Conservatism Bias and Carbon Finance: A Cross Sectorial Comparison
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Abstract
This research aims to identify conservatism bias and carbon finance in major sector of Pakistan’s economy. Three determinants/sectors have been kept in mind while completing this research, (Cement Sector, Fertilizer Sector & Textile Sector). Data is collected from questionnaires through 160 investors, producers and entrepreneurs respectively. The research not only provides dedicated information that how the conservatism bias is effected the carbon finance but also manifests competitive environment, highlighting various aspects related to conservatism bias and behavioral impact of investors in carbon finance. It emphasis importance of cement, fertilizer and textile with respect to conservatism bias in carbon finance and how various stakeholders can contribute towards this end.

Key words: Conservatism Bias, Carbon Finance, Cement, Fertilizer and Textile Sectors

INTRODUCTION
Environmental concerns in general, and issues regarding climate change in particular, are moving from the realm of corporate Environment, Health, and Safety (EH&S) personnel, into that of corporate financial strategy, which involves top management and government as well. The pace of this transformation has left few unaffected, from companies and cities managing their greenhouse gas emissions to equity and debt analysts paying close attention to climate liabilities along with physical concerns regarding the potential impacts of climate change patterns. Carbon finance explores the financial implications of living in a carbon constrained world a world in which emissions of carbon dioxide and other greenhouse gases carry a price. Thus, carbon finance represents the environmental finance, to explore financial risks & opportunities and helps to transferring environmental risk and achieving environmental objectives as well. This conveys a more inclusive meaning than the one adopted by the World Bank as “Carbon finance is the term applied to the resources provided to a project to purchase greenhouse gas emissions reductions (World Bank 2006)”. A variety of drivers influence the discipline of carbon finance, which in turn takes many forms. It is shaped by national and international regulations, which require producers and consumers to emit fewer greenhouse gases (GHGs), or to pay the price. Some of these regulations had their origin in an earlier piece of legislation designed to curb air pollution, conserve energy, and promote renewable energy. Others have been created by international agreements such as the Kyoto Protocol and the European Union Emission Trading Scheme. So, putting a price on greenhouse gas emissions will have a significant effect on country and company bottom lines. At the same time, government climate policies can do much to change behavior patterns and encourage markets to mitigate these issues. Corporations must be considered in analysts’ assessments of their effects on companies’ earnings, profitability, or return on capital invested.

For any company, its carbon exposure can be found in three levels of the value chain: -

a. Emissions from the company’s own operations.

b. Indirect emissions from the company’s supply chain, especially energy.

c. Emissions linked to the use of a company’s goods and services.

Climate change has become a salient issue, seen constantly in the headlines and discussed at the highest political level as evidenced by the 2005 G8 summit. It poses a major risk to the global economy, affecting the wealth of societies, the availability of resources, the price of energy, and the value of companies. Carbon risk management is expected to increasingly affect shareholder value, due to higher energy prices, restrictive GHG targets, and increased losses due to severe and adverse weather events. In this way, global warming has become the environmental issue that has the most potential to effect the profitability and in extreme cases the actual existence of a number of companies. Present Status and Future Prospects,” outlines concerns regarding increased levels of climate change, the opportunities for

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players and products to alleviate some of the potential impacts, and the role that carbon finance plays in this global phenomenon. Mostly people do not want to change or establish a change in very slow process because human mind is basically conservative. It cannot change quickly as it resists the change. For example if in past years outcome is sufficient no one will not be incorporate new terminology or innovation in particular segment. Similarly, carbon financing is suffering due to conservatism bias as the investors and entrepreneurs are hunted therefore, industrial sector of Pakistan which has huge potential for carbon finance losing billions of dollars.

LITERATURE REVIEW
Draper (2006) describes that the CDM has been successful in generating emissions reduction projects in several developing countries. It argues that there is potential for significantly increasing the contribution that the CDM and potential future carbon market mechanisms can make. Hall (2008) says that Carbon finance involves such factors as markets, institutions, products and services, etc. It is an important innovative mechanism for combating climate change. This article focuses on describes the concept of carbon finance and probes into the ways for China to develop carbon finance on the basis of the study of the present situation of the carbon finance market both at home and abroad. Gupta (2007) says that theoretical force of photography in capturing the tragic and to compare this with the position adopted by union carbide in accounting for the catastrophe. The rhetorical character of the ways in which the tragedy has been represented and the impact of the photographic image when set against the statement of account is considered. The image reminds one that one is dealing not only with figures and statements but also with life and death. Johnstone and Bell (2005) says that to explore the technological feasibility of achieving CO2 emission reductions in excess of 60% within the UK housing stock by the middle of this century. In order to investigate this issue, the paper describes the development of a selectively disaggregated physically based bottom-up energy and CO2 emission model of the UK housing stock. The overall conclusion from this work is that by the middle of this century it is technically possible, using currently available technology, to achieve the sorts of reductions in the CO2 emissions from the UK housing stock that are likely to be required to stabilize the atmospheric CO2 concentration and mitigate the effects of climate change. Settani and Emblemsvag (2009) described that uncertainty analysis within an environmentally extended input-output technological model of life cycle costing. The application of this approach will be illustrated with reference to the ceramic floor tiles manufacturing process. It has been shown, when referring to a vertically-integrated, multiproduct manufacturing process, how production and cost planning can be effectively and transparently integrated, also taking the product
usage stage into account. The uncertainty of parameters has been explicitly addressed to reflect business reality, thus reducing risk while aiding management to take informed actions. Khan and Yurt (2010) found that to understand how managers assess global sourcing risks across the entire supply chain and what actions they take to mitigate those risks. The study revealed that most companies do not have a structured supply chain risk management and mitigation system. Nevertheless they do use a number of informal approaches to cope with risk. The paper proposes that a multidisciplinary approach is required when dealing with global sourcing risks. It presents a classification of risks covering four categories: supply risk, process and control risks, environmental and sustainability risks, and demand risks. Parker and Guthrie (2010) found that the impact of globalization and “marketization” on business schools. Business academics have different strengths and weaknesses, different contributions to make. A one-size-fits-all approach only serves to alienate individuals either from commitment to their school or to the academic profession or both. Within a professional business school there is room for researchers, teachers, consultants and practitioners, and in combination. Strategic Directive (2009) intimated that as countries increasingly look to create lower carbon economies, there is no doubt that major challenges lie ahead. However, developing solutions to these challenges will also create massive business opportunities for low-carbon innovations and technology, with a recent study predicting that the global market for low carbon technologies could reach £2,000 billion per annum by 2030. The same study has also revealed that the UK may be in a relatively strong position to take advantage of this growing need for low carbon innovation. It highlights that many UK companies in this sector, especially small to medium sized enterprises (SMEs), are often seen as true innovators who are leading the way in the development of cutting edge technology, and points to the fact that the UK is second only to the USA in terms of attracting venture capital (VC) and private equity (PE) investment in low carbon technologies. Knyght, Kakabadse and Kouzban (2011) described that the serious limitations of neo-liberal capitalism and urge for a shift to socialized capital before further economic deterioration leads to a succession of global conflicts. The need to urgently shift to a new philosophy of capitalism is overwhelming. Emphasized is that capital needs to adopt a socialized identity and is supported by investment horizons of 30 years or more. It is argued that non-market (e.g. state, NGOs, civil society) intervention is critical in setting appropriate frameworks within which socialized capital can operate. Jones et al (2009) concluded that a preliminary exploration of the corporate social responsibility (CSR) issues being addressed and reported by the UK’s top ten property investment companies. The findings reveal that substantial variations in the nature and the extent of reporting on focuses upon four sets of Corporate Social Responsibility (CSR) issues namely those relating to environment, marketplace, workplace, and community and then provides some reflections on them and on CSR reporting. Greenpeace international (2008) describe that climate change is one of the biggest threats we face. Everyday activities like driving a car or a motorbike, using air conditioning and/or heating and lighting houses consume energy and produce emissions of Greenhouse Gases (GHG), which contribute to climate change. When the emissions of Greenhouse Gases (GHGs) are rising, the Earth’s climate is affected, the average weather changes and average temperatures increase. To slow down climate change impacts, the emissions of Greenhouse Gases GHGs need to be reduced immediately. As explained above several activities in agriculture and forestry contribute to Greenhouse Gases (GHG) emissions. Changing these and switching to new sustainable land management practices can support the uptake and the reduction of Greenhouse Gases (GHGs). Some agricultural activities can increase the amount of organic matter and carbon in the soil by using cover crops or reduce the emissions of methane through improving feeding practices. Hassan (2009) found that in the case of climate change, less than 10 per cent of global emissions of greenhouse gases are covered by carbon pricing mechanisms and there are no legal requirements on financial markets to integrate climate risks into their operations. Hassan (2009) found billions of dollars, pounds and euros continue to be routinely misallocated to carbon-intensive investments in spite of unprecedented awareness of the long-term risks of climate change. Hrasky (2011) found that climate change and carbon footprints are among the most urgent concerns facing society and are key issues of corporate responsibility. Hrasky (2011) found carbon-intensive sectors appear to be taking encouraging actions; a regulatory response may be required for the
less carbon-intensive sectors to take advantage of their market power to facilitate cooperative carbon reduction with broader constituent groups.

Hrasky (2011) found over the period in which it was speculated that societal concern about matters related to climate change, global warming and carbon footprints might give rise to a legitimacy gap, there was a consistent and significant tendency for firms to increase their rate of disclosure about these matters in their sustainability and annual reports. Haigh and Shapiro (2011) found that carbon emissions reports have had some use in investors’ assessments of firms’ corporate governance.

Lu (2011) found that carbon trading scheme may not be suitable in China in the short run because the implementation of the program and emissions trading market are very important. Pang (2010) intimated that training and knowledge does not guarantee that they will be less likely to be affected by hindsight bias, cognitive conservatism, or epistemic arrogance. Sun and Liu (2011) says that Strong evidence was found that analyst coverage is positively associated with accounting conservatism.

Sun and Liu (2011) argues that Accounting conservatism can reduce agency problems arising from managers’ opportunistic use of accounting discretion. Sun and Liu (2011) describe that high analyst coverage may lead to low demand for accounting conservatism because information asymmetry is low for firms with high analyst coverage.

H1: Cement Sector will be given strong and positive relation with Conservatism Bias.

H2: Fertilizer Sector will have a significant impact on Conservatism Bias.

H3: There would be a positive relationship between Textile Sector and Conservatism Bias.

THEORETICAL FRAMEWORK

The theoretical framework is a model of logical relationship between the factors (Conservatism Bias, Cement, Fertilizer and Textile Sectors). In other words the theoretical framework is the graphical summary of the whole literature review. In sum we can say the theoretical framework discusses the relationship between the determinants that are deemed to be integral to the dynamics of situation being investigated. In above diagram the theoretical framework is showing the relationship between Conservatism Bias and Carbon Finance, it will help us to test the postulates and certain relationships and will improve our understanding of the dynamics of the situation.

METHODOLOGY

Population for this study was the investors of Pakistan. A sample of 160 individuals was selected. The sampling technique was used which representative of population was based on various characteristics as given in the table 1. The data was collection by questionnaire. The questionnaire was developed regarding Conservatism Bias, That questionnaire contains two sections. Section I describes Biographical characteristics of the respondents. Section II consists of Conservatism Bias which has twenty items. The questionnaire was personally administrated to the investors of Pakistan. More than 200 questionnaire were distributed out of which 160 were received back, making respondent rate as 80%.
TABLE 1 – DEMOGRAPHICAL DATA

<table>
<thead>
<tr>
<th>Criteria (Description)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35 years</td>
<td>65</td>
<td>41 %</td>
</tr>
<tr>
<td>36-56 years</td>
<td>95</td>
<td>59 %</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>115</td>
<td>72 %</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>28 %</td>
</tr>
<tr>
<td>Major Sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement</td>
<td>107</td>
<td>66 %</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>40</td>
<td>25 %</td>
</tr>
<tr>
<td>Textile</td>
<td>13</td>
<td>9 %</td>
</tr>
</tbody>
</table>

In age description some respondents are in between the age of 25-35 years which are 41% of the whole sample. In this class respondents are mostly students and small investors. Beside them there are the classes of 36-56 years which are 59% of sample these are regular investors and working in different businesses at managerial posts. In gender description male are 72% and female are 28% and their sample size carried out through practical work. There are three major sectors of Pakistan’s economy name chosen for the questionnaire, their names and preference by respondents is as under:

- a. Cement - 66 %
- b. Fertilizer - 25 %
- c. Textile - 9 %

Apropos above it has been observed that the cement sector which has strong influence and got the 66 % of the total which is significant amongst the others.

TABLE 2 – DESCRIPTIVE STATISTICS AND CO-EFFICIENT OF CORRELATION

<table>
<thead>
<tr>
<th>DETERMINENTS</th>
<th>Pearson Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservatism Bias</td>
</tr>
<tr>
<td>Conservatism Bias</td>
<td>1</td>
</tr>
<tr>
<td>Cement</td>
<td>0.742</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>0.495</td>
</tr>
<tr>
<td>Textile</td>
<td>0.337</td>
</tr>
</tbody>
</table>

^ Number of Respondents = 160
The correlation indicates a strong and significant relationship between Conservatism Bias and Cement Sector (0.742). But, Fertilizer and Conservatism Bias have not strong but significant relationship (0.495) whereas Textile and Conservatism Bias have also not strong but significant relationship (0.337).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>0.431</td>
<td>5.388</td>
<td>0.000</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>0.343</td>
<td>3.504</td>
<td>0.001</td>
</tr>
<tr>
<td>Textile</td>
<td>0.196</td>
<td>2.105</td>
<td>0.014</td>
</tr>
</tbody>
</table>

Dependent Variable: Conservatism Bias (Constant)

\[ R^2 = 0.644, \quad F = 21.861, \quad Sig = 0.000, \quad N = 160 \]

The value of "R" in regression analysis is (0.644), which is quite significant and it shows that 64.4% variation on dependent variable is caused by independent variables, while 36.6% variation remains unexplained which is caused by some other unknown variables. The value of "F" is 21.861 which is significant as significance level is 0.000. The Beta value for Cement Sector is (0.431) while the value of "t" is (5.388) and significant at 0.000. The Beta value for Fertilizer Sector is (0.343) while the value of "t" is (3.504) and the significant level is (0.001). The Beta value for Textile Sector is (0.196), while the value of "t" is 2.105 and significant level is (0.014).

DISCUSSION

Our research indicates that the selected antecedents have profound impact on Conservatism Bias. But there is no such type of research conducted so far. The geographical, cultural and environmental differences may cause some deviation and contradictions from the results by earlier researchers who considered only Western culture in their research. Pakistan has its own culture; thinking of people varies according to their classes or prosperity they hold. We mainly focuses on average class of investors for our study, reason behind selecting average class investors is because they are more educated and able to understand the concept of conservatism bias and its importance. Conservatism Bias has a vital importance towards the carbon finance, as much as the blood has for a human, because without blood a human cannot direct the body function in a proper way.

Our research includes three variables; the first one is “Fertilizer Sector”. The applied analyses yield significant results, providing the evidence that H1 is true. Our analyses shows that the value of the correlation between Conservatism Biased and Cement Sector is almost 0.742**. As far as our research is concerned more respondents are young, mature and educated they perceived more than the younger and older ones. Hence the relationship between Conservatism and Cement Sector is strong rather than other determinants. This relation can be enhanced through appropriate investment but the problem is that most of the investors are traditional investors who interested to invest such a type of investment in which they are familiar rather than unknown. Similarly, they are not interested to invest in Carbon Finance as its new and innovative way of investment. Secondly Pakistan’s economy has short history and lack of inconsistency, which hinders enhancement of industrial sector as compared to rest of world. Pakistan is entangled in issue like child labor, quota system and mistrust in business relation to spoil the investment internationally and nationally as well. Uncertainty, in economic activities of Pakistan creates fears in supply of demand in the minds of foreign investor. Consistency in availability of the conservatism bias in the cement sector creates negative sentiment about the carbon finance.

Second independent variable is "Fertilizer Sector". Applied analysis yield has significant results, providing the evidence that H1 is true. Our analysis shows that the value of the correlation between Conservatism Bias and Fertilizer Sector is 0.495**. As far as our research is concerned respondents gave comparatively less weighted to Fertilizer Sector. This manifestation of the fact that the entire three incidents selected are of equally good opportunity for carbon finance and therefore, Fertilizer is also a
strong sector which is hunted by conservatism bias. This correlation between Fertilizer Sector and Conservatism Bias can be further explained. Industrial sector of Pakistan have the good opportunities for investment but are not availed that. Pakistani entrepreneurs prefer to invest in foreign markets as compare to local one, reason behind that is the uncertainty and lack of confidence on the economic policies of the government such as nationalization, politically instability. Therefore, the investor hesitates to invest in new avenue like carbon finance. Investors of Pakistan are conscious about the local investment and they prefer to invest international securities rather than to invest their own local industries or extension in the existing businesses, which leads to de-motivate our local industries and they cannot grow more for this reason.

Third independent variable is Textile Sector. Applied analysis yield has significant results, providing the evidence from the third incident that H₁ is true. Our analysis shows that the value of the correlation between Conservatism Bias and Textile Sector is 0.337**. Hence, the relationship between Conservatism Bias and Textile Sector is positive correlation but less significant. This confirmed the famous law of nature "The survival of the fittest". A industry which does not align itself with latest needs and trends of the users is likely to be wiped out. In Pakistan most of the industries do not have research and development facilities. Therefore, they lack competitive innovation which leads to carbon finance and hunted by conservatism bias. In Pakistan there is lack of professionals in the industrial sector and own by families or sole based which is another drawback. Most of the businesses in Pakistan are small and medium enterprises (SME’s) they lack in resources, so it is not possible for a manager to take such an initiative for which it does not have sufficient resources. A new trend in the competitive market has emerged in which huge investment is required which mostly SME’s cannot afford. On the other hand they can take initiative to take steps for carbon footprints and claim for carbon credits from G10 countries through World Bank. As Pakistan is under developing country therefore, there is huge potential of carbon financing is exist as India has adopted it and get a large amount of foreign currencies and built their foreign remittances.

CONCLUSION
We have to adopt a multidimensional approach. In this connection all stakeholders i.e. government policies, corporation, incorporation of new technology, new product, consumer pressure, carbon exchange and its rate, alternative investment, new financial product, investors, price of carbon and producers/manufacturers have to be synergize their efforts. Government has to make user friendly policies through which due protection should be provided to carbon finance and encourage the investors and entrepreneurs. Government subsidy is an effective tool in boosting the carbon financing and subsidized selected sectors like declaration of tax free zones, low tariff rates, provision of electricity on low rates and generation of electricity. Now world has become a global village. This era of IT, therefore importance of innovation cannot be ignored. Continues research and development can play unimaginable dividends especially in the case of those countries/nations, who are innovated. In this aspect consistency is very important in research and development of existing plant and investment perspective and how to eliminate the conservatism from the investor and entrepreneurs decision making process which leads to new era of modernized, developed and innovative but the efforts are required as it is commonly called, "Rome cannot build in a day". The individual perceives what he sees, observes, thinks or feels. It is a hard fact that a famous and predominant technique like media has considerable influence on the investors without even knowing it. So, the campaign about the conservatism bias and carbon finance must cater the perception and psyche of investors and entrepreneurs.

LIMITATIONS
During the study, the researchers experienced sequential limitations, first is concerning data collection, our questionnaire which one has been developed by own as no one has been carried out such a type of research so far. Most of the respondents refused to fill the questionnaire as they has no knowledge of conservatism bias and carbon finance as well. Secondly, we have distributed 200 questionnaires out of which 40 are not returned back as we collected the questionnaire very next day after distribution. Most of the respondents either forgot to bring or they misplaced the questionnaire. Lastly the data was gathered...
from that investors who belong to Rawalpindi and Islamabad only, hence future research should be extended to other cities in Pakistan to test their generalizability in future as well.

IMPLICATIONS
Study is intended to be beneficial for all the stakeholders, ranging from investors to management. Pakistan is one of those underdeveloped countries, whose has huge potential of carbon finance but unable to meet the desirous level due to conservatism bias. The biggest hurdle in the carbon financing is the lack of awareness about the carbon finance and it’s ultimately benefits. Importance of carbon finance in successful marketing of a project will be highlighted to the all related to all concerned through this study. It will not only enhance awareness but facilitate in planning and launching of a product. In today’s economy, assessment of the competition likely to be faced by an producer is very essential for the manufacturers and carbon finance give them extra benefit and will be synergized their profits. Analysis conducted will help producers in understanding the positive relationship amongst selected antecedents and explore it, to their benefits. Results of the foreign based studies are not completely applicable to our environments.

The study is an endeavor to cater effects of our socio economic conditions, behavior of investors, priorities in liking/disliking a product or sector and level of information about carbon finance and how much influence of conservatism bias on the investors and producers. This research will augment ideas of producers in developing a realistic understanding of the implications of cultural factors in carbon finance and conservatism bias. Collected data can serve as guideline in understanding comparative importance of the selected variables considered among a range of investors. It will help in launching target oriented companies by manufacturers selection of projects for maximum gain and growth and to synergized their profit and rapidly increase in internal rate of return as well as investor perspective.

REFERENCES


