Impact of Behavioural Biases on Working Capital Management of Manaufactring Sector of Pakistan: A Non Parametric Investigation Approach

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Abstract
The current study aims to investigate the relationship of overconfidence bias, loss aversion bias, self-serving bias and anchoring bias with working capital management. The study used questionnaire and acquired primary data from the companies of manufacturing sector of Pakistan, are selected as sample of the study. The study used connivance sampling technique for data acquisition. Moreover, descriptive statistics are applied by using item wise technique and non-parametric techniques are also applied that supported results with historic investigations and have found significant relationship of biases with working capital management.
Keywords: Biases, Working Capital Management, Non Parametric, Questionnaire, Manufacturing Sector.

INTRODUCTION

Behavioral finance is the study that deals with irrational attitude and cognition of the financial stakeholders regarding financial decisions. And it is the combination of conventional finance with psychological theories. However, it become the plethora of behavioral finance that elaborates how modern finance is working and is affected by investors decisions

The idea of behavioral finance became popular in 1990. And it is started to analyze investor decision in the kind of market returns and stock price shuffulement. Therefore, cognitive factors and individual attitude are viewed as influencing factors to originate change in market price from their fundamental value. However, various studies have found significant results of investor attitude towards decision making. Moreover, it is commonly understood that humans are investor's, money exchangers, brokers, financial analysts and working capital managers have developed principles of all financial domains including corporate and strategic finance domain.

The strategic and corporate fiancé focuses on investing, financing and risk management decisions. Thus, these are considered as key responsibilities of finance managers. Whereas, finance mangers controls other financial matters including working capital management as well. It is also observed that various international companies considered importance of working capital and appointed the working capital managers specifically.

Thus, it has shown strong harmony among corporate finance and behavioral finance domain. And these both paradigms are formally observed jointly by few researchers now days. As Ramiah et al. (2014) has recently observed working capital managers biases impact on working capital management and have found significant results by using prospect theory.

Therefore, objective of the current study is to explore the nature of relationship of overconfidence bias, loss aversion bias, self-serving bias and anchoring bias with working capital management. Moreover, such nature of relationship of two different paradigms is less investigated specifically in Asian context regarding working capital management through primary data. Therefore, objective of the study is also to cover the gap by incorporating such relationship in Pakistani context through scales as well.

The study will reveal importance of working capital management in the cognitive eyes of Pakistani corporate managers. And such study has key implications regarding theorists and corporate practitioners including researchers. Moreover, study will reveal the new link of literature for behavioral finance scholars and will provide new gaps for investigations.

The scheme of the paper is that section two explains literature review and comprehends hypothesis of the study, section three explains the methodology of the study, section four elaborates the results and analyses section and section four concludes the study findings.

2. LITRATURE REVIEW

A corporate manager behaves more confidently than normal levels are pronounced as overconfident and such causes more hurdles in business. In other words overconfidence is an unwarranted faith on some other ability,

personality, judgment, cognitive ability specifically regarding decision making. Peitarinen, (2014). Farsi et al., (2014) argued that overconfidence behavior is a phenomenon that leads business managers towards unprepared decisions, ultimately a financial collapse.

Such financial collapses are also leaded by other behaviors like self –serving bias. It is behavioral error where an individual poses him/her on a favorable side when negative outcomes are originated. Such behavioral errors are posed by social errors some time (McCullogh and Willoughby, 2009). Therefore, self-serving bias phenomena is found significant with various kind of decision making because of its behavioral aspect in nature (McAllister, 1996).

Such self-serving behavior experiences an individual working in financial plethora and he/she moves pessimistically in future trading's and decision making. Such risk averse approach leads and traps individual in a behavior named as loss aversion behavior. Loss aversion bias is a behavior where individuals or groups strongly behave to risk aversion in context to loss aversion. Such loss aversion is fully supported by prospect theory (Genesove and Mayer, 2001). While, Chen & Davis (2014) concluded in their study that in both streams individuals commonly behaves loss averse and it is self—acquainted more than learned. Moreover & Rafuse (1996) have found significant results of loss aversion by using the rational choice theory with decision making.

In normal cases such decisions are originated by individuals past experience named as anchoring bias. Thus, anchored bias is the behavior where individuals rely on the past information and experience named as anchored behavior. Champbell & Sharp (2009) has found significant results in their study regarding anchored behavior with decision making by dividing anchored behavior into two categories. Moreover, Yang, Zhang & Zhou, (2012) have found similar results in their study.

The current study aims to investigate such behavioral biases impact on working capital management. The amount of funds that is planned and budgeted to meet current operations is named as working capital management. Such working capital is planned by corporate financial managers or working capital managers by their decisions and such decisions are normally trapped by such biased behaviors that are explained above. Therefore, Glaser & Weber, (2007) argued that such all psychological errors shuffles and imbalance financial and economic matters by self-esteem and self-behavior including working capital management. Sindhu & Waris, (2014) supported that such behavioral biases are directly correlated with decisions and stock market trading in Pakistan. Thus, Ramiah et al., (2014) also supported this argument and concluded that these behavioral biases are strongly correlated with working capital management. So the study hypotheses are,

H1: There is positive relationship between overconfidence bias and working capital management
H2: There is positive relationship between loss aversion bias and working capital management
H3: There is positive relationship between anchoring bias and working capital management
H4: There is positive relationship self-serving bias and working capital management

3. RESEARCH METHODOLOGY

The current study aims to investigate the relationship among behavioral heuristics and working capital management. Thus, the population of the study is listed business sectors of Pakistan listed at Karachi Stock Exchange (K.S.E). While, sample of the study is manufacturing sector of Pakistan that consist of various sub sectors. The current study has acquired data from a brief questionnaire adopted by the study of Ramiah et al., (2012). The questionnaire is distributed to 420 companies listed in manufacturing sector and 154 questionnaires are received by respondents. Thus, 114 questionnaires are reported for analyses because 40 questionnaires are found incomplete.

The current study is designed as survey based, exploratory and descriptive in nature. It is exploratory since it aims to investigate the relationship among biases and working capital management. It is descriptive in nature since it aims to have clear and reliable information from key finance managers in Pakistan. Moreover, current study applied the descriptive and applied non parametric tests to find the results among target variables. Thus the sector representation of the data of manufacturing sector of is as follows,

Sector Name	Sector Representation
Beverages Sector	03
Chemical Sector	24
Electricity Sector	13
Electronics Goods	03
Engineering Sector	08
Forestry Sector	04
Health Care Equipment's Sector	02
Household Goods Sector	10
Industrial Metals Sector	10
Industrial Transport Sector	04
Pharm & Bio Tech Sector	09
Tobacco Sector	03
Food Producers	21
Total Representation Percentage	114

4. RESULTS & ANAYLISES
Descriptive Analyses

Table 4.1

(Overconfidence Bias)

	N	Minimum	Maximum	Mean	Std. Deviation
OB1	114	01	05	1.3860	0.79276
OB2	114	01	05	1.2895	0.68774
OB3	114	01	05	2.0526	1.61213

In item wise descriptive statistics each variable of the study is explained on the base of their scales items. Two categories of the scale lies in current study questionnaire i-e main question and sub question (Item/ Part of question). These both domains are used separately to acquire data by respondents and are also tested separately.

In table 4.1 descriptive statistics of overconfidence bias are tabulated. In table valid sample size consist of 114 respondents. The descriptive statistics of this variable are tabulated question/item wise. And overconfidence bias has three questions i-e. OB1, OB2, 0B3 respectively. Thus, the mean value of OB1 is1.3860, OB2 is 1.2895 and OB3 is 2.0526. Moreover, value of standard deviation of OB1 is 0.79276, OB2 is 0.68774 and OB3 is 1.61213.

Table 4.2

(Loss aversion Bias)

	N	Minimum	Maximum	Mean	Std. Deviation
LAB1A	114	01	05	3.3246	1.81681
LAB1B	114	01	05	1.5439	1.23475

The table 4.2 explains the item wise descriptive statistics of loss aversion bias (LAB). The loss aversion bias consists of one question that has two parts (A) and (B). Thus, the mean value of question one (A) part is 3.3246 and the (B) part is 1.5439. Moreover, the standard deviation value of (A) part is 1.81681 and the (B) part is 1.23475 respectively.

Table 4.3

(Anchoring Bias)

	N	Minimum	Maximum	Mean	Std. Deviation
AB1	114	01	05	1.4211	1.01227
AB2	114	01	05	2.2281	1.41443
AB3	114	01	05	3.5614	1.35042
AB4	114	01	05	3.1579	1.58856

The table 4.3 explains descriptive values of anchoring bias. Anchoring bias consists of four questions i-e. AB1, AB2, AB3, and AB4 respectively. Thus, the mean value of AB1 is 1.4211, AB2 is 2.2281, AB3 is 3.5614 and AB4 is 3.1579. Moreover, standard deviation value of AB1 is 1.01227, AB2 is 1.41443, AB3 is 1.35042 and AB4 is 1.58856 respectively.

Table 4.4
(Self Serving Bias)

	N	Minimum	Maximum	Mean	Std. Deviation
SSB1A	114	01	05	1.5000	0.8647
SSB1B	114	01	05	1.7859	1.0765
SSB2A	114	01	05	1.4825	0.7897
SSB2B	114	01	05	1.1667	0.5472
SSB2C	114	01	05	1.3509	0.5817
SSB3A	114	01	05	1.9649	1.3497
SSB3B	114	01	05	2.1930	1.7743
SSB3C	114	01	05	2.1842	1.6051

The table 4.4 explains the descriptive stats of self-serving bias (SSB). Self-serving bias consists of three questions i-e. SSB1, SSB2 and SSB3. Question 01 (SSB1) consists of two parts like SSB1A and SSB1B. The question 02 consists of three parts SSB2A, SSB2B and SSB2C respectively. And question number three also consists of three items namely SSB3A, SSB3B and SSB3C respectively. Thus, mean value of SSB1A is 1.5000, SSB1B is 1.7859, SSB2A is 1.4825, SSB2B is 1.1667, SSB2C is 1.3509, SSB3A value is 1.9649, SSB3B value is 2.1930 and SSB3C value is 2.1842. Moreover, standard deviation value of SSB1A is 0.8647, SSB1B Value is 1.0765, SSB2A value is 0.7897, SSB2B value is 0.5472, SSB2C value is 0.5817 SSB3A value is 1.3497, SSB3B value is 1.7743, SSB3C value is 1.6051 respectively.

Table 4.5
(Working Capital Management)

	N	Minimum	Maximum	Mean	Std. Deviation
WCM1	114	01	06	2.2368	1.23591
WCM2	114	01	08	2.7368	1.77521
WCM3	114	01	08	2.8947	1.90653
WCM4	114	01	08	3.4211	1.68226
WCM5	114	01	10	3.3333	1.77329
WCM6	114	01	10	3.5000	2.41767

The table 4.5 tabulated the descriptive of working capital management. Working capital management is denominated as WCM and it consists of six questions. Thus, mean value of WCM1 is 2.2368 and standard deviation value is 1.23591. WCM2 mean value is 2.7368 and standard deviation value is 1.77521. The mean value of WCM3 is 2.8947 and standard deviation value is 1.90653. WCM4 mean value is 3.4211 and standard deviation value is 1.68226. WCM5 mean value is 3.3333 and standard deviation value is 1.77329. And WCM6 Mean value is 3.5000 and standard deviation value is 2.41767.

Exploratory Analysis

Table 4.6
(Overconfidence Bias)

Variable	Mean	Median	Mode	T	Low %	High %	Significance
OB1	1.3860	1.0000	1.00	18.666	1.2389	1.5331	.000
OB2	1.2895	1.0000	1.00	20.019	1.1619	1.4171	.000
OB3	2.0526	1.0000	1.00	13.549	1.7535	2.3518	.000

The table 4.6 revealed the results of overconfidence bias and overconfidence bias is explained by three respective questions OB1, OB2 and OB3 that are based on likert scale. Each factor of the scale is measured on 0-5. Here 01 and 02 are used as high percentage, 03 as neutral and 04 & 05 are measured as low percentage. Thus, T. test is used for the purpose to check rating is different from both percentage i-e. High and low or not. All questions are found significant at 0.95% confidence interval.

Thus, OB1 mean has 1.3860, OB2 mean has 1.2895, OB3 has mean value 2.0526 that is far greater than both questions mean value because of it cross nature of question with respect to question 01 (OB1) and question 02 (OB2). Median and mode values are similar of all questions. The t value is 18.666, 20.019 and 13.549 respectively. The t value of OB3 is less than both first questions because of its opposite nature of paradoxes. Moreover, response by respondents is prone as high in favor of overconfidence behavior. And comparatively percentages are high than low percentages as reported in table 01. Thus, results concluded that respondents are found as significantly overconfident.

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Table 4.6
(Loss Aversion Bias)

Variable	Mean	Median	Mode	T	Low %	High %	Significance
LAB1A	3.3246	4.0000	5.00	19.538	2.9874	3.6617	.000
LAB1B	1.5439	1.0000	1.00	13.350	1.3147	1.7730	.000

Loss aversion bias is measured and is reported by two parts of a similar question as reported in scale. Two parts of the questions are named as LAB1A & LAB1B respectively. In table 02 results are also obtained by comparing 1-2 and 4-5 factors with factor 03 – neutral factor. Thus, a result are prone as significant and lies more in high percentage as compare to low. The mean value of LAB1A is 3.3246 and LAB1B mean value is 1.5439. While, median values are 4.0000 and 1.0000 respectively. And there is similar change in the values of mode as 5.00 & 1.00 as like median and mean. So results concluded that corporate finance managers are also found as loss averse.

Table 4.7
(Anchoring Bias)

Variable	Mean	Median	Mode	T	Low %	High %	Significance
AB1	1.4211	1.0000	1.00	14.989	1.2332	1.6089	.000
AB2	2.2281	2.0000	1.00	16.819	1.9656	2.4905	.000
AB3	3.5614	4.0000	4.00	28.158	3.3108	3.8120	.000
AB4	3.1579	4.0000	4.00	21.225	2.8631	3.4527	.000

Anchored bias is measured by four representative questions AB1, AB2, AB3 & AB4 respectively. Thus, the paradox of anchored bias question is uniform. Therefore, mean and median and mode values are increasing gradually as per questions. Moreover, t test is applied to check in relationship deviation from neutral behavior. Results prone higher percentage figures as compare to low. Low percentage is denominated and coded as 4-5 combined and higher percentages is coded by combining 1-2. As results shown higher figures in percentage and significant as reported in table 03 it is concluded by results that finance managers are also anchored.

Table 4.8
(Self-Serving Bias)

Variable	Mean	Median	Mode	T	Low %	High %	Significance
SSB1A	1.5000	1.000	1.00	18.521	1.3395	1.6605	.000
SSB1B	1.7895	2.000	1.00	17.749	1.5897	1.9892	.000
SSB2A	1.4825	1.000	1.00	20.044	1.3359	1.6290	.000
SSB2B	1.1667	1.000	1.00	22.765	1.0651	1.2682	.000
SSB2C	1.3509	1.000	1.00	16.935	1.1928	1.5089	.000
SSB3A	1.9649	1.000	1.00	15.544	1.7145	2.2154	.000
SSB3B	2.1930	1.000	1.00	13.196	1.8637	2.5222	.000
SSB3C	2.1842	1.000	1.00	14.529	1.8864	2.4820	.000

Self-serving bias is measured and it reported by three questions i-e SSB1, SSB2 and SSB3 respectively. SSB1 contains on two parts (A) and (B). SSB2 contains on three parts (A), (B) and (C). And SSB3 contains on three parts (A), (B) and (C) respectively. The nature of questions paradox is similar and uniform in nature represented by mean that is gradually increasing. Median is variant but then similar in figures and mode is constant due to paradox nature. Thus, the higher values are prone in higher percentages as compare to low values in lower percentages and are statistically significant on the base on significance level at 0.95%. So the results concluded that self-serving behavior is found significant because finance managers of corporate sector are responding more as per factor and two i-e. Strongly Agree and Agree that represents their self-serving behavior.

Table 4.9
(Working Capital Management)

Variable	Mean	T	Lower %	Upper %	Significance
OB – WCM	0.55540	7.855	0.41513	0.69515	.000
LAB - WCM	0.30305	3.501	0.13157	0.45472	.001
AB – WCM	0.46094	7.297	0.33579	0.58609	.000
SSB - WCM	0.42721	6.269	0.29219	0.56223	.000

The table 4.9 explains the relationship of independent variables with dependent variable. The independent variables are overconfidence bias (OB), loss aversion bias (LAB), anchoring bias (AB) and self-

serving bias (SSB) and dependent variable is working capital management (WCM). Comparatively mean value is cyclical that moves up and down of independent variable with respect to dependent variable relation. It is because of nature of scale where overconfidence is measured by three questions, loss aversion bias is measured by two factors, self-serving bias has 09 factors and anchoring bias has four factors. Thus, variation of paradoxes produced vibrational mean values. Therefore, uniform variations are found in t. test values.

Thus, mean value of OB with working capital is 0.55540, LAB with working capital 0.30305 that become slightly low because of single factor, AB and WCM mean value is 0.46094 that rose up as compare to loss aversion bias because of multiple factors and SSB with working capital mean value is 0.42721 that also produced near to similar value as like anchoring bias mean. Thus, in current investigation study scale revealed pro-vital role in results section and data interpretation and has shuffled results dramatically.

Moreover, table 04 revealed significant relation of all independent variables with dependent variable. Because significance value of each value is found significant at 0.95% confidence interval. Moreover, comparatively sample of the study concluded that their response is found more biased than rationale response. Thus, upper percentages are indicating that 69.515% sample of study is agreed as overconfident that is higher than being disagreed i-e. 0.41513, loss aversion is 0.45472 that is greater than 0.13157 not being loss averse, sample is also more anchored comparatively from not being anchored because upper percentage is higher than lower (0.58609>0.33579) and finally sample is also prone as self-serving more because 0.56223 is greater than 0.29219 that represents as not being self -serving. Hence, study supported historic investigations and sample of the study is found biased as overconfidently, loss aversion, anchored and self-serving towards working capital selection, execution and during its management.

5. CONCLUSION

The study planned to investigate such relationship of biases with working capital management and have found significant results of anchoring bias, loss aversion bias, self-serving bias, and overconfidence bias with working capital management. The forecasted relationship is matched with observed relationship that there is positive relationship of biases with working capital management. Thus, all hypothesis of the study are accepted and study has supported historic findings.

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