 47(2), 69-77.

Fishbein, M. and Ajzen, I. 1975. Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley, Reading.

Fornell, C., & Larcker, D. F. 1981. Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. Journal of Marketing Research, 18(3), 382–388.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. 2009. Multivariate Data Analysis. Upper Saddle River, NJ: Prentice Hall.

Hu, L., & Bentler, P. M. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1-55.

Kline, R. B. 2011. Principles and Practice of Structural Equation Modeling, New York: Guilford Press.

Ling, R. and Yen, D. C. 2001. Customer relationship management: An analysis framework and implementation strategies. Journal of Computer Information Systems, 41, 82–97.

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J. and Ghalsasi, A. 2011. Cloud computing – The business perspective. Decision Support Systems, 51(1), 176–-189.

Mell, P. and Grance, T. 2011. The NIST Definition of Cloud Computing Recommendations of the National Institute of Standards and Technology. NIST Special Publication, 145(6), 7. doi:10.1136/emj.2010.096966

Ngai, E. W. T. 2005. Customer relationship management research (1992–2002): An academic literature review and classification. Marketing Intelligence Planning, 23, 582–605.

Rimal, B. P., Choi, E. and Lumb, I. 2009. A taxonomy and survey of cloud computing systems. Paper presented at Fifth International Joint Conference on INC, IMS and IDC. Washington, DC, USA: IEEE Comp. Society. DOI: 10. 1109/NCM. 2009. 218.

Sen, A. and Sinha, A. P. 2011. IT alignment strategies for customer relationship management. Decision Support Systems, 51, 609-619.

Sheth, J. and Sisodia, R. 1995. Feeling the heat—Part 1, More than ever before, marketing is under fire to account for what it spends. Marketing Management, 4(2), 9-23.

Swift, R. S. 2001. Accelerating Customer Relationships using CRM and Relationship Technologies. Upper Saddle River, NJ: Prentice Hall.

Tucker, L. R., & Lewis, C. 1973. A reliability coefficient for maximum likelihood factor analysis. Psychometrika, 38(1), 1–10.

Wardley, M. and Mahowald, R. P. 2011. Next – Generation CRM: Driving Productivity with End - to - End Cloud Services Amplifying the Power of Productivity with Microsoft Dynamics CRM and Microsoft Cloud Services, IDC, retrieved from: http://az26122.vo.msecnd.net/docs/NextGenCRM_DrivingProductivity(229357).pdf

Wu, W. W., Lan, L. W. and Lee, Y. T. 2011. Exploring decisive factors affecting an organization's SaaS adoption: A case study. International Journal of Information Management, 31(6), 556-563.

Zissis, D. and Lekkas, D. 2011. Securing e-Government and e-Voting with an open cloud computing architecture. Government Information Quarterly, 28(2), 239–-251.

Amplifying the Power of Productivity with Microsoft Dynamics CRM and Microsoft Cloud Services, IDC, retrieved from: http://az26122.vo.msecnd.net/docs/NextGenCRM_DrivingProductivity(229357).pdf

Wu, W. W., Lan, L. W. and Lee, Y. T. 2011. Exploring decisive factors affecting an organization's SaaS adoption: A case study. International Journal of Information Management, 31(6), 556-563.

Zissis, D. and Lekkas, D. 2011. Securing e-Government and e-Voting with an open cloud computing architecture. Government Information Quarterly, 28(2), 239–-251.

Prerna Lal
Research Scholar,
FMS - WISDOM, Banasthali University, Rajasthan. India.
Email: prernalal@yahoo.com

Dr. Sangeeta Shah Bharadwaj
Professor-Information Management,
Management Development Institute, Gurgaon, India.
Email: ssbharadwaj@mdi.ac.in

INNOVATING THE CZECH AND SLOVAK TOURISM THROUGH CREATIVE TOURISM

Alzbeta Kiralova, Andrej Malachovsky

Abstract

Tourism in the Czech and the Slovak Republics recorded dynamic changes since the split of Czechoslovakia in 1993. Significant changes and modernization can be seen in tourism offer especially at local and regional level. Changes also occurred in the structure of markets and their redistribution within the country. Creative trends in tourism in both countries are primarily the result of extensive private investments. These investments are based on attractive natural and cultural conditions of both countries. The potential of tourism in this case compared to its current state is considerably higher in both countries. Developments of creative tourism, which in turn uses and evaluates the cultural potential of both countries, enable to provide new experiences to visitors. This development is also in line with the changes in the motivations of the visitor towards the search for authenticity. The Czech Republic and Slovakia have for the development of creative tourism excellent conditions including folk crafts, folklore festivals, gastronomy and traditional products linked to the history of both countries. This paper is a conceptual work on how the creative tourism can help in quantitative and qualitative tourism development in the Czech and Slovak Republics. Based on that, it defines creative tourism and analyzes its supply side as a source of competitiveness and subject to differentiation. Best practice examples show where this innovative concept of creativity is already applied in tourism in both countries. The paper also makes suggestions for future research.

Keywords: *Competitiveness, Innovation, Creative tourism, Visitor, Czech Republic, Slovakia*

Introduction

The mass tourism in the 20th century was characterized by largely non-differentiated products and services dependent on scale economies and mass consumption by undifferentiated tourists who were passive observers of events (Shaw & Williams, 2004). Cultural tourism as part of mass tourism was developed in Europe, especially after the Second World War.

Globalization influenced the changes in visitors' behavior and preferences. The economy of scope, market segmentation and customized holiday are characteristics of the new tourism that is more individual, personalized, and value-based (Feifer, 1985; Harvey, 1992; Rojek, 1995). Today´s visitors move away from mass tourism and prefer tourism products that are tailored to their requirements. Individualism and postmodernism have contributed to creating fragmented and diversified supply and demand of tourism.

The post-modern visitors led destinations to a profound transformation of traditional tourism products, with a focus on "emotionalization" (Mikunda, 2004) of tourism. They require personalized approach, creative and interactive experiences. Post-modern visitors want to participate in the creation of tourism products, want to buy based on relationships, and want to feel like a part of the particular destination.

Although the creative tourism has evolved from cultural tourism, it is not associated with the massive visitation of cultural attractions. According to Raymond (2007), creative tourism focuses on acquiring authentic and

creative experiences in the destination, mainly due to an active interaction between visitors and residents.

The term creative tourism is not entirely new but in the Czech Republic and Slovakia is not frequently used. Its significance is growing with time. Creative tourism is an opportunity for destinations; it can help to distinguish the particular destination from others and stay competitive in the tourism market. Creative tourism also represents an opportunity for those destinations, where the cultural infrastructure is not fully developed.

Competitiveness and Innovation in Tourism

Destinations offer an integrated experience for visitors; they are places towards which people travel and where they choose to stay for a certain period (Leiper, 1995). To be successfully promoted in the targeted markets, a destination must be favorably differentiated from its competitors. Competitiveness is widely accepted as the most important factor determining the long-term success of destinations (Kozak & Rimmington, 1999).
Wall and Mathieson (2006) states that the long success of the destination in the global competition depends on, among other things, how competitive they are in the marketplace, how well they are positioned, and on destination´s ability to use the advantage or mitigate the disadvantage of its location.

Global visitors have a large selection of destinations to choose from and the development and increasing use of information and communication technologies enable them to make a buying decision in a short time range.

The most comprehensive work on tourism destination competitiveness was undertaken by Crouch and Ritchie (Crouch & Ritchie, 1994, 1995; Richie & Crouch, 1993, 2000, 2003), various empirical studies were based on their conceptual framework (d'Harteserre, 2000; Go & Govers, 2000; Kim, Guo & Agrusa 2005), and a number of studies focused on the concept of competitiveness in the destinations (Crouch & Ritchie, 1999; Go & Govers, 2000; Hassan, 2000). Ritchie and Crouch (2003) considered a destination competitive if it can increase tourism expenditure and increasingly to attract visitors by offering them satisfying, memorable experiences. They focus on long-term prosperity of the destination and claim that the most competitive destination is that which most effectively creates well-being for its residents on a sustainable basis and underline the importance of economic, ecologic, social, cultural and political sustainability.

In Schumpeter's economic concept of innovation is innovation understood as the notion of "new combinations" that refer to the new product or a new quality of a product, a new method of production, a new market, and a new source of supply of raw materials or half-manufactured good (Schumpeter, 1934; 1939). He introduces into economics the concept of creative destruction as a source of a new economic cycle and links innovation with economic growth. Several authors (Weiermair 2006; Hjalager 2002; Fagerberg 2005; Drejer 2004; OECD 2005) accept the classification set down by Schumpeter.

Abernathy and Clark (1985) defined innovation as the initial market introduction of a new product or process whose design departs radically from the past practice. They stated that the competitive significance of innovation depends only on what it does to add value and the applicability of the innovation to the firm's existing core competencies. Sundbo and Gallouj (1999) distinguish between product innovation, process innovation, organizational innovation and market innovation. Based on De Bes and Kotler (2005) the destination management organization (DMO) can implement incremental product innovation;

and solution innovation. The highly competitive market obliges destinations to innovate to keep up their competitive advantage (Porter, 1998).

Hjalager (2002) states that innovations in tourism include minor or major adaptations of products and services and Brackenbury (2006) adds that it is rather a differentiation, product line extension or changes in price and quality ratio of the product.

Innovations in tourism are influenced especially by inseparability of production and consumption with the active participation of the visitor (Weiermair, 2006; Miles, 2005), and instability of the product (Grönroos, 1990). Hjalager (2002) and Decelle (2006) point out that tourism innovations are considered to be relatively easy to imitate.

Based on the analysis of motives Weiermair (2006) allocated three factors that determine the level and pace of innovation in tourism:

- Determinants associated with deliver ies or suppliers - offer factors,
- Demand side,
- The level and pace of competition.

Tourism is influenced especially by globalization (Kiráľová & Straka, 2013) that brought increased competition into the sector; by changes in visitors lifestyle caused, inter alia, by greater use of information and communication technologies (Kiráľová, 2014; Kiráľová & Pavlíček, 2014; Kiráľová & Malachovský, 2015; Kiráľová 2015) and by focus on sustainability (Kiráľová, 2015). The most successful new tourism products offer exceptional and unique value, based on innovations that take into account the interests and needs of the visitors. Such innovation leads to a greater market share, increase efficiency and facilitate the achievement of the objectives (turnover, profit).

Destinations that do not adapt new products that better satisfy the emotional, social and practical needs of visitors lose their competitiveness. Brackenbury (2006) states that if the destination not invests at least 10% of its annual revenues to innovation it will be unable to compete in the global tourism market. Weiermair (2006) outlined obstacles the destinations face when looking for innovation as the shortage of finances, time and know-how; aversion to risk-taking and all internal factors. He also highlights the bureaucracy, politics and other external factors that affect to the greatest extent the possible decisions on the introduction of innovations. He reported that the most important innovations in tourism are in (1) application of information technology, online tourism service provision; (2) creation of new forms of trade associations and collaborative marketing; (3) quality assurance, marketing practices, customer and employees satisfaction; (4) new forms of distribution (online booking), relations with intermediaries, reduction of the cost of delivering the products.

Regular or incremental innovations are implemented using existing competencies and relationships that include (1) increasing productivity; (2) improving quality; (3) further training of staff (Hjaleger, Weiermair, 2006).

Innovations in tourism are applied on two levels - corporate and destination. Innovations in tourism are mostly based on the search for new products, on the method of modification or new uses of existing products, satisfying new needs, using products for a new purpose, or in new situations. Therefore, in tourism, only a few innovations are genuine; most of them are copies and adaptations of foreign ideas. Systematic work with information sources is, therefore, important.

Creativity and collaboration are considered essential sources of innovation in tourism. Innovation is the best preparation to cope with changes and ensure the competitiveness of the destinations. Although each tourism business can innovate, in destinations innovation is frequently associated with the interaction between several businesses. There are mostly small and medium businesses, and them in particular rarely dispose of the resources for innovation and thus innovate in collaboration with other entities, creating synergies and sharing competencies (Muller & Zenker, 2001; Lundvall, 1992).

Culture and creativity in Tourism

Cultural tourism can be understood as traveling for the purpose of understanding the cultural heritage and contemporary art. Some definitions explore the cultural heritage while mentioning a new tendency in the development of cultural tourism, i.e. its transformation into a more active form of traveling.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO, 1982) defines culture as a "set of distinctive spiritual, material, intellectual and emotional features that characterize a society or social group, and that includes not only art and literature, lifestyles, ways of living together, value systems, traditions, and beliefs".

Richards (1996, p. 24) formulated two definitions of cultural tourism. The first one is rather a technical definition; the second definition emphasizes its abstract form when defines cultural tourism as a "movement of people to places having a cultural nature outside their place of residence, with the intention, to gather new information and experiences so as to fulfill their desire for cultural knowledge."

According to Richards (2001) cultural tourism does not represent only a passive consumption, such as visiting historical monuments, museums or theatrical performances. Cultural tourism, in general, is "good" type of tourism as it attracts the right visitors who appreciate the local culture while bringing finance to the destination, thus supporting the local economy and regional development (Richards & Wilson, 2008). However, it must be mentioned that the nature of mass cultural tourism in some cases penetrates the destinations´ sensitive cultural environment insensitively.

The behavior of visitors changed significantly. They prefer less crowded and less known destinations that offer local knowledge and authentic culture. They want to experience the local culture, to live like the locals and get to know the destinations they visited. Destinations´ visitors become producers of their experiences.

Many authors (Jelinčić, 2009; Jelinčić & Žuvela, 2012; D'Auria, 2009; Smith, 2009) describe the shift from cultural tourism to more creative forms of tourism. The concept of creative tourism was first described by Pearce and Butler (1993), but so far this idea was further elaborated by Raymond and Richards. Creative tourism offers visitors the opportunity to develop their creative potential through active participation in courses and learning experiences that are typical for the holiday destination where they stay for vacation (Richards & Raymond, 2000). It engages visitors in the authentic experience, with participative learning in the arts, heritage, craft or unique character of a place, and it provides a connection with residents who create the living culture of the destination.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2006) describes the creative tourism as a path leading to authentic experiences related to participatory activities within the arts and cultural heritage; while placing emphasis on the distinctive character of the site. There is

a relatively close connection with those who live here and who creates this living culture. Creative tourism should allow greater access to culture and history, and also should include the acquisition of empirical knowledge, through authentic experiences of cultural life in the creative destinations. Creative tourism must, therefore, be associated not only with the culture but also with the particular cultural experience that is typical for a particular destination.

The common elements of most of the definitions are creative potential, active involvement, exceptional experiences, collaboration, and co-creation.

Creative tourism brought the culture to another level in many ways (Richards & Marques, 2012). Jelinčić and Žuvela understand creative tourism as "a projection of a new tourism in which natural, cultural and personal resources are not manipulated and exploited but valued and enriched" (2012, p. 88). Creative tourism requires the more active involvement of the local culture, traditions and local stakeholders than ever before. In creative tourism, the focus is on the process and its context, rather than on the final product. Engagement and involvement of visitors, service providers and residents are critical for its development. Together it creates a valuable and unique experience.

The creative industry that represents the newest and most dynamic component of culture, creates a significant potential for economic growth and competitive advantages of the country, becomes the subject of many economic studies (Claire; Florida, 2002; Hartley, 2004; Hesmondhalgh, 2007; Howkins, 2001; O'Connor, 2007; Potts et al., 2008; Throsby, 2001; UNESCO, 2003; Wiesand, 2005; Wiesand & Sondermann, 2005). The development of the creative tourism is partly caused because of the growing influence of the creative industries (Campbell, 2011) if throughout the world. It can be said that if the destination wants to boost its economic activity and improve its image, it should just entice creative class society in its hinterland. It is important that the DMOs and the governing bodies facilitate and encourage creativity throughout the destination. Creative destinations undoubtedly need "creative government" and creative leadership (Florida, 2002).

Recently, a qualitative development can be observed in the behavior of visitors, namely the shift from creativity in the country of residence and participation in different courses during the holidays to participation in more creative activities and interactive workshops with the aim gaining more living cultural and human experiences (CTN, 2014; Richards & Raymond, 2000). Creative visitors develop their creative potential and get closer to residents. They want to get to know the local culture, they wish to experience the atmosphere of the place, and they want authentic experiences in which they perceive themselves as part of a destination. Creative visitors combine a different kind of creative activities (education, creation, representation) and are prepared to pay for experiences. Usually when once tried out creative tourism, their interest in the conventional vacations decreases. Creative visitors perceive traveling in the unique way and share their experiences with social media (CTN, 2014).

Creative tourism provides visitors with the feeling of success and fulfillment, through experience and new skills, which they acquired in the destination (Richards, 2011) in most cases through interaction between the visitor and the host. Creative tourism concerns, in particular, activities such as drawing, dancing, photography, cooking, wine making, painting, carving, pottery, sculpture, flower arranging, theater, music, and dance performance.

Smith (2005, 2009) highlights the importance of creativity in the development of destinations. The traditional cultural heritage in the future will not be enough to keep the destinations´ competitiveness so that the creative tourism as a possible potential for the destination should be developed.

Richards and Wilson (2006) stated that creativity in itself gives added value to travel, thanks to its uniqueness. It allows destinations develop and offer their products by giving them a competitive advantage. Resources for creative tourism are seen as long-term and sustainable when compared with real and tangible cultural products. Resources for creative tourism are easily renewable.

Cultural tourism is dependent on the concentration of cultural resources in one place while creativity can be very mobile. This fact can be considered a significant challenge for destinations; they can create new value for visitors by offering them memorable creative experiences. As reported by Richards (2006), creativity is tourism tempting because it enhances and enriches the atmosphere of the place that locals and visitors will appreciate. Furthermore meets the human desire for self-improvement and self-development and, in particular, prevents the so-called "burnout" of cultural heritage and mass tourism. Creativity also serves as a tool for regeneration and revitalization of cultural resources and is a way to develop models of sustainable tourism.

Creativity and innovation require the right environment, sufficient resources, and the ability to interact and communicate. The creative community is then marked by a certain degree of informality, good team spirit and confidence in the competence of all stakeholders, especially the staff, tutors, or organizers (Wilenius, 2004).

Creative potential (Richards, 2010) of visitors is developed with the help of tools that help them to discover their creative skills and enable them to "live" the destination for more than just for the purchase of souvenirs. Another important element is the active involvement of visitors in the creative process. It creates opportunities for the mutual exchange of ideas and skills by involving local people and their culture. Fernández (2010) mentions that significant positive externality of creative tourism is the exchange of knowledge among locals and visitors.

Creative tourism has a lot of positive impacts on destinations but as Richards and Wilson (2006) underline destinations are at risk that will select a similar strategy, which creates a so-called serial reproduction. Destinations also can fail to differentiate themselves from others, and sometimes the differences between destinations even more blurred. Messineo (2012) draws attention to another risk namely that creativity can be regarded as a duty or a particular commitment. If the destination feels obliged to be creative, an adverse effect called the "washing creativity" can occur.

Methodology

The tourism products and time series of selected data in the Czech Republic and Slovakia are analyzed to reach the objective of the paper. In the last years, analysis and comparison of selected data from the viewpoint of their interdependence were not frequently used by authors thus the tourism market development could be seen only from the specific research of national tourism data.

To evaluate the dependence between the domestic and foreign markets time series of data and Spearman´s correlation coefficient is used. Spearman´s correlation coefficient measures the strength of

dependence between two or serial quantitative characters; in this paper the development of the domestic and foreign market is measured. The size of the coefficient can take values from the interval between <-1, 1>; if the coefficient is closer to -1, the correlation is negative; coefficient closer to 1 means positive correlation. Spearman's correlation coefficient is a measure of a monotonic relationship, and thus the value of the coefficient equal to 0 does not imply there is no relationship between the variables.

$$r_S = \frac{\sum_{1}^{n} \left(r_i - \bar{r}\right)\left(s_i - \bar{s}\right)}{\sqrt{\sum_{1}^{n} \left(r_i - \bar{r}\right)^2 \sum_{1}^{n} \left(s_i - \bar{s}\right)^2}}$$

where
r is the order of chatacter A
s is the order of character B
n is the number of monitored characters

The overall research questions for this study were stated as:

- Are the Czech and Slovak tourism offer well set?
- Should the Czech Republic and Slovakia to innovate their tourism offer?
- Can creativity and creative tourism invigorate the tourism development in a destination?

Results and discussion

Although it is possible to experience some creative activities in the Czech Republic and Slovakia, the offer is not large and depends on individual entrepreneurs. Visitors must find and reach these activities mostly by themselves. The potential in this area is quite large, but the governments do not attempt to promote creative tourism. It will take time till the bearers of tourism policy began to realize the potential of creative tourism. The government that would support and develop creative tourism could take the following measures (Zhang, 2013):

- contribute to the development of a creative way of life based on the experience of other countries;
- improve the infrastructure necessary for the development of tourism in general;
- support the development of creative museums and parks where visitors can understand the concept of creative tourism and try out some of the creative activities;
- provide theoretical and technical support to enterprises functioning in the creative industries and provide financial support to SMEs for outstanding creative achievements in practice;
- focus on support or training creative talents and enable collaboration between creative industries the tourism sector;
- preserve the achieved results and creative achievements by improving intellectual property rights, as well as using the trademarks and patents.

The greatest wealth of the Czech Republic and Slovakia is preserved natural environment, and the cultural richness, inter alia unique collection of historical monuments and sites, cultural heritage and values such as traditions, lifestyle, cultural mentality, behavior, habits and customs, language culture, musicality, folk dresses, folk crafts, traditional food, and creativity. The product lines are marked out at the national level in both countries. The link between the products defined at the national and regional level is not sufficient. Consequently, there are significant differences in the development of tourism at the regional level.

The Czech Republic and Slovakia overcome after 1989 some obstacles in the development of tourism. Liberalized movement of persons, access to travel, EU and the Schengen area memberships influenced the quality of services that

increased significantly in both countries. Destinations attracted investments in infrastructure, new administrative regions with competencies in tourism management were established, and destination management organizations (DMO) were created. However, there is still no quantitative success in tourism development due to a mismatch in tourism development. Both countries are dominated by the capital with highly developed tourism to compare to less developed tourism in the regions. In the context of available statistical data tourism in the Czech and Slovak regions fails.

Some regions (Central Bohemia, South Bohemian, Usti, Highlands, South Moravia in the Czech Republic, and Bratislava, Trnava, Prešov in Slovakia) achieved partial success in the number of overnight stays of domestic visitors. A significant increase in a total number of overnight stays was not observed in either of the Republics.

Both countries have no effective tourism development strategy, and this situation is redoubled by not respecting the product-market matrix since new markets were not looked for and the old ones, stabilized, were let tumble.

For the comparison of the product base and the visitor groups in Slovakia and the Czech Republic similarity of the provided products and similarity of visitor target groups (MDVRR SR 2013; MMR CR, 2013) can be seen. Table 1 compares the tourism products of the both, the Czech and the Slovak Republics.

Table 1. Comparison of tourism products in Slovakia and the Czech Republic from the product-market matrix point of view

Slovakia´s tourism products	Czech Republic´s tourism products
Winter and summer mountain holidays	Summer and winter mountain holiday
Ski holiday	Ski holiday
Recovery holiday	Rural holiday
Family holiday	Sport and activity tourism
Walking, hiking	MICE
Sightseeing tours	Walking, hiking
Stay at the spa	Cycling
Cultural events visit	Spa holiday
Participation in various events	Cultural holiday
Wellness and Beauty holiday	Wellness and Beauty holiday
City break	City break

Both, Slovakia, and the Czech Republic have similar products connected with a different primary and secondary offer conditioned by the geographic location. These are mainly winter and summer mountain holidays, spa stays, visits to cultural events, wellness holiday, and city breaks.

Tables 2 to 5 include data on the number of overnight stays in Slovakia and the Czech Republic (SOSR, 2015; CSO, 2015). These data are interesting in the context of the crisis development when European states recorded only a slight decrease or even an increase in domestic tourism. Statistical data provided in the tables 2 – 5 were evaluated using the Spearman´s correlation coefficient taking into account the significance value of less than 0.05. In comments, therefore, we focus only on the data, where a strong dependence was identified.

The Czech Republic

The Czech Republic recorded in the years 2005 - 2014 a significant growth in tourism while the key neighboring markets recorded stagnation. The strong growth of overnights of Slovaks and Poles were recorded. The significant loss of German visitors and the stagnation of Hungarian market due to internal problems of the Hungarian economy influenced the results. The total number of overnights stays is in proportion to the size of territory and population that is significantly higher than in Slovakia.

Table 2. Number of overnights from selected countries in the Czech Republic 2005 – 2014

Country/Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Austria	390	364	358	358	364	392	380	408	414	474
Germany	5 888	6 055	5 635	5 291	4 852	4 610	4 578	4 601	4 404	4 721
Hungary	261	212	232	230	192	230	238	234	215	220
Poland	557	610	651	786	718	739	777	779	800	896
Slovakia	760	806	871	656	582	621	683	762	774	1 008
Total of foreign countries	19 595	20 090	20 610	19 987	17 747	18 366	19 425	21 794	22 145	22 200
Czech Republic	20 725	21 357	20 221	19 296	18 915	18 543	18 810	19 045	18 596	20 921
Total	40 320	41 448	40 831	39 283	36 662	36 909	38 235	40 839	40 741	43 123

In the Czech Republic, there is no correlation between the number of overnight

overnight stay at the level of 0.697. From the viewpoint of the markets, there is an extremely strong dependence between the evolution of overnight stays of domestic visitors and the total overnight stays, up to a level of 0.927. From the above it may be concluded that domestic visitors significantly react to cyclical changes when demanding for the outgoing tourism.

In the Czech Republic, a strong increase of foreign visitors overnight stays in Prague can be seen followed by a significant drop in overnight stays of domestic visitors in the regions.

The structure of growth regarding regional distribution in the Czech Republic is problematic. Despite a high degree of development of historical sites, nature, health, folk traditions, there is a decline or stagnation in regions. In the years 2005 - 2014, the number of overnight stays in Prague increased from 11.2 million to 14.75 million (+3.55 mil.) Overall, the number of overnight stays in the Czech Republic during this period increased from 40.32 million to 42.94 million (+ 2.62 mil.) that reflects the fact that the growth in Prague was significantly offset by a fall in overnight stays in the regions. Such a development can be described as spontaneous, disregarding the need for regional development. Significant stagnation or decline occurred in 11 of 14 regions except Prague. The growth was recorded only in the Karlovy Vary region, which has a strong tradition of spa and the region of South Moravia, which has made a significant effort in the development of the tourism product and has strong cultural and wine-growing tradition. Also, it reinforces the need for massive support of traditional forms of tourism in the regions and the need to support the development of creative tourism in the stabilization and development of tourism in the regions.

There is a strong dependency on the development of the number of overnight stays in 5 regions and the total number of overnight stays in the Czech Republic (at the level of 0.8). These are the Central Bohemian (0.818), and the South Bohemian regions (0.879), Usti (0.855), Highlands (0.915) and South Moravian (0.879) regions.

Table 3. Number of overnight stays in Czech regions in the years 2005 to 2014 in thousand stays

Visitors in regions/ Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Praha	11 205	11 278	11 200	12 175	11 218	12 121	12 948	13 602	13 669	14 750
Středočeský	2 167	2 223	2 065	1 806	1 714	1 689	1 801	1 788	1 736	1 966
Jihočeský	3 490	3 747	3 128	2 954	2 856	2 712	2 657	2 892	2 888	3 231
Plzenský	1 514	1 561	1 573	1 449	1 428	1 385	1 330	1 373	1 307	1 465
Karlovarský	3 792	4325	4382	4451	4190	4219	4371	4659	4460	4502
Ustecký	1 266	1 265	1 246	1 127	977	877	989	1 016	1 023	1 187
Liberecký	2 741	2 810	2 531	2 434	2 344	2 206	2 150	2 300	2 288	2 234
Královehradecký	3 862	3 794	3 500	3 387	3 141	3 134	3 090	3 138	2 981	3 070
Pardubický	1 097	1 212	1 160	1 059	954	961	949	936	944	1 022
Vysočina	1 160	1 220	1 138	990	928	852	941	984	980	1 150
Jihomoravský	2 322	2 343	2 354	2 300	2 063	2 035	2 186	2 150	2 319	2 972
Olomoucký	1 811	1 744	1 688	1 541	1 443	1 416	1 482	1 404	1 440	1 598
Zlinský	1 828	1 872	1 833	1 682	1 555	1 568	1 532	1 532	1 562	1 851
Moravskoslezský	2 065	2 056	2 036	1 929	1 851	1 734	1 807	1 794	1 720	1 945
Total	40 320	41 450	39 834	39 286	36 662	36 909	38 233	39 568	39 317	42 943

The Central Bohemian region and the South Bohemian region is a traditional region with a distinct offering of cultural tourism with well visited UNESCO sites. The Ústí and Highlands regions offer leisure and winter holidays; the South Moravian region is the neighboring region with Trnava region in Slovakia. These regions are successful in the development of viticulture, development of folk crafts and traditions and popularization of cultural tourism. The presented best practice shows how creative tourism brought prosperity to Central Bohemian region´s destination.

Best Practise from the Czech Republic

The Botanicus historical village was artificially created in the cadaster of the village Ostra 35 kilometers from Prague. It was constructed in a place of former dumping place as a basic project of land reclamation.

All materials used (wood and stone) have been realized from demolitions. The main goal of building a historical village was to create an atmosphere for traditional crafts that have been an essential part of a life of medieval Bohemia. The historic village comes to life in special events which are organized on regular basis and is surrounded by thematic botanic gardens on total of 34-hectares that preserve a collection of oriental medicinal plants and vegetables, traditional western herbal species, and heirloom trees and plants together more than 1 000 species as a unique pool of beneficial plant resources. thematic botanic gardens on total of 34-hectares that preserve a collection of oriental medicinal plants and vegetables, traditional western herbal species, and heirloom trees and plants together more than 1 000 species as a unique pool of beneficial plant resources.

The village and gardens are open from May to the end of September. During this period, there are special events with a connection to Bohemian history at medieval times. Visitors can watch craftsmen including amongst other blacksmiths, candlemakers, bakers, stonemasons, potters, rope-makers, and weavers, or assist them in making their personal souvenir as part of living history. In the Great Guild Hall, a range of medieval foods and drinks are prepared from Botanicus own harvests and served on wooden plates. Jesters, fencers, actors and performers ensure that the visitors remain thoroughly entertained and actively encourage audience participation. This project is indeed realized with the idea of long-term existence in the destination and a business concept that combines educational and production areas, recreational and historical zones e. g. thematic gardens, historical village, periodic seasonal events, and specialized boutique shops.

The Botanicus village has a significant impact on the local community. Newly created job opportunities for 80 - 100 local people (depends on season) provide economic prosperity and could further develop and improve the life standards and prosperity of the whole region.

Botanicus presents special heritage of Bohemian countryside in a real way so that visitors can experience the daily life of medieval times and can learn about the history and traditions. Joining special events and participating in the development of handcrafted souvenirs visitors experience history and tradition by an interesting and educative way.

The impact of tourism is managed by showing to visitors how to protect herbs and plants, by handcrafted souvenirs which can visitors prepare by themselves, by publishing booklets for those interested in horticulture, by special organic food based on historic recipes offered to visitors, as well as by educating visitors to separate trash in the area of historical village and the gardens.

Botanicus' financially contributes to the municipal budget, newly created jobs both permanent and seasonal, increased the prosperity of residents in Ostrá and have positive economic impacts on the local entrepreneurs.

The quality of life in the region was increased by opening the railway station that was requested more than hundred years and only after opening and operating the historic village of Botanicus its construction was permitted in 2005. The residents regularly clean and maintain the appearance of their homes and gardens because of the visitors coming to Botanicus.

Between the years 2001 and 2010, the number of residents increased from three hundred fifty-eight to four hundred eighty-six. There are also changes in residents´ structure as more young people are moving to the village. Botanicus is perceived by visitors as a destination and brand.

Botanicus shows that traditions, creativity, education, and culture together with rural experiences are the most important motives for visiting a destination. Destination offering creative tourism product can develop sustainable tourism with positive social and economic impact on the destination.

Botanicus revived the local economy by inovating the destination tourism product through creativity. Also, it supports the tangible and intangible cultural heritage, such as traditional local crafts, traditional meals and by creating new job opportunities in a production site, in the historic village in small artisan workshops, traditional taverns, and entertaining activities. Sustainability of Botanicus development is obvious from all of its activities.

The Slovak Republic

The success of Slovakia based on the booming growth till the year 2008 disappeared due to the incoming crisis. The year results of the year 2009 meant a return to the level of the year 2005. In the case of Hungary, the drop was much higher. The German market had begun to crumble long before the introduction of the Euro and in 2009 it reached 68% of the number of visitors and 52% of overnight stays in 2005 (Kiráľová & Malachovský, 2015). The Czech, Polish, and domestic market development was particularly successful before 2008. The success of these markets compensated for the failures of the German and Hungarian market. In 2009, the crisis came. In addition to it Slovakia introduced the euro with a conversion rate of 30.126 SKK / EUR. Even at the beginning of 2009, the exchange rate was 36 SKK / EUR. Consequently, the packages become more expensive in Slovakia by 20%. It was too much for sensible price markets.

Table 4. Number of overnight stays from selected countries in Slovakia in the years 2005 to 2014 in thousand stays

Visitors/ Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Austria	172	173	163	159	123	121	126	136	150	134
Czech Republic	1 375	1 515	1 611	1 705	1 301	1 350	1 423	1 413	1 387	1 225
Germany	1 005	894	778	682	528	491	463	444	467	423
Hungary	322	327	248	225	137	120	144	132	142	125
Poland	608	720	763	942	480	453	471	441	443	412
Total of foreign countries	4 872	5 134	5 199	5 261	3 769	3 807	4 039	4 101	4 340	3 905
Slovakia	5 861	6 004	6 368	7 203	6 622	6 560	6 486	6 807	7 147	6 995
Total of visitors	10 733	11 138	11 567	12 464	10 391	10 367	10 525	10 908	11 487	10 900

The development of the Slovak tourism market is also connected with the development of the domestic markets, a tourism strategy, tourism policy and the use of efficient methods in the management of tourism growth. Tourism in Slovakia is suffering from the lacking long-term and sustainable policy. The result of this development is an uneven development of the domestic and foreign tourism markets. The correlation coefficient (number of domestic and foreign visitors) is 0.381 and p-value 0.351. It means that the development of tourism in Slovakia and its primary source markets is not a result of a coherent tourism policy. It is only account of the economic boom and the crisis in the last years.

In the Slovak Republic, no dependence between the development of the number of overnight stays of domestic and foreign visitors was identified. From the viewpoint of the analysis of the markets strong dependence between the development of some overnights of the visitors from the Czech Republic and Austria and the total number of overnight stays was identified (on the level of 0.697 the Austrian market, and on the level of 0.721 the Czech market). It can be stated that these two markets are markedly sensitive to cyclical fluctuations. The Czech market attributed to the dominant significance from the standpoint of historical and cultural linkages.

The significantly disproportional development from the perspective of eight administrative regions of Slovakia is apparent. In the years 2005 - 2014 only Bratislava region achieved a significant growth. The

lowest level of growth was made in the region of Trnava and Nitra. The solution for this is the significant competitive offer and introduction of creative tourism products as a part of the dynamic offer in tourism. From the regional perspective, there is a strong dependence between the total number of overnight stays and the number of overnight stays in the Bratislava region on the level of 0.699; in Trnava region on the level of 0,855; in Žilina region on the level of 0.915; and Prešov region on the level of 0.927.

Table 5. Number of overnight stays in Slovak regions in the years 2005 to 2014 in thousand stays

Visitors in regions/ Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bratislava	1 703	1 753	1 753	1 859	1 576	1 569	1 743	1 961	2 185	2 024
Trnava	1 073	1 102	1 138	1 204	981	997	986	1 084	1 077	1 112
Trenčín	1 002	1 054	1 097	1 218	1 035	973	928	965	973	987
Nitra	503	553	620	750	651	691	632	576	613	656
Žilina	2 201	2 253	2 359	2 535	2 107	2 136	2 228	2 271	2 398	2 148
B. Bystrica	1 402	1 463	1 517	1 625	1 371	1 357	1 360	1 342	1 335	1 293
Prešov	2 189	2 262	2 357	2 448	2 008	2 025	2 028	2 113	2 257	2 142
Košice	659	697	726	825	662	617	620	596	650	538
Total	10 732	11 137	11 567	12 464	10 391	10 367	10 525	10 908	11 488	10 900

In presented best practice, we have focused on the Trnava region, as it was not a traditional tourism destination as Bratislava (the capital of Slovakia) or Žilina and Prešov regions in the past, which are traditional tourism destinations. The Trnava region experienced successful tourism development based on winemaking, folk crafts, traditional fairs, and honey production. By placing these activities into the previously untapped compact medieval city (urban monument reserve) Trnava used the genius loci together with creativity to develop tourism sustainably. The example of Trnava can inspire other destinations as it is an exact proof of the success of tourism development through creative tourism.

Best practise from Slovakia

The city of Trnava has a rich history, spiritual and cultural life; it was the first free royal town in Slovakia. Thanks to numerous churches it is called a "Little Rome". In the medieval times, Trnava was the largest wine-growing center, so most of the creative activities are linked to wine and grapes. These activities include the medieval fest “Prešovačka” (pressing of grapes). It is a unique event of its kind in Slovakia linked to the history of viticulture and winemaking in the Trnava region. Visitors can try to tread grapes in a vat and taste wine while actors feature scenes from the life of winemakers brings visitors into the secrets of grapes and wine production. For more than eleven years opens Trnava its underground areas of ancient cellars built to store wine for wine lovers. According to records from 1278 Trnava held highly productive vineyards and wine was one of its most important trade commodities.

The Magnificent Traditional Trnava Fair is a return to ancient traditions of local markets. During four days, visitors can watch demonstrations of folk crafts - handwork of skilled blacksmiths, tinkers, carvers, and bakers. Visitors can try to prepare their souvenirs under the supervision of craftsmen while they are entertained by the performance of swordsmen. The Academy Natura events are amateur craft events that are dedicated to Earth for children, youth and adults. One of the most spectacular events is the “Morena”.

This folk tradition is associated with the end of the winter and the start of the new life in spring. The event is prepared in workshops for children and their parents.

The event "I paint an egg" is associated with Eastern and brings to the visitors various techniques of painting Easter eggs together with different folk traditions, such as archery, herb description, bag manufacturing.

The Festival Trnava Gate is an international festival of folklore. The program includes a folk costume parade and a fair of folk crafts where the visitors can personally produce selected products with the technical assistance of craftsmen, such as simple folk music instruments, ceramic jugs, wooden products, wicker baskets and simple regional food specialties.

Conclusion

Creative tourism diversifies the tourism offers without significant investment, by optimizing existing tangible and intangible heritage. It has a positive impact on the profitability of the cultural infrastructure and adds value to tourism offer. It helps to retain authenticity and sustainability of the destinations and has a positive effect on the residents. It can also help to solve some particular problems of less competitive destinations.

The use of the natural and cultural offer as a basis for the sustainable development of creative tourism products is an effective way to overcome the current problems and invigorate competitiveness of both countries.

The Czech and Slovak tourism offer are not set well. In both countries, there are general product lines, but there is no realistic connection with regions in setting priorities on the side of supply.

Based on the changes in the visitors behavior and according to the disproportionate fluctuations in time series there is a strong need for changing the existing offer according to the new tourism trends.

As the best practice from selected successful destinations (Trnava in Slovakia and Botanicus in Central Bohemia in the Czech Republic) shows there is a strong need for developing creative tourism to invigorate the tourism development in both countries. This recommendation is based on the trends in visitors´ behavior towards the search for authentic products and involvement in destination and community life by active participation in local crafts and production that are typical of creative tourism.

Innovation is the best preparation to cope with changes in visitors´ behavior and can help to ensure the competitiveness of the destinations. Small and medium tourism businesses rarely dispose of the resources for innovation and thus the need for innovation can enhance networking and collaboration in the destination.

Creative tourism diversifies the tourism offers without any significant investment, only by optimizing existing tangible and intangible heritage of the destination. It has a positive impact on the profitability of the cultural infrastructure and adds value to tourism offer. It helps to retain authenticity and sustainability of the destinations and has a positive effect on the residents as visitors are interested in their culture and traditions. At the same time, it helps to recover the destimations´ intangible heritage. Creative tourism positively affects seasonality as it allows a better distribution of the visitors' activities along the year. It contributes to a better spatial distribution within the destination as creative visitors usually have minor interest in typical attractions. As such it can help to solve some particular problems of less competitive destinations.
Considering saying we see opportunities for future research in measuring the effects of creative tourism on the regional economy and employment in both selected countries with implications for less developed regions.

References

Abernathy, W. J. & Clark, K. B. (1985). Innovation: Mapping the Wind of Creative Destruction. Research Policy, 14(1), 3-22.

Boskoff, A. (1957). Social Change: Major Problems in the Emergence of Theoretical and Research Foci. In H. Becker & A. Boskoff (eds.), Modern Sociological Theory, (pp. 260-302), New York: Holt, Rinehart and Winston.

Berk, G. & D. Galvan (2009). How People Experience and Change Institutions: a Field Guide to Creative Syncretism. Theory and Society, 38(6), 543-580.

Campbell, P. (2011). You Say 'Creative', and I Say 'Creative'. Journal of Policy Research in Tourism, Leisure and Events, 3(1), 18 – 30.

Crouch, G. I. & Ritchie, J. R. B. (1994). Destination Competitiveness: Exploring Foundations for a Long -Term Research Program. Proceedings of the Administrative Sciences Association of Canada 1994 Annual Conference, (pp. 79-88), Halifax: Nova Scotia.

Crouch, G. I. and Ritchie, J. R. B. (1999). Tourism, Competitiveness and Societal Prosperity. Journal of Business Research, 44(3), 137-152.

Crouch, G. I. and Ritchie, J. R. B. (1995). Destination Competitiveness and the Role of the Tourism Enterprise. Proceedings of the Fourth Annual World Business Congress, (pp. 43-48), Istanbul, Turkey.

CSO (2014). Czech Statistical Office. Retrieved from: http://www.czso.cz/eng /redakce.nsf/i/tourism_ekon

CTN (2014). About the Creative Tourism. Retrieved from: http://www.creative tourismnetwork.org/about/

D´Auria, A. (2009). Urban Cultural Tourism: Creative Approaches for Heritage-based Sustainable Development, International Journal of Sustainable Development, 12(2/3/4), 275 – 289.
De Bes, F. T. & Kotler, P. (2005). Winning at Innovation. New York: Palgrave Macmillan.

Decelle, X. (2006). A Dynamic Conceptual Approach to Innovation in Tourism, OECD Innovation and Tourism Policy. Paris: OECD, 85-105.

d'Harteserre, A. (2000). Lessons in Managerial Destination Competitiveness in the Case of Foxwoods Casino Resort, Tourism Management, 21(1), pp. 23-32.
Drejer, I. (2004). Identifying Innovation Surveys of Services, Research Policy, 33(3), 551-562.

Eisenstadt, S. N. (1973). Tradition, Change, and Modernity, Malabar (FL): Krieger.

Fagerberg, J. (2005). Innovation: a Guide to the Literature. In J. Fagerberg et al., (eds.) The Oxford Handbook of Innovation, (pp. 1-26), Oxford: Oxford University Press.

Feifer, M. (1985). Going Places. London: Macmillan.

Fernández, F. M. T. (2010). More than Sun, Beach and Heritage: Innovating Mediterranean Tourism through

Creative Tourism. Interactions, Co-operation, Competitiveness and Economic Development, RESER Conference Papers, Gothenburg, Sweden, 30 September – 2 October 2010.

Florida, R. (2002). The Rise of the Creative Class: And how it is Transforming Work, Leisure, Community and Everyday Life, New York: Basic Books.

Go, F. & Govers, R. (2000). Integrated Quality Management for Tourist Destinations: A European Perspective on Achieving Competitiveness. Tourism Management, 21(1), 79-88.

Grönroos, C. (1990). Service Management and Marketing, Lexington, MA: Lexington Books.

Harvey, D. (1992). The Condition of Postmodernity. An Enquiry into the Origins of Cultural Change. Cambridge, Oxford: Blaskwell.

Hassan, S. (2000). Determinants of Market Competitiveness in an Environmentally Sustainable Tourism Industry, Journal of Travel Research, 38(3), 239-245.

Hield, W. (1954). The Study of Change in Social Scienc. The British Journal of Sociology, 5(1), 1-11.

Hjalager, A. M. (2002). Repairing Innovation Defectiveness in Tourism. Tourism Management, 23(5), 465-474.

Index Mundi (2012). Czech Republic – International Tourism. Retrieved from: http://www.indexmundi.com/facts/czech-republic/international-tourism

Index Mundi (2012). Slovak Republic – International Tourism. Retrieved from:http://www.indexmundi.com/facts/slovak-republic/international-

Jelinčić, D. A. (2009). Splintering of Tourism Market: New Appearing Forms of Cultural Tourism as a Consequence of Changes in Everyday Lives, Collegium Antropologicum, 33(1), 259-266.

Jelinčić, D. A. & Žuvela, A. (2012). Facing the Challenge? Creative Tourism in Croatia. Journal of Tourism Consumption and Practice, 4(2), 78-90.

Kim, S. S., Guo, Y., & Agrusa, J. (2005). Preference and Positioning Analyses of Overseas Destinations by Mainland Chinese Outbound Pleasure Tourists. Journal of Travel Research, 44(2), 212-220.

Kiráľová, A. (2014). Social Media as a Tool of Tourism Destinations´ Marketing Campaign. In P. Doucek, G. Chroust, V. Oškrdla (eds.) IDIMT-2014 Networking Societes - Cooperation and Conflict. 22nd Interdisciplinary Information Management Talks, Schriftreihe Informatik, (pp. 163-173), Vol. 43, Linz: Trauner Verlag.

Kiráľová, A. & Malachovský, A. (2015). Invigorating the Destination's Marketing Strategy? (The Case of Slovakia). Elsevier Procedia – Social Behavioral Sciences, Proceedings of the 3rd International Conference on Strategic Innovative Marketing (IC-SIM 2014), Vol. 175 (12. 2. 2015), 393-400.

Kiráľová, A. & Pavlíček, A. (2015). Development of Social Media Strategies in Tourism Destination. Elsevier Procedia – Social Behavioral Sciences, Proceedings of the 3rd International Conference on Strategic Innovative Marketing (IC-SIM 2014), Vol. 175, (12. 2. 2015), 358-366.

Kiráľová, A. & Straka, I. (2013). Globalizace a marketing destinace cestovního ruchu. Praha: Ekopress.

Kiráľová, A. (2015). The Place of Gamification in Tourism Destinations´ Marketing. In: P. Doucek, G. Chroust, V. Oškrdla (eds.) IDIMT-2015 Information Technology and Society Interaction and Interdependence. 23rd Interdisciplinary Information Management Talks, Schriftreihe Informatik, Vol. 44, 163-173, Linz: Trauner Verlag.

Oškrdla (eds.) IDIMT-2015 Information Technology and Society Interaction and Interdependence. 23rd Interdisciplinary Information Management Talks, Schriftreihe Informatik, Vol. 44, 163-173, Linz: Trauner Verlag.

Kiráľová, A. (2015). Sustainable Tourism Marketing Strategy: Competitive Advantage of Destination, In N. Ray (ed.) Emerging Innovative Marketing Strategies in the Tourism Industry, A volume in the Advances in Hospitality, Tourism, and the Services Industry (AHTSI) Book Series, (pp. 54-81), Hershey: IGI Global.

Kozak, M. & Rimmington, M. (1999). Measuring Tourist Destination Competitiveness: Conceptual Considerations and Empirical Findings, Hospitality Management, 18(3), 273–283.

Leiper, N. (1995). Tourism Management, Melbourne: RMIT Press.

Lencsésová, Z. (2015). Inovácie a ich meranie v horských strediskách cestovného ruchu na Slovensku, Ekonomická revue cestovného ruchu, 48(1), 32-43. Lundvall, B. Å. (ed.) (1992) National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning, London: Pinter Publishers.

Mathieson, A. & Wall, G. (1982). Tourism: Economic, Physical and Social Impacts, New York: Longman House.

Messineo, E. (2012). Tourist Creative Processes and Experiences in the Richards, G. (1996). Cultural Tourism in Europe, Wallingford: CABI.

Richards, G. (2001). The Development of Cultural Tourism in Europe. In G. Richards (ed), (pp. 3-29), Cultural Attractions and European Tourism, Wallingford: CABI, pp. 3-29.

Watson, J. B. (1953). Four Approaches to Cultural Change: A Systematic Assessment. Social Forces, 32 (2), 137-145.

Weiermair, K. (2006). Product Improvement or Innovation: What is the Key to Success in Tourism? In OECD, Innovation and Growth in Tourism, (pp. 53-69), Paris: OECD Publishing.

Wilenius, M. (2004). Luovaan Talouteen. Kulttuuriosaaminen tulevaisuuden voimavarana, Helsinki: Edita.

Zhang, Y. (2013). Study on the Main Characteristics and Development Countermeasures of Creative Tourism. Proceedings of the 2013 International Conference on Education, Management and Social Science, (pp. 177-180), Paris, France: Atlantis Press.

Doc. Ing. Alzbeta Kiralova, PhD
University College of Business in Prague, Prague, Czech Republic
Andrej Malachovsky
Matej Bel University, Faculty of Economics, Banská Bystrica, Slovakia
Corresponding author: kiralova@vso-praha.eu

Forthcoming conferences

S.No	Location	Dates	Area	Website address
1	Rio de Janeiro, Brazil	1st to 3rd December 2015	EIBA 2015 - 41st Annual Conference of the European International Business Academy (EIBA)	http://www.eiba2015.org
2	Paris, France	1st to 3rd December 2015	The 2015 International Conference Sustainable Development Business Marketing in Paris	http://www.ictttconference.com/15199812/paris-business-marketing-conference
3	Prague, Czech Republic	4th to 6th December 2015	Multidisciplinary Academic Conference on Economics, Management and Marketing in Prague 2015, Czech Republic	http://www.academic-conferences.eu/inpage/conference-mac-emm2-2015/
4	Bandung, Indonesia	4th to 5th December 2015	2nd International Conference on Arts, Management, Science and Social Science (ICAMSSS 2015)	http://icamsss.weebly.com/
5	Istanbul, Turkey	5th to 6th December 2015	20th International Research Conference on Business, Economics and Social Sciences, IRC-2015	http://www.ircconferences.com/upcommings/istanbul-conference.html
6	London, United Kingdom	7th to 9th December 2015	The 2015 International Advance Innovation Business Research Conference in London	http://www.icbtsinstitute.com/15163463/london-business-conference
7	Hong Kong	27th to 27th December 2015	ISERD - 15th International Conference on Economics, Management and Social Study (ICEMSS)	http://iserd.co/Conference/Hong_Kong/1/ICEMSS/
8	Melbourne, Australia	30th to 30th December 2015	THEIIER-11th International Conference on Science, Innovation and Management (ICSIM)	http://theiier.org/Conference/Australia/2/ICSIM/
9	Bangkok, Thailand	2nd to 3rd January 2016	International Conference on Computer Science, Business, Economic and Management	http://www.tcbc.center/
10	Brussels, Belgium	3rd to 3rd January 2016	Academics World-15th International Conference on Management and Information Technology (ICMIT)	http://academicsworld.org/Conference/Belgium/ICMIT/
11	Penang, Malaysia	9th to 10th January 2016	2016 7th International Conference on E-Education, E-Business, E-Management and E-Learning-IC4E2016	http://www.ic4e.net/
12	Rome, Italy	24th to 24th January 2016	Academics World-17th International Conference on Management and Information Technology (ICMIT)	http://academicsworld.org/Conference/Italy/ICMIT/
13	Lisbon, Portugal	30th to 30th January 2016	ISER-4th International Conference on Advances in Business Management and Information Science (ICABMIS)	http://iser.co/conference/2016/Portugal/ICABMIS/
14	Al Ain, Emirates of Abu Dhabi, United Arab Emirates	31st January to 4th February 2016	International Conference for Academic Disciplines (Al Ain University, UAE 2016)	http://universityconference3.org
15	Florence, Italy	3rd to 4th February 2016	2016 3rd International Conference on Advances and Management Sciences - ICAMS	http://www.icams.org/
16	Washington DC, DC, United States of America	5th to 5th February 2016	Strategic Business Management & Economic Research Conference	http://www.advenaworld.com/strategic-business-management.html
17	Istanbul, Turkey	8th to 10th February 2016	CALL FOR PAPERS: INTCESS-2016 - 3rd International Conference On Education And Social Sciences	http://www.ocerint.org/intcess16/
18	Melbourne, Australia	10th to 10th February 2016	The IASTEM-12th International Conference on Economics and Business Management (ICEBM)	http://iastem.org/Conference/Australia2016/ICEBM/
19	Zurich, Switzerland	12th to 12th February 2016	Academics World-24th International Conference on Management and Information Technology (ICMIT)	http://academicsworld.org/Conference/Switzerland2016/ICMIT/

20	Amsterdam, Netherlands	13th to 13th February 2016	ISERD – 24th International Conference on Economics, Management and Social Study (ICEMSS)	http://iserd.co/Conference/Netherlands/ICEMSS2/
21	London, United Kingdom	17th to 20th February 2016	The 2016 European Sustainable Development on Tourism Hospitality Research Conference in London	http://www.eabthconference.com/15119622/london-tourism-conference
22	Warsaw, Poland	19th to 19th February 2016	ISER-9th International Conference on Advances in Business Management and Information Science (ICABMIS)	http://iser.co/conference/Poland2016/ICABMIS/
23	Washington DC, United States of America	25th to 28th February 2016	International Conference on Business and Economic Studies - ICBES 2016	http://edusolutions.org/ICBES2016/default.asp
24	Bangkok, Thailand	27th to 28th February 2016	WAST - 4th International Conference on Management , Finance , Economics and Entrepreneurship	http://www.icamfee2016.us
25	Wellington, New Zealand	2nd to 4th March 2016	The International Conference on Innovation, Management, and Logistics 2016	http://www.iciml.net
26	Toronto, Canada	5th to 5th March 2016	Academics World - 27th International Conference on Management and Information Technology (ICMIT)	http://academicsworld.org/Conference/Canada/ICMIT/
27	Macau, China	6th to 6th March 2016	IASTEM -The 20th International Conference on Science Technology and Management (ICSTM)	http://iastem.org/Conference/China/1/ICSTM/
28	Paris, France	9th to 10th March 2016	International Conference on Contemporary Issues in Business, Commerce, Management and Social Sciences	http://inaar.asia/1%20Commerce%20(Paris).html
29	Seoul, Korea (south)	12th to 13th March 2016	2016 International Conference on Business and Economics - ICOBE	http://www.icobe.org/
30	Bangkok, Thailand	22nd to 23rd March 2016	International Conference on Marketing and Globalisation (ICMG 2016)	http://icmg2016.weebly.com
31	Budapest, Hungary	15th to 16th April 2016	International Academic Conference on Management, Economics and Marketing in Budapest, Hungary 2016	http://www.conferences-scientific.cz/inpage/conference-budapest-iacmem-2016/
32	San Jose, Costa Rica	24th to 27th May 2016	2016 Costa Rica Global Conference on Business and Finance	http://www.theibfr.com/costarica-call.htm
33	Istanbul, Turkey	26th to 28th May 2016	19th EBES Conference - Istanbul	https://www.ebesweb.org/Conferences/19th-EBES-Conference-Istanbul-Turkey.aspx
34	Singapore	30th to 31st May 2016	6th Annual International Conference on Accounting and Finance (AF 2016)	http://acc-finance.org/index.html
35	Venice, Italy	5th to 9th June 2016	2016 International Academic Business Conference in Venice	http://www.cluteinstitute.com/business-conferences/2016-international-academic-business-conference-venice-italy-iabcvenice16/
36	Paris, France	11th to 12th June 2016	International Conference on Business and Management Engineering	http://www.istdst.org/BME
37	Istanbul, Turkey	30th June to 2nd July 2016	TOURAVEL '16 / 3rd Tourism, Travel and Leisure Studies Conference	http://www.touravelconference.org/
38	Brighton, United Kingdom	7th to 10th July 2016	The European Business and Management Conference 2016	http://iafor.org/conferences/ebmc2016/
39	Pattaya, Thailand	9th to 10th July 2016	2nd International Conference on Management, Finance and Economics	http://www.icrmfe.com/
40	Granada, Spain	27th to 29th July 2016	2016 Diversity Conference: Human Diversity and the Environment - A Common Ground Conference	http://ondiversity.com/the-conference-2016
41	Suzhou, China	27th to 29th July 2016	The 10th International Conference on Management and Service Science (MASS 2016)	http://www.massconf.org/2016/Home.aspx
42	Bangkok, Thailand	29th to 31st July 2016	ASBBS 20th Annual International Conference	http://asbbs.org/call-for-paper/international/

43	Prague, Czech Republic	5th to 6th August 2016	Multidisciplinary Academic Conference on Economics, Management and Marketing, Czech Republic, Prague	http://www.academic-conferences.eu/inpage/conference-mac-emm-2016/
44	Hanoi, Vietnam	7th to 9th August 2016	Annual Vietnam Academic Research Conference on Global Business, Economics, Finance & Social Sciences	http://globalbizresearch.org/Vietnam_Conference_2016_Aug/
45	Kuala Lumpur, Malaysia, Malaysia	20th to 21st August 2016	International Conference on Management Business and Economics	http://icrmbe.com
46	Elenite, Burgas, Bulgaria	1st to 5th September 2016	Economy and Business 2016, 15th International Conference	http://www.sciencebg.net/en/conferences/economy-and-business/
47	Istanbul, Turkey	9th to 12th October 2016	2nd Istanbul International Academic Conference on Business & Economics	http://www.globalacademicinstitute.com/istanbul-business-conference-october-2016/
48	Los Angeles, California, United States of America	28th to 29th October 2016	2016 Fall Global Symposium in on Human Capital Challenges for Knowledge Driven Organization	http://www.uofriverside.com/conferences
49	London, United Kingdom	8th to 11th November 2016	Multidisciplinary Conference (Univ. of London)	http://www.ijasconferences.org/
50	Los Angeles, California, United States of America	18th to 19th November 2016	2016 Fall Global Conference on Education	http://www.uofriverside.com/conferences

SKYLINE BUSINESS JOURNAL

Call for Papers

Skyline Business Journal (SBJ) is an Annual publication of Skyline University College, Sharjah, U.A.E. SBJ invites original papers / Management Case Studies / Book Reviews from academicians and practitioners on management, business, tourism, finance, human resource management, information systems, marketing and organizational issues. Papers based on theoretical / empirical research or experience should illustrate the practical applicability and or the policy implications of work described.

Instructions for the Author

1. Electronic Copy: Authors are required to submit an electronic copy (soft copy) of the papers in MS-WORD format (.Doc format) via email to sbj@skylineuniversity.ac.ae. A single article (including charts, diagrams and pictures etc.,) should not exceed six thousand words. Times New Roman -Font size 12- to be used to type the manuscript.

2. Mailing Address: Complete Mailing Address along with Telephone and E-mail Address should be given.

3. Cover Page: The first cover page shall contain the title of the manuscript, the author's name, and affiliation including acknowledgement, if any. This page will be removed before the manuscript is sent to a referee. The first page of text should show the title but NOT the author's name.

4. Abstract and Keywords: Each manuscript should include an abstract of about 100-150 words. Key words used in the paper should also be given.

5. References: References must be typed on a separate page, double-spaced, at the end of the paper. American Psychological Association's (APA) referencing method should be followed.
Articles Referred should be given as follows:

Swann, W.B.,Jr., Milton, L.P., & Polzer, J.T. (2000). Should we create a niche or fall in line? Identity negotiation and small group effectiveness. Journal of Personality and Social Psychology, 79: 238-250
Books Referred:

Swann, W.B., Jr., Rentfrow, P.J & Guinn, J.S. (2002). Self-verification: The search for coherence. In M.Leary & J.Tagney (Eds.,). Handbook of self and identity: 367-383. New York: Guilford Press.
6. Main Conclusions: The article should end with a non-technical summary statement of the main conclusions. Lengthy mathematical proofs and very extensive detailed tables should be placed in appendix or omitted entirely. The author should make every effort to explain the meaning of mathematical proofs.

7. Tables: Tables must be numbered consecutively with Roman numerals. Please check that your text contains a reference to each table. Type each table on a separate page. Authors must check tables to be sure that amounts add up to the totals shown and that the title, column headings, captions, etc. are clear and to the point.

8. Figures: Figures must be titled and numbered consecutively with Arabic numerals (1, 2, 3……..0).

9. Equations: All but very short mathematical expressions should be displayed on a separate line and centered. Equations must be numbered consecutively on the right margin, using Arabic numerals in parentheses.

10. Clarity and Consistency: Please check your manuscript for clarity, grammar, spellings, punctuation, and consistency of references to minimize editorial changes.

11. Submission Fees: There is no fee for publication of articles.

12. Submission Deadline: Articles should be submitted before 15th June of every year for publication in the annual issue.

13. Editing: SBJ reserves the right of making editorial amendments in the final draft of the manuscript to suit the requirement of the journal.

14. Copyright: SBJ will have the copyright of all the materials accepted for publication. Wherever copyrighted material is used, the authors should be accurate in reproduction and obtain permission from copyright holders, if necessary. Articles published in SBJ should not be reproduced or reprinted in any form either in full or in part without prior written permission from the Editor-in-Chief.

15. Management Case Studies: Management Case Studies describe a real-life situation faced, a decision or action taken by an individual manager or by an organization at the strategic, functional or operational levels.

16. Book Reviews: Book Reviews cover review of current book on business.

17. Complimentary Copy: A free copy of the Journal will be mailed to the author whose article is published.

Please send your research papers to:

Dr. Amitabh Upadhya Ph.D.,
Editor-in-Chief,
Skyline Business Journal,
Skyline University College,
University City of Sharjah
P. O. Box: 1797,
SHARJAH- U.A.E
Phone: +971 6 5441155 Ext. 245
Fax: +971 6 5441166
Email: sbj@skylineuniversity.ac.ae;
amitabh@skylineuniversity.ac.ae
www.skylineuniversity.ac.ae