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Highlights

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Discovering Thoughts, Inventing Future

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Business Risk Impact on Capital Structure: A Case of Jordan Industrial Sector

By Mohd I M Alnajjar

American University of Madaba, Jordan

Abstract- Purpose: This research study aims to investigate that how industrial sector firms decide about their capital structure with reference to risk exposure. This research concludes about the manager's behavior with respect to business risk, profitability, firm size and sales growth.

Design/methodology/approach: Data of industrial sector of Jordan, over the period of 2009-2011 is used for this study. Linear regression model is used for data analysis.

Findings: This research study results show that industrial sectors firm's managers are risk averse, whereas sales growth and firm size are positively related to financial policy decision. Profitability is negatively related with financial policy of the firm.

Keywords: business risk, profitability, size, sales growth, capital structure.

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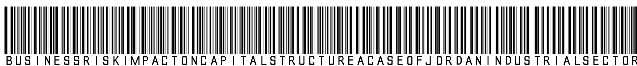

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Originality: This research study contributes to literature by conducting investigation in a developing and emerging economy about the effect of business risk on the financial policy of the industrial sector firms. This research study answers that do the industrial sector firm managers adjust their capital structure in relation to business risk and how the profitability, size of the firm and sales growth are related to the decision of capital structure formation. This paper also provides information to the investors and analysts about the agency issue problem raised by industrial sector firm's managers when they have high sales growth.

Keywords: business risk, profitability, size, sales growth, capital structure.

I. Introduction

Since the theory of irrelevance of firm's value presented by Modigliani & Miller (1958), capital structure determinants have been a core research topic for financial researchers (Ullah et al., 2012). Several theories have described the elements allied to capital structure namely trade-off theory, agency theory, free cash flow theory, signaling theory, market timing theory and packing order theory. These theories attempted to prove the best arrangement of debt and equity mix needed to increase the company's value.

According to signaling theory, more information is available to insiders regarding the firm then the outsiders. When the firm's future is bright then managers use debt instrument for raising finance at low interest rates. At that time risk of default is less. Another reason is, the gain sharing become less because of fewer shareholders. In the bad times, managers issue equity for sharing their losses and it reduces the risk of bankruptcy.

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Signaling theory explains the capital structure very good but still the relation between debt usage and firm quality measures is ambiguous, particularly from the perspective of reverse problem causation of whether a manger take hazardous decision about issuing long term debt or not.

Pecking order theory gives weight to internal financing and considers the external financing as more costly for risky stock. The reason behind is asymmetry of information among managers and security holders. Therefore firms give preference to internal financing and then leverage and lastly issue the equity (Myers & Majluf, 1984). Theory of Trade-off decides the optimal debt equity mix by weighing the benefits of increased leverage (agency cost reduction and tax benefits) against the increased leverage cost (bankruptcy cost) (Korajczyk & Levy, 2003).

According to Andersen (2005), trade-off theory put forward a comparative relation between economic performance & financial leverage from bankruptcy cost perspective. Probability of bankruptcy increases as leverage increases which also increase the risk of firm's inability of repayment of interest and loan. Van Horn (2002) argued that highly levered firms are less attractive for investors as compare to low levered firms because of significant bankruptcy risk and associated bankruptcy costs.

Firms risk can be defined as financial risk and business risk (Ward, 1993). Business risk is affected by volatility in earnings and earnings become volatile when the environment is uncertain. Financial risk is allied with the promises related to debt obligation. Effect of risk was studied by Abor and Biekpe, (2005) in the economy of Ghana and later on firms' financing decision with reference to risk exposure was also examined by Bokpin and Isshaq, (2008). Furthermore, Abor and Biekpe, (2009) extended the research and studied the risk exposure relation with capital structure for the developing countries firms. Likewise, the changes in capital structure made by managers with reference to risk exposure were investigated by Bokpin, Anthony and Kofi (2010). This whole discussion points to the importance of risk elements with reference to capital structure determination and Kale, Noe and Ramirez, (1991) also points to the risk as primary determinant for describing the optimal debt equity mix.

There is a disagreement about the effect of business risk on the optimal debt level. Bradley, Jarrell &

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Kim (1984); Carleton & Silberman (1977) and Castanias (1983) argued favorably about the effect of business risk on debt equity mix; Long & Malitz (1985) found a negative effect; but Ferri & Wesley (1979); Flath & Knoeber (1980) and Titman & Wessels (1988) conclude that business risk have no significant relationship with leverage. This study provides a clear answer about the question of effect of business risk on optimal level of debt (Kale, Noe & Ramirez, 1991). All these researches are indicating the importance of the business risk for the business. Therefore it is important to consider the business risk factor for the firms while increasing leverage (Ullah, et al., 2012).

Considering the above discussion, it seems that risk factor is critical for capital structure decision. Therefore, level of risk should be determined while deciding about the capital structure. Global financial crisis has increased the importance of business risk factor now days. Therefore it is important to identify that: Does risk exposure affect the capital structure of the non-financial listed firms from industrial sector at Amman Stock Exchange?

This research contributes in the literature by considering the sample size from Jordan and analyzing the risk exposure factor in relation to the capital structure decisions made by the managers. This study investigates that do the firms regulate their capital structure decision in relation to the business risk and do the sales growth, size and profitability impacts the capital structure. An extensive review of literature reveals that "how capital structure is adjusted due to risk factors" is minimally examined avenue of research in Jordan. Keeping in mind, the suggestions of Amidu, (2007), present study incorporate the business risk factor.

This research gives empirical evidence and put significant value in the capital structure literature. The study has a unique importance as it will provide knowledge to financial analysts, researchers, academicians and financial practitioners about the risk mechanism effects on the financial policy and returns related decisions. Furthermore it will add value to the literature of capital structure by providing practical evidence concerning the risk effect on the capital structure of the non-financial listed firms from industrial sector at Amman Stock Exchange. Managers can use this research for analyzing the current scenario of Jordan relevant to risk and its effect on capital structure.

For examining the effect of business risk, this study considers the data of five nonfinancial sector listed firms of Amman Stock Exchange for the period of five years from 2006-2010. Bokpin, Anthony and Kofi, (2010); Abor and Biekpe, (2009); Abor and Biekpe, (2005) and Bokpin and Isshaq, (2008) studied the effect of risk exposure on the debt equity mix in emerging economy but all these all studies are on Ghana Stock Exchange. According to author's knowledge, Alnajjar (2014) carried out a sole study in the Jordan relevant to risk exposure. Therefore, this study contributes in literature by examining the risk factor impact on capital structure of the firm listed on Amman Stock Exchange.

II. Literature

a) Business Risk

Scholars have given intense attentions to the issues related to capital structure from last few decades. Capital structure is a mixture of debt and equity in a suitable ratio, required for running the routine operations of corporations. Choice of capital structure (debt equity mix) is related to firm's financing decision (Glen and Pinto, 1994). According to Graham and Harvey (2001) the decision of capital structure is critical for corporations. Later on, a similar argument was also given by Bancel and Mittoo (2004) after surveying the American and European corporations that management considers the financing decision very crucial for their success and earning point of view. Furthermore, a survey conducted by Colombage (2007) in an Asian economy Sri Lanka also supports this argument by saying that a corporate executive in Sri Lanka considers the corporate financial policy very crucial.

Financial policy has significant effect on the profitability of the firm and the risk related factors as well (Bos and Fetherston, 1993). Up to this time, many theories have emerged which describe the important factors determining the capital structure of corporations. Earth breaking study of Modigliani and Miller (1958) presented the theory of irrelevance of firm's value and since that debt equity mix became the hot issue for finance researchers. This ground breaking study considers that firm's value is unrelated with its financial policy under some conditions. Modigliani and Miller (1958) considers that bankruptcy risk, transaction costs and tax shield benefits are the potential factors which increases the value of capital structure decisions. In the absence of these factors, financial policy decision is not of any importance and do not have significant impact on the firm's value and consequently, financial policy decision does not change the firm's market value and cost of capital.

Hamada (1972) investigated the risk factor in relation to capital structure and described that capital structure is significantly associated with systematic risk and explains about 21% to 24% systematic risk of firm. Moreover, the result of study of Castania (1983) conducted on 36 business lines shows that firms considering bankruptcy risk use less debt in their capital structure because of increased risk association. This depicts that increased bankruptcy risk lead the firms towards the less usage of debt in their debt equity mix.

Afterward their earth-breaking theory of irrelevance of firm value, Modigliani and Miller (1963) stated that imperfection of capital markets provide the room to leverage for increasing the firm value. This study

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of Modigliani and Miller (1963) provided the base to the subsequent research work in the area of capital structure determinants. Resultantly, research scholars started the investigation of importance of various factors for capital structure determination and their strength of impact for determining the capital structure. Like, importance of size of the firm for determining the capital structure was investigated by Scott and Martin (1976).

Fama and Miller (1972) investigated financial policy issue by using the agency cost theory and subsequently Jensen and Meckling (1976) also researched the similar idea. Harris and Raviv (1991) reaffirmed the significance of agency issue in the formation of capital structure. There is a slight disagreement by Bradley, Jarrell & Kim (1984) about the agency cost significance in the formation of capital structure. They consider that it is a partial feature for defining the financial policy of corporations. Baxter (1967) says that short-term debt is used to minimize the agency conflict in the organization and similar conclusion was also given by Leland and Toft (1996) in their study.

Firms risk can be defined as financial risk and business risk (Ward, 1993). Business risk is affected by volatility in earnings and earnings become volatile when the environment is uncertain. Financial risk is allied with the promises related to debt obligation. When the business increased then the bankruptcy risk also increases which is positively related with financial risk of company (Peirson, Bird, Brown & Howard, 1990). Firms with more volatile cash flows experience high operating risk and there are high chances of failure to pay their debt payments (Johnson, 1997). According to Kim & Sorensen (1986), firms with high operating risk uses smaller amount of debt in their debt equity mix because of increased financial risk. Hence the firms working in highly risky environment should reduce their debt usage so that they can reduce business risk which will reduce their bankruptcy risk. This shows that business risk and bankruptcy risk are inversely related with use of debt (Andersen, 2005).

Increased leverage in the capital structure increases the rate of interest and subsequently bankruptcy risk also increases (Baxter, 1967). When the debt is less risky than the interest rate increases slowly but when the debt is more risk than interest rate also increase accordingly at a higher rate. Riskiness of debt is related to volatility of firm's earnings (Baxter, 1967). If the earnings are stable and less volatile then the debt is considered as less risky and interest would be low but the volatility is higher and lead toward instability in earnings then debt is considered as highly risk and interest rate charged would be higher.

Most of the above discussed studies were conducted in the developed markets of Europe and America. Therefore, findings of these studies could not be applied in the developing economies are under-developed economies because of difference of economic conditions. As (Eldomiaty, 2007) says that level of efficiency and institutional arrangements in the emerging economies are different from the developed economies. Glen and Singh, (2004) argues that corporations in emerging economies apply less debt in their capital structure and this level of debt inclusion have fallen down in recent years. This argument was give about a decade ago. Therefore, it is essential to conduct a study in an emerging economy for providing the insights about the present situation of capital structure arrangement in the organizations. As Jong, Kabir and Nguyen (2008) also argue that firm' specific determinants of capital structure diverge from country to country and region to region. Therefore, this study is conducted in an emerging economy.

Ho = Business risk of the firm influences the financing policy of a firm.

Hi = Business risk of the firm does not influence the financing policy of a firm.

b) Profitability

Many researchers conducted investigation on the determinants of capital structure after the Modigliani & Miller (1963) study but there is a contrasting argument about the profitability relationship with capital structure. Bos and Fetherston (1993) consider that profitability is significantly related with capital structure formation decision. Pecking order theory is related to profitability and describes the relationship of capital structure with profitability. When the profitability of the firm increases, firms go for internal financing (Rajan and Zingales, 1995; Supanvanij, 2006 and Akhtar and Oliver, 2009) which lowers their bankruptcy risk. Although firms cannot enjoy the tax shield benefits which could be availed because of increased leverage. Under the pecking order theory, firms use the retained earnings and profits for furthering their investments and afterward these investments became the part of their capital structure. So, in accordance with pecking order theory, firms with high profitability incorporate less debt while forming their financial policy. Friend and Lang (1988) study results are also in line with the pecking order theory.

Ho= Profitability of the firm influences the financing policy of a firm.

Hi= Profitability of the firm does not influence the financing policy of a firm.

c) Size

Firm size has varying relationship with short term debt financing and long term debt financing. Study of Marsh (1982) stated that large firms prefer to go for long term debt and comparatively firms with smaller size go for short term debt. Firm size provides the economy of scale to large firms. Therefore, there bargaining power also increases. Issuance of debt to large firms is also beneficial because of low bankruptcy risk and

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stable earnings. Large firms do not consider the direct bankruptcy costs as an active variable in deciding the level of leverage. This view is supported by Marsh (1982), Buferna et al. (2005), Supanvanij (2006) and Akhtar and Oliver (2009).

Availability of information of large firms is also easy for lenders (Fama and Jensen, 1983) therefore they prefer to extend them loans. Information disclosure is always high in large firms comparative to smaller firms (Rajan and Zingales, 1995), thus the reliability of large firms is greater for lenders. Sometime, large firms are appeared to be the followers of pecking order theory and they have low level of debt and comparatively more equity in their capital structure. High cash flows and stability in earnings make the large firms more diversifies comparative to small firms and therefore their probability of bankruptcy is also very low.

Both types of arguments are available, which are supporting the relationship between size and leverage negatively and positively. Stulz (1990) and Harris and Raviv (1990) argue that when the value of the company increases it leads to increase in firm's leverage. Rajan and Zingales (1995), Booth et al. (2001), Marsh (1982) and Wald (1999) found a positive relation between of leverage with the size of the company. Whereas. Wald (1999) and Rajan and Zingales (1995) found that firms with large size have less debt.

Ho= Size of the firm influences the financing policy of a firm.

Hi= Size of the firm does not influence the financing policy of a firm.

d) Sales Growth

Many studies suggest a negative relationship between sales growth and incorporation of debt in capital structure. This view is supported by Smith and Watts (1992), Rajan and Zingales (1995), Lang, Ofex and Stulz (1996), Barclay and Smith (2005), Buferna et al. (2005), Supanvanij (2006) and Akhtar and Oliver (2009). Firms will use less debt when there would be growth in sales. This concept is in line with the pecking order theory. With the increased sales, firms earning will increase got more stability which will in turn lead to internal financing for expanding investment. Harris and Raviv (1991) argues about the negative association of long term financing with the growth.

Ho = Sales growth of the firm influences the financing policy of a firm.

Hi = Sales growth of the firm does not influence the financing policy of a firm.

III. Methodology

This study uses the data of industrial sector of Amman Stock Exchange for the period of 2009-2011. Data is taken from the balanced sheet analysis issued by the Amman Stock Exchange. Panel data of 11 industrial sectors of Amman stock exchange are used for this study because of data accessibility concerns. Descriptive stats are used for describing the characteristics of data. Collinearity diagnostics are used for checking the multi-collinearity of data so that linear regression model can be used. Below mentioned econometric equation expresses the suitability of common effect model for the analysis of panel data.

$$\gamma_{it} = \alpha + \beta X_{it} + P_{it} + K_{it} + H_{it} + \varepsilon_{it} \qquad (1)$$

γ_{it} is used to denote the capital structure which is measured through the ratio of debt and equity. Subscript i is the representation of firms and t is the representation of time. α is constant of the linear regression model. βX depicts the business risk for the firms which is measured by standard deviation in earnings before interest and taxes. P is denoted for profitability measured through the ratio of return on asset. K is denoted to size which is measured by firms total assets and H is denoted to sales growth measured through current year's 'sales - last year's sales / last year's sales. μ_{it} is an error term of the common effect model.

IV. Results and Discussion

This section describes the results of descriptive statistics along with collinearity diagnostic and the results of linear regression model. Descriptive statistics table explains the mean values and standard deviation values.

a) Descriptive stats

Table 1

	Mean	Std. Deviation	N
Capital Structure	.6416299441	.29070654970	33
Business Risk	14.406910734	1.8413670111	33
Profitability	3.3358728002	7.34518498470	33
Size	18.768967976	1.3216150033	33
Sales Growth	.098288790	.2434462291	33

Mean value for the capital structure is .6416299441 with the differing value of .29070654970 which shows a high standard deviation value as compare to mean value. Mean for business risk is 14.406910734 and standard deviation is 1.8413670111 which depicts a small variation. Profitability shows mean value 3.3358728002 with a standard deviation of 7.34518498470. Size mean value is 18.768967976 with standard deviation value 1.3216150033. Sales growth mean value is 0.098288790 with a very high standard deviation.2434462291.

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b) Collinearity Diagnostics

Collinearity diagnostics observes the multi-collinearity factor in the study variables so that linear regression model could be applied for data analysis. Level of tolerance and VIF values determine the absence or presence of multi-collinearity in the observed variables.

Table 2

	Tolerance	VIF
Business Risk	0.244	4.100
Profitability	0.902	1.108
Size	0.235	4.263
Sales Growth	0.980	1.020

Level of tolerance should remain below 1 and the value for VIF should be between 1 and 10. As shown in table 2, all the variables have significant level of values for tolerance and VIF. Hence, there is no multi-collinearity and regression model is suitable to test the data.

c) Regression Model

Table 3

Variables	Regression Coefficients	T – Statistics	Standard Errors	P Values
(Constant)	-.549	-.665	.825	.051
Business Risk	-.053	-1.261	.042	.021
Profitability	-.004	-.533	.008	.059
Size	.103	1.758	.059	.050
Sales Growth	.424	1.959	.216	.060
R – Square	.482			
Adjusted R Square	.418			
F – Statistics	6.789			
Overall P Value	.000			

Analysis statistics shows that business risk have negative association with the debt equity ratio. Business risk is impacting the debt equity mix with the negative value of 0.053. Profitability is also negatively related with the debt equity mix and reporting the negative value of 0.004. Size also have relationship with firm's capital structure and has positive correlation with debt equity mix with the positive value of 0.103. Sales growth is positively related with the capital structure of the corporations in industrial sector with the positive value of 0.424.

Outcomes are representing that industrial sector managers are considering the business risk when they decide about their firm's capital structure. When, the firm's earnings become more unstable than managers reduce the level of debt from their financial policy. So that bankruptcy risk could be avoided. Hence, industrial sector executives have deep concern about the risk related factors and they act like risk averse. One more reason behind acting like risk averse is to avoid the uncertainty prevailing in the Jordan economy. Therefore executives do not take high risks. These results are harmonized with the results of Long and Malitz (1985).

As the industrial sector managers' attitude is risk averse therefore lender organizations could extend the loans to them. Industrial sector managers will not extend their debt level beyond the certain limit because of increased bankruptcy risk. Therefore lenders should feel free to lend their money to industrial sector firms in registered on Amman stock exchange, Jordan. Results of profitability also support the risk averse behavior of industrial sector managers and results of profitability are also in line with the pecking order theory. Managers always go for internal financing when their profitability increases which decreases the level of debt in the capital structure.

Increased profitability provides the opportunity to the managers to finance their operations through internal financing which decreases their reliance on the external financing. Through internal financing managers avoid the business risk. Result of profitability relationship with capital structure is in line with the study of Carleton and Silberman (1997) conducted on United States corporations. Although present study is conducted in an emerging economy but results are supporting the pecking order theory and confirming the relationship of profitability with capital structure found in developed economy by Wiwattanakantang (1999), Wald (1999), Rajan and Zingales (1995) and Booth, Varouj, Asli and Vojislav (2001).

Result shows that firm size is significantly related with capital structure. With the increase in firm size, debt equity ratio also rises. Fix asset of firms provide the bases to debt. Therefore, corporations with more total assets use the higher level of debt in their debt equity mix. More total assets provide the opportunity to the managers that they could incorporate more debt in their capital structure by putting the more assets as collateral. Collateral provide more security to lenders against their money. Therefore, managers use this opportunity of incorporating more debt for enjoying the tax shield benefits and maximizing their profits. It also minimized the loss ratio against equity as the liability of the public limited firm is limited to its equity. This is evident that increased firm size make the managers risk seeker therefore they incorporate more debt in their financial policy. Studies of Wald (1999), Marsh (1982), Booth et al. (2001) and Rajan and Zingales (1995) also support this relationship of large size firms with the capital structure of those large firms.

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This study results show that sales growth is significantly related with capital structure. Results show that managers of industrial sector firms go for incorporating more debt when their sales go higher. Managers consider that increased revenue provides the opportunity for easy interest payments and hence it will also result in high profitability through tax shield benefits. This incorporation of debt in debt equity mix also increases the market investment of fims which eventually increases the sales of firms.

V. Conclusion and Implications

This research study investigates the behavior of industrial sector firm's managers about the capital structure formation decision with respect to business risk, profitability, size of the firm and sales growth factors. Panel data of industrial sector of Amman Stock Exchange of Jordan is used in this investigation. Analysis reveals that managers become risk averse while deciding about their financial policy when there is volatility in revenues. Thus, the bankruptcy risk could be avoided. Profitability is found positively associated with the financial policy formation which demonstrates that executives of industrial sector firms use more debt when there is stability in revenues and profit increase so that they could enjoy the tax shield benefits.

Industrial sector executives incorporate debt in accordance with the size of the corporation. As the firm size goes larger, they use more debt in their capital structure. Large firm managers use assets as collateral for acquiring more debt from the lender organizations. Managers of high sale growth firms consider the pecking order theory and prefer the internal financing policy so that they could avoid bankruptcy risk. This internal financing provide the basis to agency issue because executives do not offer dividend to owners. Consequently this internal financing become the reason for decreased earnings because of not having the tax shield benefits. Therefore, firms with high sales growth are under the problem of agency issue.

Analysis confirms that executives of industrial sector are very sensitive about risk factor. They give considerable importance to sales growth, profitability, business risk and size while incorporating and increasing the level of debt in their capital structure. Hence, moneylender should not be much worried about their advancing to industrial sector firms. This research study outcomes are valuable for investors, moneylenders, analysts and for scholars as well.

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Dynamics of Remittance in Bangladesh: A Case Study on United Commercial Bank (UCB)

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Abstract- The aim of this paper is to evaluate the inward as well as outward remittance performance of United Commercial Bank (UCB), Bangladesh. The study exposes that the inward and outward remittance of UCB has been increasing over the years i.e. from 2007 to 2013. In 2013, the highest inward remittances come through Xpress money among the leading five products (Xpress money, Western Union, NEC Italy, Money gram and Modern Exchange). In 2013, the remittance inflow has decreased compared to 2012 from Soudi Arabia, Libya and United States of America while remittance in flow has increased from Malaysia, United Kingdom, Italy, Kuwait and Qatar. The rate of growth of inward remittance of UCB has dropped after 2010, although in 2013, it increased a little bit compared to 2011 and 2012. While growth rate of outward remittance showed an erratic trend form 2010 to 2013. Based on the findings it can be said that UCB should introduce new inward remittance product as well as it should arrange seminar and symposium to introduce the cost and benefits of their remittance products in home and abroad which may increase the remittance flow from different countries and this will ultimately benefit the county's economy.

Keywords: UCB, inward remittance, outward remittance, growth rate, erratic trend, and cost and benefits.

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Md. Abdul Latif Mahmud [α], Md. Azim [σ], Helaluddin Ahmed [ρ] & Md. Mobarak Karim [ω]

Abstract- The aim of this paper is to evaluate the inward as well as outward remittance performance of United Commercial Bank (UCB), Bangladesh. The study exposes that the inward and outward remittance of UCB has been increasing over the years i.e. from 2007 to 2013. In 2013, the highest inward remittances come through Xpress money among the leading five products (Xpress money, Western Union, NEC Italy, Money gram and Modern Exchange). In 2013, the remittance inflow has decreased compared to 2012 from Soudi Arabia, Libya and United States of America while remittance in flow has increased from Malaysia, United Kingdom, Italy, Kuwait and Qatar. The rate of growth of inward remittance of UCB has dropped after 2010, although in 2013, it increased a little bit compared to 2011 and 2012. While growth rate of outward remittance showed an erratic trend form 2010 to 2013. Based on the findings it can be said that UCB should introduce new inward remittance product as well as it should arrange seminar and symposium to introduce the cost and benefits of their remittance products in home and abroad which may increase the remittance flow from different countries and this will ultimately benefit the county's economy.

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I. Introduction

Remittances in Bangladesh have been growing steadily over the last decade. It is just not a part of the income of nations; it is a power on which developments run smoothly. Now-a-days remittance has kept the economy of Bangladesh more dynamic. The main sources of the national income are foreign direct investment, foreign loans and grants and foreign remittance which are earned by working labors in abroad and exporting goods in foreign countries. Bangladesh receives remittance from different countries that play an important role in smoothening household consumption as well as socio-economic development of our country.

In the present world, a bank performs several general banking activities in order with its different internal departments. All the departments which are providing Foreign Remittance services are very much important while dealing with customers. Bank earns its operating profit through functional activities of Foreign Remittance. That is why; Foreign Remittance activities mean a lot for a bank. If a bank can figure out its outstanding performance in foreign remittance banking through satisfying its customer then it is possible for that particular bank to gain competitive advantage from the market.

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Remittance is extremely important towards the economic regeneration of the country by helping drive the economic engine through cash circulation and large transfers that are used for goods importation, investment and reconstruction, on the one hand, and through small amounts of remittance for families and individuals sent by refugees and migrant relatives from developed and rich countries for livelihood security and maintenance, on the other. Both of these types of transfer services provided by various remittance companies have been indispensible for family survival or household maintenance, acquisition of basic social services and small businesses that all depend on speedy and reliable transfers in and out of the country for import/export payments.

The sources of remittance can be classified as: 1) Inward Remittance (Local and Foreign), 2) Outward Remittance (Local and Foreign). Inward Foreign Remittance means Remittance received from abroad. In other words remittance coming into the country from other countries by the remitter by way of permissible banking channel through freely convertible Foreign Currencies is called 'Inward Foreign Remittance' from the beneficiary country's point of view. From the remitter's point of view it is called outward Foreign Remittance. Receipt of local currencies constitutes inward local remittance. For different use bank can accept local currency such as endorsement. In case of Foreign Inward Remittance, The bank receives the money that has been sent from the sending person in the country in which the money has been earned. Banks in Bangladesh, for example, UCBL (United Commercial Bank Ltd.) has established remittance arrangements with a number of exchange houses to facilitate wage earners to remit their money to Bangladesh. This bank has already been in operation with UAE Exchange Centre LLC, Wall Street Exchange LLC, Trust Exchange, Route Asia Exchange, Instant Cash and Bangladesh Money Transfer. On the other hand, Outward remittance of funds can be made by means of T.T, D.D. etc. The remitter has to deposit money along with the application contains name and address of the payee name of the currency etc. All outward remittances must cover the transactions approved by the Bangladesh Bank.

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Transfer of local currencies constitutes of outward local currency. When bank transfer the local currency to its customers or clients then it called outward remittance, such as FDD, TT etc. In case of Foreign Outward Remittance, The sender uses a bank or foreign exchange company to send money to foreign country. Many of the receiving banks have established remittance relationships with currency houses and banks in other countries to better facilitate the flow of remittances into the country.

As a developing country, remittance is most favorable to change our present condition and economic welfare. So, it is very important to emphasize on the remittance management to ensure the smooth flow of remittance which will ultimately benefit the economy.

II. Literature Review

Siriwardhane (2007) says, "Though the market is served by different categories of remittance service providers (RSPs), banks can play a prominent role as RSPs to make the remittance market contestable, transparent, accessible, competitive and reliable". He also says, "Banks are not expected to simply follow the practices of non-bank RSPs and charge typically high fees, commissions and excessive margins to cover exchange rate movements. The role of banks should be to compete with non-bank RSPs with more price transparency. Banks who participate in payment and settlement systems can play a major role in increasing efficiency of the remittance market by facilitating safe and convenient fund transfers at a reasonable cost. There is also an opportunity for banks to leverage migrants' remittance services into a broader banking relationship, and that will be profitable for banks, immigrants and their beneficiaries. If the market becomes more competitive, it is inevitable that prices will fall and the community will benefit.

The World Bank website states, "A remittance is a transfer of money by a foreign worker to an individual in his or her home country. Money sent home by migrants competes with international aid as one of the largest financial inflows to developing countries. Remittances are playing an increasingly large role in the economies of many countries, contributing to economic growth and to the livelihoods of less prosperous people (though generally not the poorest of the poor)".

Bangladesh earns a lot of remittance from migration. Siddiqui (2003) states, "Bangladesh has a long history of migration. Migration has shaped and still shaping Bangladesh society".

Transfer of remittances takes place through different methods. Forty six percent (46%) of the total volume of remittance has been channeled through official sources, around forty (40%) through *hundi*[1], four point six one per cent (4.61%) through friends and relatives, and about eight percent (8%) of the total was cash carried by the migrant workers themselves when they visited home. (Siddiqui & Abrar 2001)

Orozco (2002) says, "The high costs of remitting raise questions about both government policy and business competition. Governments are important agents of economic change and through policies and regulations can attract migrant capital and decrease the price of remitting money. Governments need to consider what policies they might adopt to achieve these goals. These may include increasing migrant understanding of alternative sending methods, encouraging or requiring the market to offer cheaper methods to transmit remittances, and developing policy initiatives that enable and encourage an environment that attracts more worker remittances or investment". O'neill (2001) says, "Developing countries, ready to explore every option available to increase their citizens' welfare, should focus on developing policies that maximize and channel this increasing flow of remittances".

The World Bank (2007) suggests about General Principles for International Remittance Services. They are: i) transparency and consumer protection; ii) payment system infrastructure; iii) legal and regulatory environment; iv) market structure and competition; and v) governance and risk management.

Remittance constitutes an important source of foreign exchange for the developing countries like Bangladesh, which have substantial development impact as can be understood from micro and macro point of view. Orrenius et al., (2010) say, "From a macroeconomic perspective, remittances can boost aggregate demand and thereby GDP as well as spur economic growth. However, some research indicates that remittances may also have adverse macroeconomic impacts by increasing income inequality and reducing labor supply among recipients". From macro frontier, remittances are used to make import payments and are used for productive investment by the government (Salim, 1992). If one takes into account the unofficial flow of remittances, its contribution to GDP would certainly be much higher. Murshed et al., (2000) finds that an increase in remittance by Taka 1 would result in an increase in national income by Tk 3.33. But Ahmed et al., (2009) finds that limited support in favor of export-led growth hypothesis for Bangladesh as exports, imports and remittance cause GDP growth only in the short run. Catrinescu et al., say that "Remittances will be more likely to contribute to long term growth when the

[1] Hundi, is an informal value transfer system based on the performance and honour of a huge network of money brokers, primarily located in the Middle East, North Africa, the Horn of Africa, and the Indian subcontinent, operating outside of, or parallel to, traditional banking, financial channels, and remittance systems.

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receiving countries' political and economic policies and institutions create the incentives for financial and business investment and savings from remittances. Policies must favor savings and investment so that, at the margin, household income that exceeds the needs of basic subsistence can be saved or invested (including in human capital)". There is a debate over the extent to which remittances actually boost the economy of the source country, since more of the income has been used for consumption purposes and not saved or invested (see Drinkwater et. al, 2002)). Recent strands of literature, however, indicate that remittances can lead to economic growth simply by increasing the migrant's household income, regardless of whether this additional income is spent on consumption or savings. For example, Ratha (2004) indicated that if remittances are invested, they contribute to output growth, and generate positive multiplier effect even if they are consumed. Pant (2011) says, "Remittances contribute largely to the national economy. The remittances sent home by the migrants affect development at both the household and national levels. At the household level, remittances help to reduce poverty, improve standard of living and attain higher educational levels. At the macro level, remittances could be used for entrepreneurship and productive investment which in turn increases job opportunities and income of the people. At the same time, remittance inflows help to augment foreign exchange reserves and improve the current account position".

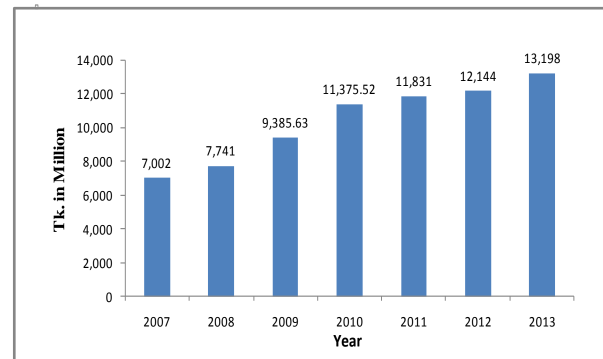
III. Methodology of the Study

This paper is based on secondary data which were collected from the various annual reports of United Commerce Bank (UCB) from 2007 to 2013. Seven years data of UCB have been presented in an easy and understandable form. Tabular and graphical analyses were done with the collected data to achieve the objectives of the study. Microsoft Office and Microsoft Excel package have been used in tabular and graphical representation of data.

IV. Result and Discussion

a) Inward Remittance of UCB

There was an increasing trend in the inward remittance flow in UCBL and the highest inward remittance flow was Tk. 13,198 million in 2013 and the lowest remittance flow was Tk. 7,002 million in 2007.

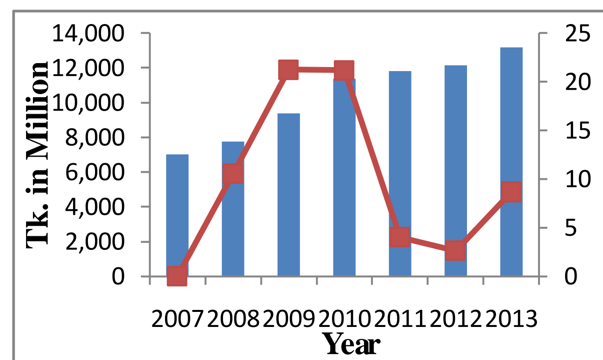


Source: Annual report of UCB (2007-2013)

Figure 1 : Inward Remittance of UCB

b) Growth Rate of Inward Remittance (UCBL)

Over the years, the flow of inward remittance in UCBL increased in volume, but the rate of growth in remittance decreased since 2010 except in the last year. In 2013, the rate of growth was 8.68 percent, which was 6.02 percent more than that of 2012. In 2012, the rate of growth was 2.66 percent, which was 18.59 and 1.34 percent less than those of 2010 and 2011 respectively. However the highest inward remittance was 21.25 percent in 2009.



Source: Annual report of UCBL (2007-2013)

Figure 2 : Growth rate of inward remittance

c) Outward Remittance of UCBL

The outward remittance flow of UCBL was in erratic trend from 2010 to 2013. The highest outward remittance flow was Tk. 321 million in 2013 and lowest was Tk. 189 million in 2007. In 2013, outward remittance flow was Tk. 321 million which was Tk.33 million more than 2012. In 2011, outward remittance flow was Tk. 304 million which was Tk. 56 million more than 2010.

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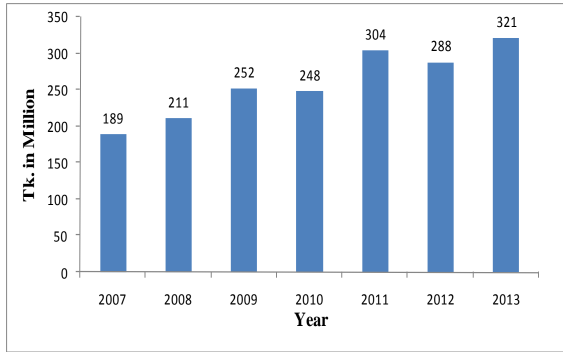
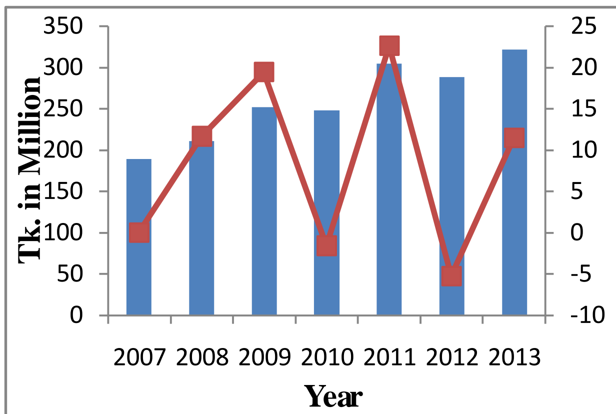


Source: Annual report of UCBL (2007-2013)

Figure 3 : Outward Remittance of UCBL

d) *Growth Rate of Outward Remittance (UCBL)*

The rate of growth of outward remittance flow was 11.46 percent in 2013 and in 2012 it was negative (-5.26 percent). In 2012, the rates of growth of outward remittance was negative that was -5.26 percent, which were -3.67 percent and 27.84 percent less than those of 2010 and 2011 respectively. However, the highest outward remittance flow was 22.58 percent in 2011.

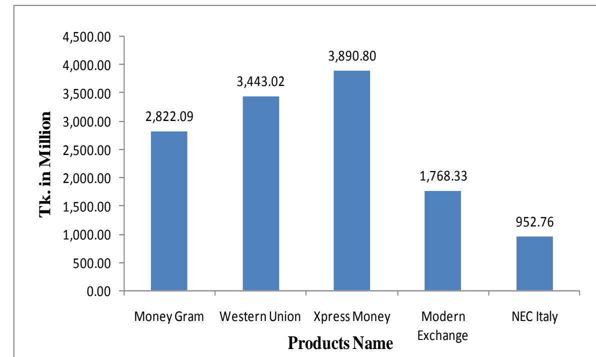


Source: Annual report of UCBL (2007-2013)

Figure 4 : Growth rate of outward remittance

e) *Leading Five Inward Remittance products & their amount of UCBL in 2013*

In 2013, the highest inward remittances come through Xpress Money and the amount was Tk. 3,890.80 million. Second highest remittances come through Western Union and the amount was Tk. 3,443.09 million and lowest inward remittances come through NEC Italy which was Tk. 952.76 million. In 2013, remittance inflow through Xpress Money is Tk. 3,890.80 million which was Tk. 447.78 and 2,122.47 million more than Western Union and Modern Exchange.



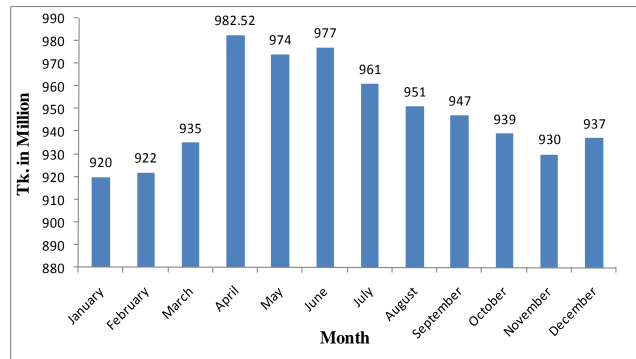
Source: Annual report of UCBL-2013

Figure 5 : Leading Five Inward Remittance products & their amount

f) *Data Analysis of Remittance Flows in UCBL*

i. *Monthly Inward Remittance flow of UCBL in 2010)*

The trend of monthly inward remittance was in increasing trend till April and after that month there was decreasing trend. In April 2010, inward remittance flow was Tk. 982.52 million which was Tk. 52.52 million more than in November.

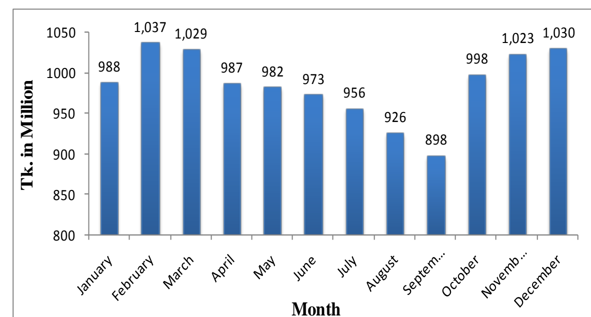


Source: Annual report of UCBL-2010

Figure 6 : Monthly Inward Remittance flow

ii. *Monthly Inward Remittance flow of UCBL in 2011*

The trend of monthly inward remittance flow was in decreasing trend till September and after that month there was increasing trend. In December 2011, inward remittance flow was Tk. 1,030 million which was Tk. 132 million more than in September.



Source: Annual report of UCBL-2011

Figure 7 : Monthly Inward Remittance flow

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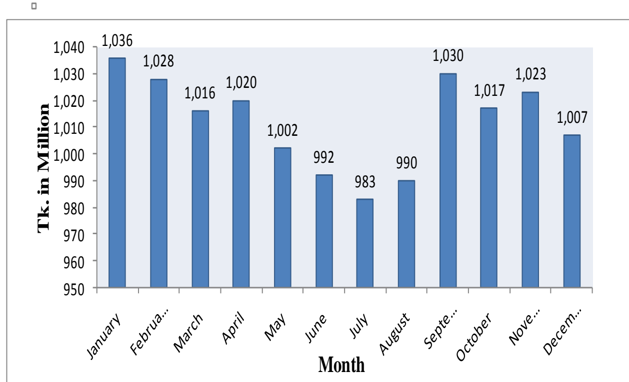
iii. *Monthly Inward Remittance flow of UCBL in 2012*

The trend of monthly inward remittance flow was in decreasing trend till July and after that month there was increasing trend. In September 2012, inward remittance flow was Tk. 1,030 million which was Tk. 23 million more than in December.

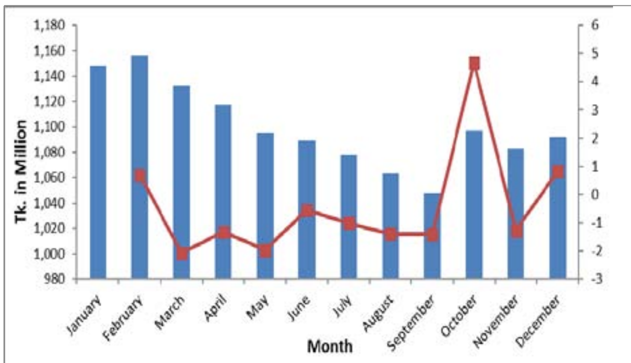


Source: Annual report of UCBL-2012

Figure 8 : Monthly Inward Remittance flow

iv. *Monthly Inward Remittance Growth Rate of UCBL in 2012*

In 2012, the inflow of remittance in the months of September, October, November and December were Tk. 4.04 million, Tk.-1.26 million, Tk.0.59 million, and Tk. -1.56 million respectively. In September 2012, the rate of growth on remittance was 4.04 percent which was 5.30 percent more than in October. In the month of September 2012, the highest inward remittance flow was Tk. 4.04 million.

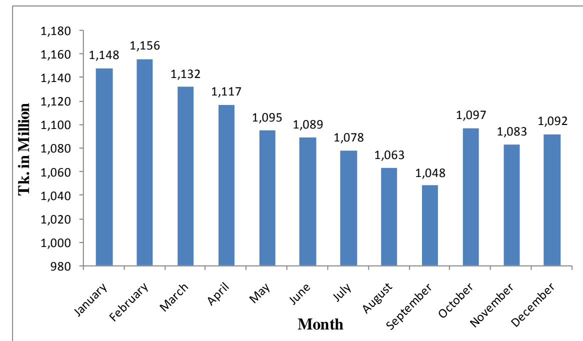


Source: Annual report of UCBL-2012

Figure 9 : Growth Rate of Inward Remittance (monthly)

v. *Monthly Inward Remittance flow of UCBL in 2013*

The trend of monthly inward remittance flow was in decreasing trend till September and after that month there was increasing trend. In December 2013, inward remittance flow was Tk. 1,092 million which was Tk. 9 million more than in November.

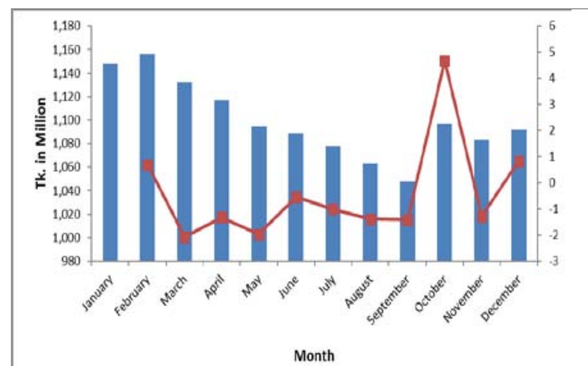


Source: Annual report of UCBL-2013

Figure 10 : Inward Remittance Flow (monthly)

vi. *Monthly Growth Rate of Inward Remittance in 2013 (UCBL)*

Inflow of monthly remittance in the year of 2013 exhibits an up and down .The inflow of remittance in the months of September, October, November and December in 2013 were Tk. -1.41 million, 4.68 million, -1.28 million, and 0.83 million respectively. In year 2013, during October, the rate of growth on remittance was 4.68 percent which was 5.96 percent more than in November. The highest inward remittance flow was Tk. 4.68 million in October, 2013.



Source: Annual report of UCBL -2013

Figure-11: Growth Rate of Inward Remittance (monthly)

vii. *Country wise Remittance inflow in UCBL in 2012 & 2013*

The remittance inflow from Soudi Arabia decreased to Tk. 1,201 million in 2013 from Tk. 1,377 million in 2012. The remittance inflow from U.S.A decreased to Tk. 1,022 million in 2013 from Tk. 1,139 million in 2012. The remittance inflow from Libya decreased to Tk. 762 million in 2013 from Tk. 966 million in 2012.The remittance inflow from Italy increased to Tk. 1,414 million in 2013 from Tk. 1,228 million in 2012. The remittance inflow from Malaysia increased to Tk. 1,277million in 2013 from Tk. 1,203 million in 2012. The remittance inflow from U.K increased to Tk. 1,046 million in 2013 from Tk. 1,030 million in 2012. In 2013, it is seen that the highest remittance inflow come from Italy which was Tk. 1,414 million and the lowest amount Tk. 762 million come from Libya in 2013.

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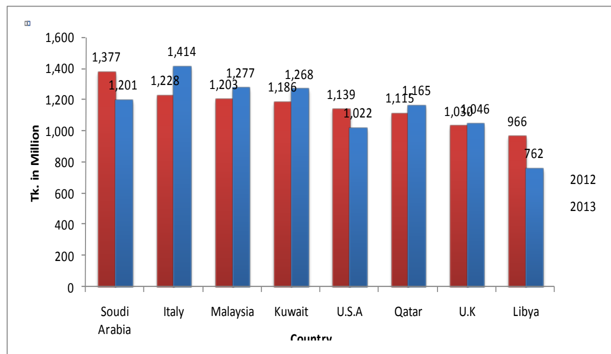
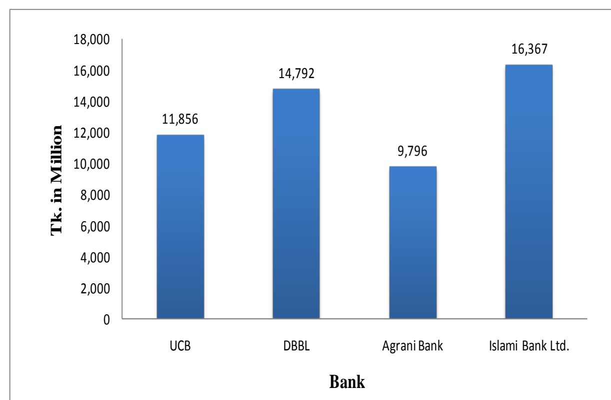


Source: Annual report of UCBL (2012-2013)

Figure 12 : Country wise Remittance inflow

viii. *Comparison of Inward Remittance Flows among UCBL, Dutch-Bangla Bank, Agrani Bank & Islami Bank Bangladesh Ltd. in 2013*

Among the four banks, the highest inward remittance flow received by Islami Bank Ltd and the amount was Tk. 16,367 million which was Tk.6, 571 million more than Agrani Bank Ltd in 2013. In the above figure, inward remittance flow of DBBL was Tk. 14,792 million which was Tk. 2,936 million more than in UCBL in 2013.



Source: Annual report of UCBL -2013

Figure 13 : Comparison of inward Remittance flows with other banks

V. Conclusion and Recommendations

Foreign remittance sent by the wage earners and other expatriate Bangladeshi to their families and relatives at home are growing rapidly and now contributing a major portion of income earned by Bangladesh from abroad. The volume of remittance receipts by Bangladesh usually coming through official channels. But the unofficial channels are still playing a major part in transferring the remittance, thereby depriving the government of a huge sum of foreign currencies every year. In this situation, the government needs to give a closer look at the performance of the formal vehicles of money transfer including the banks already in operation. Most of the families use the remittances in their household consumptions as well as in savings. But some families already invested in some particular sectors. And they are very much interested to invest our selected preferable and profitable sectors in country by using their remittance properly.

The secure and well organized flow of remittance is very much important for the development of the economy. The commercial banks are playing the major role of managing such flow of remittance in Bangladesh. After analyzing the UCBL's remittance management and performance it can be said that to increase the inward remittance flow, UCBL should introduce new inward remittance product as well as it should arrange seminar and symposium to introduce the cost and benefits of their remittance product in home and abroad. There is an urgent need to create awareness about the inward remittance product named NEC Italy because with this product UCBL earned lowest remittance among the five products. Since technology is a preferable need in managing anything smoothly and speedily, UCBL can introduce full automation which will reduce the time and cost related to the remittance processing and disbursement. One important thing which UCBL can consider is that an own money transfer organization or products may make faster remittance receiving, processing and payments. At last it is recommended that UCBL should emphasize on transparent remittance services and should adopt adequate consumer protection to increase their performance in the inward and outward flows of remittance.

VI. Future Directions

There can be a study on those who are receiving the remittance services to find out their problems they face and also to find out their expectation and that study may suggest how an efficient flow of remittance can be ensured.

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Impact of Women Behavior on Financial Decision Making

By Sadique Hussain, Saadat Ali, Muhammad Ibrahim, Waqas Balouch, Muhammad Yousouf & Abdul Ghafoor

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Abstract- Purpose The intention of the research is to further investigate the impact of self-confidence, traits and risk level regarding the impact of women behavior on financial decision making as examined a research gap in literature reviewed that women behavior has not been discussed for financial decision making.

Design/methodology/approach the target population for this research is the working women of the different private and the public organization of following district of southern Punjab (layyah, D. G. khan, Rajan Pur, Muzaffar Garh). The questionnaires in 120 quantities were distributed to get the response. In order to revile the research results the correlation and regression analysis were made by using SPSS software.

Research findings the research results showed that there is positive significant relation among all the research variables.

Keywords: risk level, self-confidence, traits, decision strategies.

GJMBR - C Classification : JELCode : G01, G02

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Impact of Women Behavior on Financial Decision Making

Sadique Hussain[α], Saadat Ali[σ], Muhammad Ibrahim[ρ], Waqas Balouch[Ѡ], Muhammad Yousouf[¥] & Abdul Ghafoor[§]

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Originality/value for the knowledge of the reader this is original studyand no any portion has been copied from anywhere to determine factor that impact on the decision making.

Implications the managers and policy makers can use the research results in order to improve financial and economic outcome for women.

Keywords: risk level, self-confidence, traits, decision strategies.

I. Introduction

We make every types of decision with the help of our sense, knowledge and experience; we select the several alternative situations. Men and women have huge difference between themselves (Orasanu and Connolly, 1993). (Narayan and Corcoran-Perry, 1997) stated that the decision making process is considered as the interaction between a problem that needs to be solved a in the specific environment. For any individual's life financial decisions are very important for the purpose of living. According to the (Mohan and Chen, 2004; Levi and Zhang, 2008; Huang and Kisgen, 2013) that in view of the past, men as well as women make these decisions but the women decision making strategy is vary from the men decision strategy and it also strongly impact on the investment and financial decision. By seeing the corporate level we find out that the executives female are different from the male executives.(Powell and Ansic, 1997; Borghans and Golsteyn et al. 2009) argue that naturally, the groups of the girls or women are relatively low risk taker as compared to men.

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In the current area of global environment, we have to face the different problems and we try to find out their solution or decision to tackle it. The decision making is process of choosing from two or more alternatives. Decision making is a complex task as individual, group or team. It matters whether we are consumer or manufacturer and investor or producer even in every filed or professions, we need to make decision for survival of human being. As investor we make decision, where to invest? And how to invest? When to invest? And which gives us more return in shape of profit. These types of decision, making abilities may differ from gender to gender. For example female or male use different decision making strategies or have different traits, different level of risk taking and different confidence level. The research indicates female are less risk seeking then a male (Melanie & David, 1997).

The gender differences exist when decision making is financial and the personal decision making (Johson & Powell, 1994). These studies provide the interesting facts such as women are more conscious, less ability to take decision on spot, less aggressive and can be easily to influence and not having the good leadership and intellectual abilities as compared to men. But the other studies indicate that female and male are equal to accomplished the task under the same level of uncertainty (Hudgens & Fatkin, 1985, Johson & Powell, 1994) and equal capability to handle the complex information and same response to given situation, (Stinerock et al, 1991, Hyde, 1990).

One study indicated that female are more risk averse then male (Hydgens and Fatkin, 1985). Women have little confidence when make critical decision regarding financial matter and seek more advice from others (Estes & Hosseini, 1988; Stinerrock et al, 1991, Zin-khen & Karade, 1991; Master, 1989).

In this paper we will explore about how women are different from men, when make critical decision regarding financial matter. They are different on the basis of personality traits, preference for risk level and advice from other, self-efficiency or confidence on their personal abilities and choice of decision making strategies as compared to men. The psychologist indicated women differ from man on the contextual factor rather than choose conservative investment

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strategies and low risk portfolio (N. Jiankoplos &A. Tversky, 1998).

Our research paper have different section first section is about current and past view of the different researcher and second sections focus on methodology and theoretical framework, third section analysis and finding, last section focus on conclusion and references.

The question which is the most important in the investment behavior of gender difference may also be considered his background (Jianakoplos and Bernasek, 1996, Barsky et.al., 1997, Powell and Ansic, 1997), but also against it (Schubert et.al., 1999) also an argue related by that is provided by the (Barber and Odean 2001) that women on the average, are less confident than men.

Whenever we determine the differences of male and female then find out number of similarities as investors. When the difference come up they emerge to be shaped social and demographic factors like education, employment status and the condition of monetary. Barua, Davidson, Rama, Thiruvadi (2010), Peni & Vahamaa (2010) find that Women are less confident in taking part in a best-interest decision making but when they make the decision about the financial matter then they lose their confident and seek advice from the other and take the information and also afraid they not be wrong .

The main purpose of this paper is to discover the role of female in financial decision making and also to measure the way in which women show a common traits of risk-seeking less behave than men in the financial decision. We provide evidence that the in practices of the financial reporting are differentiate in context of decision making between men and women. Further we investigate that when the level of the risk are increase or decrease that highly impact on the women decision strategies.Now a day, we can determine that there is differentiate gap between the female and male regarding about the financial decision making and the capabilities of investment. According to this research the risk aversion says that the female behave different from the males in the risk handling and the risk taking investment. The orientations of the male and female are different outlooks.

II. Research Objectives

The main objectives of this research are to find out the impact of women behavior on the financial decision making with specific intention of following aims.

1. To know the impact of Risk on the financial decision making.
2. To identify the impact of confidence level on financial decision making.
3. To find out how decision strategies are impacting on the financial decision among the women.
4. To develop the theoretical framework from the literature reviewed.

III. Literature Review

a) Risk level

A believe of stereotype that less risk-averse are found in the women because they discriminated against equally to the men by seeing the jobs with concept of economic controlled conditions, risk decision less or more to gender issue not related while having the decision edge itself (Schubert, Brown, Gysler, Brachinger 1999). According to (Beyer and Bowden, 1997) that overconfident are less in women when domain males oriented are more& there are more men in the financial market then women. Women are considered to be more conservative investors offer by the broker investment which has less risk (Wang, 1994).A supporting evidence provided by the (Grosmann and Eckel, 2001) that women have the expectation of more risk averse by men. A significant differentiation found in gender that the lower risks are supported by the women when asked about their attitude about financial risk (Barskey et.al., 1997).

It is stated both in business and general literature that female prefer the lower risk taking whenever they make the decision (Estes and Hosseini, 1998; Stinerrock et al., 1991; Zinkhan and karande, 1991; Masters, 1989). According to (Sexton and Bowman, 1990) that female entrepreneurs having the low score of energy and risk level, while when they published the norms they have relatively high score. The evidence provided by the (Diskson, 1982) that founding of the lower preference of risk in the female is more whenever they facing the situations of losses than men and equal to the men whenever they are facing the gains.

H1: financial risk level has positive impact on the women financial decision making

b) Confidence level

By seeing the financial decision-making confidence level received much attention in empirical and analytical studies (Odean, 1999; Gervais and Odean, 2001, Daniel et. al., 1998). Bengtsson, et al (2004); Beyer and Bowden (1997) provided evidence in the overconfidence gender difference occurs through the numerous studies and in the men and women overconfidence is characteristics found in both but the less overconfidence are display by the women about financial decision than do men. Confidence level of the men and women depend on the uncertainty perceived and complexity of the task, can it her decrease or increase. In the life of the women whenever perceiving uncertainty is high then decreasing overconfidence and increase with the complexity of task Dittrich et al (2001).

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According to the Graham et al (2002) the reason behind the less overconfidence in the financial decision making of the women that is they are not like to involved in that issue which is related to financial matter and women mostly postpone the financial planning. An evidence of the earlier studies provided by the Lenney (1997) that according to the self-confidence the gender difference depend on the decided and clear feedback and in the stock of market feedback is ambiguous. The expectation is that women are to be less-confident than man regarding about their ability for the common stock investments decision making.

The powerful and simple justification for the trading which have high level on financial markets is argue by the conceptual factor that is overconfidence. The determination by the psychologist that causes of overconfidence is to underestimate their level of risks, overestimate their knowledge (Powell and Ansic, 1997). According to the Estes & Hosseini(1998) that the confidence impacts on investment decision. About financial decision the women are lower confidence after controlling for factor such as experience, age, education, knowledge, and asset holding. According to the Stinerock et al. (1991) women become more nerves when they make the financial decision and select the option which have the lower degree of the risk also using the financial advertiser for achieving the strong desire. An evidence provided by j. Klayman et al (1999) that depending on the abilities, knowledge, and their future prospects human become overconfident.

H2: confident level has a negative impact on the women financial decision making

c) Traits

An Evidence is provided by the Powell and Ansic (1998) that uncertainty aversion are more in women than men irrespective of familiarity, costs or framing & sometime we conjecture result within experiments of risk as well as between ambiguity and risk experiments may cause by second traits that discriminate influence are found in men and women. It is described by the Jianakoplos and Bernasek (1998) that declining in the risk aversion by the women is due to increasing of the wealth & also originate those women aversion of risk related to wealth is not negatively. Also establish that leading the lower risky assets investment than risk free assets investment high risk aversion are found in the women as compare to the men . By seeing the earlier studies that women confident and risk aversion are less due to not clarification of difference and argue with the help of selectivity model that the biases of the gender behavior regarding investment . They further explain that men have less comprehensive about the information processing then women Graham, Stendard, Myers and Graham (2002). They also describe that facing the task which have the lower competency male are efficient regarding about the information processing while facing the high competency task women are more efficient in dealing Graham, Stendard, Myers and Graham(2002). According to the Beckerman and Menkhoff (2008) that women follow the less holistic process in information processing then men while on the other hand male not follow the detailed information processing system. Women having the authority of the finance managers face less risk aversion then man and regarding about her confidence level there is not any differentiation is found in the men and women. Female fund managing authority avoid the competition, however the gender differences reduce the financial expertise but does not whole decline it. An argument is provided by the w.G et al (1977) that women spend less time and money on the security analysis, rely more on their brokers, entering the less transaction, and also believe that the return will be less predictable, also with lower anticipated return than do man. So in this way women behave less overconfident in investment than do man. According to the j. Klayman et al (1999) that depending on the abilities, knowledge, and their future prospects human become overconfident but also involvement of their knowledge and judgments regarding about the financial decision making. However the confidence level exhibited by the women is different from the men investors. Barber and Odean (2001) say that a person who tradesmore has the more confident then individuals with the financial decision making.

All those investors who are rational trades the transaction costs are less than expected gain. The precision of information overestimate by the overconfident investor and so in this way they always the trading gain also when the net gain becomes negative according to the true expectation they may even trade (Berggren, J. and Gonzalez, R. (2010). In business decisions making the specific journalism on traits differences exist in management decision involving of risk and explain women are less violent. Wary less confident, lower quality of the leadership, easier to convince and problem solving abilities when making decision under risk compared to men, Johnson and Powell (1994). By study of the various traits in men and women we examine that attitudes and behavior against risk become vary and the freedom choice and financial decisions making (Bromiley and Curley 1992). In case of the specific context there should not explanation of gender difference as general traits. By depending on the numerical information male make the decision for the long time under the risk then the female, but by seeing the visual patterns, also consisting of view female made decision. Superior numerical and verbal skills of man and women are equal (Hudgens and Fatkin: 1995)

H3: Personality traits have positive impact on the women financial decision making

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d) Decision strategy

According to the Orasanu and Connolly (1993) that decision making process is a series of experience operations done with consciously, the elements that have role that is specific place and time. Narayan and Corcoran-Perry (1997) state that the decision making is interaction between a person who wishes to solve and a problem for need of solution with also specific environment &due to greater social sensitivity women are perceived as great social risk takers and able to handle social uncertainty (Hoffman, Kessler, Eppel, Rukavina, & Traue, 2010), these expressions are very briefly showed still (Hall & Matsumoto,2004).In the selection there is present of gender difference between several risky prospects but the less risky prospects are indicate by the women (eckal and Grossmann, 2001), but when asking the strategies and attitude towards financial risk, women report show lower risk strategies than men (Barsky et.al., 1997).

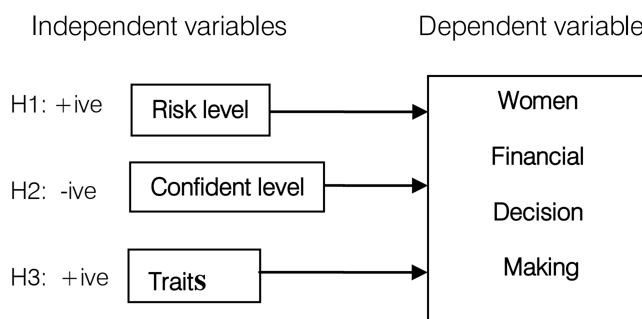
According to powell and Ansic (1998) that man have less uncertainty averse than women irrespective of familiarity, framing or costs and their strategies are different from the women, environment affect are more on the women in the decision making situation, women look for the more information, and dedicated more time to process of decision making ((Gill, Stockard, Johnson, & Williams, 1987).men are more dominant, assertive, objective and realistic in the decision strategies (Wood, 1990).Barber and odean (2001) say that a women who did more trade have more strategies of decision making agaist other who have not practices

VII. Methodology

Our research paper focus on the different aspect of women behavior in different organization, but our target population is private and public sector in the western Punjab (layyah, D. G. khan, Rajan Pur, Muzaffar Garh). The sample size of our research paper is 120 were distributed to get the response,but correct 100 questionnaires are received for putting of the data and all 100 respondent questionnaires are used for the analysis of the data. The development of the questionnaire consists of the 31 different types of the questions on different behavioral aspect of women, there are four variable in which one is the depended variable and three are the in-depended variable include (risk level; which consists on the 9 different types of the questions, confidence; which consists on the 9 different types of the questions , traits; which consists on the 7 different types of the question and the decision strategies; which consists on the 8 different types of the question). We use the data collection by the questionnaire at the spot filling, e-mail, posting, by source of friends to the different of the southern Punjab. For data analysis and interpretation we use the SPSS-16 and use the correlation and regression analysis

VIII. Theoretical Framework

Theoretical framework is actually a propose research model which shows the relationship among the independent and the dependent variables. In this theoretical framework risk level, confident level and traits are the independent variables and the women financial decision making is the dependent variable. This model also indicates hypothetical formulation among independent and the dependent variables.



IX. Result Analysis

To attain the research results the correlation analysis was done. The table below shows the different relationships among the dependent and dependent variables.

Correlation analysis

Table 1

		risk_level	confidence _level	Traits	women financial decision making
Risk _level	Pearson correlation	1			
	Sig. (2-tailed)				
	N	100			
Confidence _level	Pearson Correlation	.480**	1		
	Sig. (2-tailed)	.000			
	N	100	100		
Traits	Pearson Correlation	.244*	.546**	1	
	Sign.(2-tailed)	.014	.000		
	N	100	100		

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Women financial Decision making	Pearson Correlation	.763**	.898**	.438**	1
	Sig.(2-tailed)	.000	.000	.000	
	N	100	100	100	100

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

The correlation analysis values among variables Risk level, self-confidence, Traits and Decision strategies are given in above mention table 1. The significance value ranges from 0.05 to 0.01. The correlation results are analyzed according to formulation of hypothesis.

H1: financial risk level has positive impact on the women financial decision making

The correlation results according to table 1 show that there is positive significant relationship between financial risk and financial decision making. The correlation values are 0.763** at p= 0.000. This research result also satisfied the research hypothesis that financial risk level has positive impact on the women financial decision making.

H2: confident level has a negative impact on the women financial decision making

The correlation value 0. 898** at p= 0.000 clearly defines that there is positive significant relationship between confident level and women financial decision making. The research result regarding the impact of confidence level on women financial decision making does not satisfy the proposed research hypothesis which is as confident level has a negative impact on the women financial decision making.

H3: Personality traits have positive impact on the women financial decision making

There is positive significant correlation between personality traits and women financial decision making, as it is indicated by correlation result which is 0. 438 ** at p= 0.000 mention in table 1. This result also satisfies the research hypothesis which is Personality traits have positive impact on the women financial decision making.

X. Conclusion and Recommendations

To research the women behavior on financial decision making is quit new area of research in the field of economics and finance. This research is at very early stage so lot of work remains to be done in future. Till dated no research has given very clear understanding regarding the women behavior on financial decision making. So this research will contribute for mangers and policy makers to motivate and create such strategies to improve the financial and economic outcome of women. This research showed that only confidence level is the factor which is disturbing the women in financial decision making as research proposed hypothesis was not satisfied with the resulted outcome. The managers and policy makers must take into account this factor while making the strategies. The other two factors like Personality Traits and Financial risk are quit suitable showed helpful positive relationship in this particular geographic and demographic environment. The research limitations are small geographic area and small sample size. The future researchers can include more geographic area and large sample size and can study more thoroughly and therefore the research results and discussion may vary.

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Does Adam Smith's Invisible Hand Work for Financial Markets: Comments

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Abstract- Adam Smith theory of the Invisible Hand is fundamentally flawed. The neoclassical theory based on it relies on market models in which economic agents interact with the market forces that are not governed by Universal Law of Nature; such models ignore correlations that lead to booms and depressions. To prove rigorous theorems financial economists also assume that market fluctuations follow a certain statistical distribution a la a thermodynamic equilibrium approach. Do they really score a major breakthrough? No - the dominant 'equilibrium principle' of the market is only a hope, not a reality: It lacks proper empirical underpinning. Statistics and mathematics do not help.

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Does Adam Smith's Invisible Hand Work for Financial Markets: Comments

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Abstract- Adam Smith theory of the Invisible Hand is fundamentally flawed. The neoclassical theory based on it relies on market models in which economic agents interact with the market forces that are not governed by Universal Law of Nature; such models ignore correlations that lead to booms and depressions. To prove rigorous theorems financial economists also assume that market fluctuations follow a certain statistical distribution a la a thermodynamic equilibrium approach. Do they really score a major breakthrough? No - the dominant 'equilibrium principle' of the market is only a hope, not a reality: It lacks proper empirical underpinning. Statistics and mathematics do not help.

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I. Adam Smith and The Dynamics of Markets

The idea of Adam Smith's invisible hand is to assume that markets are described by stable equilibria. Standard economic theory and standard finance theory have entirely different origins and show very little, if any, theoretical overlap. The former, with no empirical basis for its postulates, is based on the idea of equilibrium, whereas finance theory is motivated by, and deals from the start with, empirical data and modeling via non equilibrium stochastic dynamics[1]. There are only a very few known relations in statistical dynamics that are valid for systems driven arbitrarily far-from-equilibrium. One of these is the fluctuation theorem, which places conditions on the entropy production probability distribution of nonequilibrium systems. Another which is recently discovered and which is far from an equilibrium expression relates, as in physics, nonequilibrium measurements of the work done on a system to equilibrium free energy differences.

In thermodynamics physicists define the empirical temperature t of an equilibrium system with energy E and volume V where for any of n mentally constructed subsystem of the equilibrium system we have

$$t = f\ (E_1, V_1) = f\ (E_n\ V_n) \tag{1}$$

This condition, applied to system in thermal contact with each other, reflects the historic origin of the need for an extra, nonmechanical variable called temperature. In thermodynamics, instead of temperature, one can as well take any other intensive variable, for example, pressure or chemical potential. The financial analog of equilibrium would then be the absence of arbitrage possibilities, that there is only one price of an asset

$$p = f\ (\phi_1, \psi_1) = f\ (\phi_n, \psi_n) \tag{2}$$

This is the neoclassical condition that would follow from utility maximization. Starting from neoclassical condition, Smith and Foley (2002) have proposed a thermodynamic interpretation of $p = f\ (z)$ based on utility maximization. In their discussion a quantity labeled as 'entropy' is formally defined in terms of utility maximization but the quantity so-defined can't represent disorder / uncertainty because there is no liquidity, no analog of the heat bath, in neoclassical equilibrium theory. The 'bounded rationality models' in macroeconomics attempts to define the absolute value of money and is motivated by the fact that a standard neo classical economy is a barter economy, where p is merely a label as described in Beinhocker (2006)

In statistical mechanics, Boltzmann was the first to give a statistical or a probabilistic definition of entropy. Boltzmann entropy is defined for a macroscopic state of a system while entropy which is even more popular - Gibbs entropy - is also defined over an ensemble that is over the probability distribution of macro states. Both Boltzmann and Gibbs entropies are, in fact, the pillars of the foundation of statistical mechanics and are the basis of all the entropy concepts in modern physics. A lot of work on the mathematical analysis and practical applications of both Boltzmann and Gibbs entropies was done, yet the subject is not

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[1] Experts teach standard finance theory as if it would merely a subset of abstract theory of stochastic processes. There lognormal pricing of assets combined with 'implied volatility' is taken as the standard model. The 'implied volatility is not always required when using the lognormal distribution because empirical volatility can be deduced from the observed market distribution. Explicit tests for non-linearity and dependence (Kaplan tests) also give very unstable results in that both acceptance and strong rejection can be found in different realizations of our model. All in all, this behavior is very similar to experience collected with empirical data and our results may point towards an explanation of why robustness of inference in this area is low. However, when testing for dependence in second moments and estimating GARCH models, the results appear much more robust and the chosen GARCH specification closely resembles the typical outcome of empirical studies.

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closed, and still is open awaiting a lot of work on their characterization, interpretation, and generalization in physics and other areas.

II. Boltzman H – can it be Applied to Invisible Hand

Physicists consider a monotonic fluid of N particles. The ensemble is defined by the N – particle distribution

$$W_N\ (\ x_1, p_1; x_2, p_2 ....; x_N, p_N ; t\ ) \tag{3}$$

which gives the probability density function in the full space phase of the system. The Gibbs H is then

$$H_G \ = \int W_N \ \ log\, W_N d\,\tau \tag{4}$$

and the corresponding Boltzman H is

$$H_B \ = \ N \int W_1 \ log\, W_1\, d\,\tau_1 \tag{5}$$

where $W_1\,(\mathrm{x}_1, p_1, ; t\ )$ is the single particle probability density

$$W_1\ (\ x_1, p\ ;\ t\ ) = \int W_N \,\mathrm{d}\,\tau_{-1} \tag{6}$$

The basic inequality of the Gibbs and Boltzman *H* in physics function was, as shown in Jaynes (1985), mathematically correct. But it is thought that, in consequence of the 'laws of large systems' the difference between them would be practically negligible in the limit of the large system. Past attempts to demonstrate the second law (of thermodynamics) other than gases have generally tried to retain the basic idea of the Boltzman *H* theorem. Since Gibbs *H* is operationally consistent, one has resorted to some kind of coarse-graining operation, resulting in a new quantity *H*, which tends to decrease. Such attempts can't achieve their purpose, because, mathematically, the decrease in *H* is due only to the artificial coarse-graining and it can't therefore have any physical significance. To illustrate we need the following theorem:

Theorem 1

The Gibbs and Boltzman functions[2] satisfy the inequality

$$H_B \qquad H_G \tag{7}$$

with equality if and only if W_N factors almost everywhere into a product of single particle functions

$$W_N = (\ 1\ .\ N\ ) = W_1(\ 1\ .\ W_N(\ N\ ) \tag{8}$$

There is a relationship between Gibbs-Boltzman function and the entropy. In equilibrium in finance it is required that the total excess demand for an asset vanishes on the average. Correspondingly, the average asset price is constant. One may then turn to statistics for a more widely applicable of equilibrium, the idea of statistical equilibrium[3]. In this case we see that the vanishing of excess demand on the average is a necessary but not sufficient condition for equilibrium. As Boltzman and Gibbs (see Rasmussen et al (2006) have shown, entropy measures disorder. Lower entropy means more order, higher entropy means less order. The idea is that disorder is more probable than order, so low entropy corresponds to less probable states. Given any probability distribution we can write down the formula for entropy of the disturbance. Therefore a very general course-grained approach to the idea of stability in the theory of statistical process would be to study the entropy ala Boltzman and Gibbs[4].

$$S\,(\mathrm{t}) = \int_{-\infty}^{\infty} (\ x, t\ )\, In\, f\,(\ x,, t\ )\, d\, x \tag{9}$$

The idea is that disorder is more probable than order, so low entropy (the right hand side of the equation (3) corresponds to less probable states. The equation (3) is cited here to illustrate the notion that statistical equilibrium is the notion of maximum disorder under a given set of constraints. Let W denote the number of ways to get m heads and $n - m$ tails with n coins. The former state is much more probable because there are many different ways to achieve it. $W = n!\,/\,(n/2)!\,(n/2)!$ Where $n! = n\,(n\text{-}1)\,(n\text{-}2)\,.\,.\,.\,.\,(2)\,(1)$. In the latter case there is only one way to get all heads showing $W = 1$. Using Boltzman formula for entropy $S = In\ W$, then the disordered state has entropy S on the order of n in $log\ 2$ while the ordered state has $S = In\ 1 = 0$. The equation (1) shows that the entropy $S\,(t)$ can never

[2] The theorem holds for any symmetrical function. The magnitude of the difference between H_G and H_B depend on the distribution function. As soon as we understand between Gibbs-Boltzman functions and entropy, it is immediately obvious that this is precisely the dynamical property we need.

[3] As McCauley [4] emphasizes, though, in his Machine Dreams, the advent of physicists working in large numbers in finance coincided with the reduction in physics funding after the collapse of the USSR. What Mirowski does not emphasize is that it also coincides with a time lag of roughly a decade, with the advent of the Black- Scholes theory of options pricing.

[4] Statistical Mechanics is a grandiose theoretical construction whose founding fathers include the great names of. Maxwell, Boltzmann and Gibbs . We may recall that it is fundamental for the study of condensed matter, which could be said to be statistical mechanics by antonomasia. Therefore statistical mechanics can be considered the science mother of the present day advanced technology, which is the base of our sophisticated contemporary civilization. Its application to the case of systems in equilibrium proceeded rapidly and with exceptional success: equilibrium statistical mechanics gave - starting from the microscopic level - foundations to Thermostatics, its original objective, and the possibility to build a Response Function Theory. Applications to nonequilibrium systems began, mainly, with the case of local equilibrium in the linear regime following the pioneering work of Lars Onsager (see, for example, Casimir (1945) .

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reach a maximum because f, which is approximately exponential in returns x, spreads without limit.

Now, in finance, consider returns distribution (P, x) with density $f(x, t) = dP / dt$. If the entropy increases toward a constant limit, independent of time t, and remains there then the system will have reached statistical equilibrium, a state of maximum disorder[5]. In this case one can see that the vanishing of excess demand on the average is a necessary but not sufficient condition for equilibrium. If entropy approaches a maximum the equilibrium requires that f approaches a limiting distribution $f_0(x)$ that is time independent as t increases. Such a density is called an equilibrium density. If, on the other hand the entropy increases without bound, as in diffusion with no bounds on returns as in (3), then the stochastic process is unstable in the sense that there is no statistical equilibrium. Instead of using the entropy directly we might as well discuss our course-grained idea of equilibrium and stability in terms of the probability distribution, which determines the entropy.

The stability condition is that the moments of the distribution are bounded and become the time independent at large times. This is usually the same as requiring that f approaches a t - independent limit f_0.

The pair correlation function

$$R(\Delta t) = \sigma^2 e^{2\beta \Delta t} \tag{10}$$

arises from the process

$$dv = -\beta v\, dt + \sqrt{d(v,t)}\, dB(t) \tag{11}$$ [6]

with the diffusion coefficient given by $d = \beta(v^2) =$ constant. In statistical physics v is the velocity of a Brownian particle[7] and the equation (5) for this model describes the approach of an initially non equilibrium velocity distributions to the Maxwellian one as time increases. The relaxation time for establishing equilibrium $r = 1/2\beta$ is the time required for correlations. If we could model market data so simply with v representing the price p, then the existing force -βp with $\beta \geq 0$ would provide us with a simple model of Adam Smith's stabilizing invisible hand. The time required for establishing equilibrium $\tau = 1/2\beta$ is the time required for correlations (5) to decay significantly and for the entropy to reach a stable value[8]. That stability can't be guaranteed by a restoring force alone can be shown by the example of a lognormal price model where

$$dp = r\, p dt + \sigma\, p\, dB \tag{12}$$

If we restrict to the case where $r < 0$ then we have exactly the same restoring force (linear function) as in (6).

The absence of entropy representing a disorder in neoclassical equilibrium theory can be contrasted with thermodynamics in the following way; for assets in a market let us define efficiency as:

$$e = min\left(\frac{D}{S} \quad \frac{S}{D}\right) \tag{13}$$

Where S and D *are* net supply and net demand for some asset in that market that market. In neoclassical equilibrium the efficiency is 100%, $e = 1$, whereas the second law of thermodynamics via the heat bath prevents 100 % efficiency in any thermodynamic machine. That is, the neoclassical market equilibrium condition $e = 1$ is not a thermodynamic efficiency unless we would be able to interpret it as the zero temperature result of an unknown thermodynamic theory (100% efficiency of a machine is thermodynamically possible only at zero absolute temperature). In stark contrast, the neoclassical economists assume an unphysical equivalent of a hypothetical economy made up of Maxwellian demon like agents who can systematically cheat the second law perfectly.

Let's see some more details; The Gaussian and lognormal distribution (related by a coordinate transformation) form the basis for standard finance theory. The exponential distribution forms the basis for many of the empirical approaches in finance and economics. Suppose that $x = ln(p(t+\Delta t) / p(t)$ If the probability density f is Gaussian in returns x then we have a lognormal distribution, with a prediction of a correspondingly small probability for 'large events' (large price differences over a time interval Δt). If however, the returns distribution is exponential then we have fat tails in the variable $y = p(t + \Delta t) / p(t)$ with density $g(y) = f(x)\, dx/dy$ with scaling components. The exponential distribution plays a special role in the

[5] One can say the same about children and their clothing: in the book Machine absence of effective rules of order the clothing will be scattered all over the floor (higher entropy). But then the mother arrives and arranges everything nearly in the shelves, attaining lower entropy. 'Mama' is analogous to a macroscopic version of Maxwell's famous Demon,

[6] See Das (2013)

[7] If we could model market data so simply with v representing the price p then the restoring force βp with $\beta > 0$ would provide us with a simple model of Adam Smith's stabilizing Invisible hand.

[8] The equilibrium solution of the lognormal Wax process, equation (3) expressed in returns $x =$ ln p/p_0 can be written as $f(x) = C e^{-2rx/\sigma^2}$; The time dependent lognormal distribution, the Green function of the Wax equation (3) does not approach this limit as $t \to \infty$. Negative returns $r = -k < 0$ are equivalent to a Brownian particle in a quadratic potential $U(p) = k p^2/2$ but the p- dependent diffusion coefficient delocalizes the particle. This appears non intuitive, though.

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theory of financial data for small to moderate returns. In that case we will find that all exponents depend on the time lag Δt. That is, the distribution that describes financial data is not a stationary one but depends on time. More generally, any price distribution that is asymptotically fat in the price $g(p) \approx p^{-\mu}$ is asymptotically exponential in returns $f(x) \approx e^{-\mu x}$

Fait tails mean that big price swings occur with appreciable probability. Big price swings mean that an appreciable fraction of agents in the market are trading in extreme prices. If you buy at the low and sell at the high end then you could make money but this amount to outguessing the market, a task that the Efficient Market Hypothesis (EMH) believers in finance declare to be systematically impossible. The most current statement of the EMH is that there are no patterns / correlations in the market that can be exploited for profit as shown in Fama and French (2007). The difficulty in trying to beat the market is that all you do is to compare stock prices, and then you are primarily looking at the noise. The EMH is approximately correct in this respect. But then Warren Buffet does not look only at prices. The empirical market distribution of returns is observed to peak at the current expected return, calculated from initial investment time *t* but the current expected return is hard to extract accurately from empirical data and also presents us with a very lively moving target: it can change from time to time to time and can also exhibit big swings.

III. Adam Smith in Even with Conventionalstatistics

We cannot use mathematics and conventional statistics systematically to explain why America collapsed financially after following the advice of neo classical economists regarding deregulation and opening up of markets to external investment and control[9]. We cannot use the standard financial theory to explain mathematically why Enron and WCom and the others collapsed. Such extreme events are ruled out from the start by assuming equilibrium in the standard theory of financial markets and option prices based on expectations of small fluctuations. One cannot have both completely unregulated markets and stability at the same time; the two conditions are apparently incompatible. Equilibrium of financial markets is just impossible with a diffusion coefficient assumed constant (eq.5). In particular, even the Central Limit Theorem cannot be used to derive a Gaussian without the assumption of local invariance principles. Because the local invariances form the theoretical basis for repeatable identical experiments whose results can be reproduced by different observers independently of where and at what time the observations are made[10].

Adam Smith and his contemporaries believed without proof that there must be laws of economics that regulate supply and demand analogous to the way that the laws of mechanics govern the motion of a ball. Maybe Smith did not anticipate that an unregulated financial market can develop big price swings where supply and demand cannot come close to matching each other. The idea that 'the market knows best' is a neoclassical assumption based on the implicit belief that an invisible hand stabilizes the market and always swings it toward equilibrium. The only information provided by the market is about the value of an asset is its current market price and no other information is available. But how can the market 'know best' if no other information is available? Or, even worse, if it consists mainly of noise as described by a Markov process?

Contrary to the early random walk literature, a number of studies have found evidence of positive autocorrelation in security returns over weekly and monthly time horizons; and second there is an indication of negative serial correlation in longer horizon returns over periods of several years. Despite several researchers' claims of large arbitrage opportunities from

[9] So far in deregulated electricity and water markets there is no evidence that the lowering of consumer costs outweighs the risk of having firms play games trying to make big wins by trading options on those services. The negative effects on consumers in California and Buenos Aires do not argue in favor of deregulation of electricity and water

[10] Start with the convolution of individual distributions

$$P(x) = \int \ldots \int dp_1(x_1) \ldots dp_n(x_n)$$

$$\delta\left(x - \sum x_k / \sqrt{n}\right) \quad (9a)$$

subject to the constraint $$x = \frac{1}{\sqrt{n}} \sum_{i=1}^{n} x_k \quad (9b)$$

Using the Fourier transform representation of the delta function yields

$$\phi(k) = \prod_{i=1}^{N} \phi_1(k/\sqrt{n}) \quad (9c)$$

Where ϕ_k is the characteristic function of p_k and provides a way to derive the Central Limit Theorem (CLT), To show the limitation of CLT, consider the asymmetric exponential density

$$f_1(x) = \theta(x)\alpha e^{-\alpha x} \quad (9d)$$

Using (5) & (6) yields the density $f(x, N) =$

$$\phi(x)\alpha \frac{x^{N-1} e^{-\alpha x}}{(N-1)} \quad (9e)$$

Clearly, this distribution is never Gaussian for either arbitrary or large values of x. Since the most probable and mean values approximate each other for large N, we see that CLT will asymptotically describe *small* fluctuations about the mean. However, the CLT does not describe the fluctuation of very small or very large values of x correctly for any value of N.

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exploiting the autocorrelation in short-term returns, it is doubtful whether any abnormal returns remain after accounting for the trading spreads, commissions and other costs involved in pursuing this kind of short-term momentum strategy. Longer term mispricing, however, could constitute a more serious violation of market efficiency as seen in Jovanovic and Schinckus (2013).

The research on time series dependencies in returns which has had the largest impact, at least with practitioners, is the study by DeBondt and Thaler(1985). They look at returns over longer horizons, finding that stocks which have underperformed the most over a three- to five-year period average the highest market-adjusted returns over the subsequent period, and vice versa. They explain this pattern of return reversal as an overreaction in the market in which stock prices diverge from fundamental value. DeBondt and Thaler have observed a similar phenomenon, arguing that such price behavior is consistent with positive feedback trading. Whether these longer horizon patterns of mean reversion really exist is a matter of controversy, since sub period results suggest that the patterns observed by many are not all that robust over time. Time-varying expected returns could also explain these patterns, without requiring us to assume that prices deviate from fundamental value over extended intervals. Nevertheless, there is a growing literature that seeks explain observations such as these in terms of the sentim0ent of non-rational noise traders[11].

The financial market is complex in that the empirical distribution is not fixed once and for all by any law of nature. Rather, it is also subject to change with agents' collective behavior, but the time scale of entire distribution to change in functional form can be much greater than the time scale for changes in the expected return. The only empirical method for estimating the expected returns is to assume that the future will be like the past, which ignores complexity altogether. Here clearly we are not referring to the ever present diffusion that broadens a given distribution but about a sudden change, for example, as from Gaussian to exponential returns, or from exponential to some other distribution.

From our experience in nonlinear dynamics we know that our simple looking local equations of motion can generate chaotic and even computationally complex solutions. They are concerned with the procedural aspects of attaining market equilibria in a decentralized setting and argue that principles on the complexity of feasible computation should rule in or out widely held models. Researchers applying microscopic simulations in economics and finance were interested in explaining the *sudden* drop in the U.S. stock market. The interest was mainly in question of efficiency and stability of different forms of market organizations and regulation as well as the impact of introducing computer-assisted trading. Interestingly, the microstructure literature later moved on to other questions, namely, analysis of asymmetric information models to be tackled in a rigorous statistical manner. Of course, it was only a matter of time until financial models became so complicated that they could not be solved analytically and had to be supported by numerical analysis[12].

An important subsequent variation is financial modeling by De Granwe *et al* (1993) is perhaps a more elaborate dynamics that led to chaotic behavior of exchange rates. In particular, chaotic dynamics derived from the interaction of agents with different prediction functions for future price movements are the topic of a comprehensive research project on some new 'adaptive belief systems' starting with the work of Brock and Hommes (1997), Kozhikade, (2013).

IV. Conclusion

The financial theories ignore the fact that there is no evidence from market data to support the notion of Adam Smith's stabilizing Invisible Hand that forms the theoretical basis of the neoclassical equilibrium market model. Because of the lack of socioeconomic laws of nature and because of the nonuniqueness in explaining statistical data, we have more difficulties than in thermo dynamics and natural sciences. We should try to replace the standard arguments about equilibrium with some empirically based non equilibrium dynamic models. Parenthetically, some policy assessment could be made in this connection on the extent to which modern complex systems theory can be applied to markets. Certainly, this may constitute a paradigm shift from the mainstream policy analysis. This might need to study computer simulations to gain insight into policy dynamics, and avoid the assumption that the economy is a system in equilibrium. This avoids assumptions of any representative agent model, which attributes outcomes in a collective system as a simple sum of the rational actions of individuals.

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[11]General financial equilibrium problem is expected to be large-scale in practice, since one may wish to disaggregate sectors and instruments as finely as required. Hence, some recent work, for example, the one by Nagurney (2002) proposing a decomposition algorithm that resolves such large-scale problems into simpler sub problems is especially appealing. Towards this end, Nagurney proposed a variational inequality decomposition algorithm, based on the modified projection method, which not only can be solved using quilibration algorithms but can also be implemented on parallel architectures.

[12] Luckily, Bayesian learning methods allowed large classes of asymmetric information to be tackled in vigorous statistical models. Market microstructure theory' provides only theoretical work and lacks any reference to microscopic simulations.

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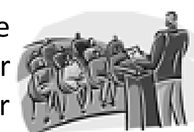

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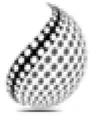

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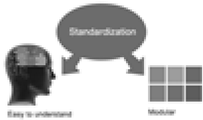

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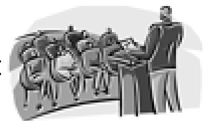

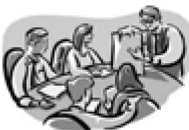

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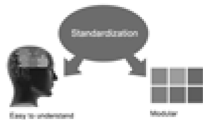

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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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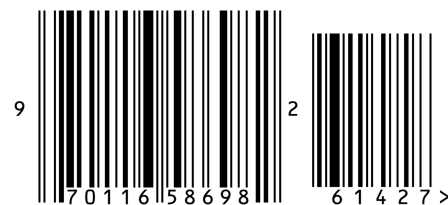

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