

ENVIRONMENTAL VIOLATIONS AND CAPITAL MARKET NEXUS: A CASE OF PAKISTANI STOCK EXCHANGE

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ABSTRACT

The impartial of the study was analyze the impact of the environmental release negative news such as (Oil spills, violations of permits, Waste Water, Noise pollution, Air pollutions and Environmental violations), on company's profitability. We applied Event Methodology for analysis. We used Panel data of the cluster industries of Faisalabad. Environmental violations list we got from the Punjab Environmental Protection Agency, and their stock prices from the Pakistan Stock Exchange and Business Recorder. Data we take from the year 2003 to 2015. As a conclusion most of the industries experienced declining trend in its returns. Government should have followed Eco watch and Prokhash programed which are supported by India and Singapore government.

Key words: Environmental Violation List; Negitive News; Pakistan Stock Exchange; Event study

INTRODUCTION

Industrial emission problem is related less serious concern in Pakistan as compared with many developing countries. Such as India, China. For the growth of the various sector of industries, Pakistan has to rely heavily on the chemicals and metal which further worsen its environment and lead toward the increase in the environmental degradation. Capital markets in the developing countries are not true indicator of company value. Different literatures had proved that capital markets are reactive to information related to companies. Based on these theoretical foundations, companies react if general public get proper and complete information about a company's environmental violations of set standards. So as a reaction stock value of that company will decrease. To avoid decrease in value, companies avoid green violations and care for environment and welfare. Environmental societal goal of responsibility and protection is achieved by an government indirect method instead of fines/penalties. Local Communities and capital

markets react properly if they get proper information about environmental violation. This can be an alternative for government and policy makers to invest in publishing the information regarding violation rather than imposing fines and taxes to pollution causing business organizations. Government can achieve two targets with least cost a) educating general public b) forcing companies to care for environment.

Environmental State of Pakistan:

Most of the industries ignore the concern for the environment and dump their waste without proper management. Its remains serious concerns for the health to humans also as well as environment. Pakistan framed its environmental laws in 1983 its remained ineffective due to lack of public awareness and inherent deficiencies, lack of implementation by government. Next, in 1997, it passed its second environmental legislation, which also applied the General Environmental Quality Standards (NEQS)

to noise, motor vehicle exhaust, gaseous effluents from industry, public and liquid industry emissions, and industrial gaseous emissions. Unfortunately, these too lack effective regulation. When revised environmental standards were implemented in 1999, many firms would not have been able to comply; just 3 percent of enterprises were able to allow the inspection for submission. Factories have been releasing an increasing amount of harmful pollutants into the atmosphere as industry has grown. Like other developing nations, Pakistan has seen a rise in the number of cars, from 680,000 in 1980 to 3.8 million in 1998. MILLIONS: 70, 64, 27 in 2014-15. Pakistan's efforts to raise the standard of living for its people have mostly resulted in economic expansion taking precedence over environmental degradation. Car emissions, industrial operations, and the free use of toxic chemicals have all contributed to the biggest environmental and health issue, which is water pollution (Naureen M., (2009). Government raises its citizen living standard high in future which means high growth in industries that may further degrade its Transnational Corporation (TNCs) environment. exploitation human rights, labor laws and environmental laws and are major player for the carbon emission, CFSs, timber logging, biodiversity loss and water/air pollution. And the developing countries. Unfortunately, there are not many studies with reference to Pakistan, India is also our competitor is working on the policy of national public disclosure program.

Data and Methodology:

We need two types of data for the analysis of the Event Methodology. (1) Companies environmental violation list, (2) Company's stock prices, and their market Index

Source of the Data:

Violations list we got from the Punjab Environmental Protection Agency and Companies Stock prices we got from the Pakistan Stock Exchange, Business Recorder as well and their market index got from the Pakistan Stock Exchange, Open doors and Business Recorder. Market Index data we received from yahoo finance website from the period 2003 to 2015. Total population of the Faisalabad Industry was 31, 3834 calculated by the help of sample calculator at 95% confidence interval and at 5% error. The sample size was calculating 384 companies but data shrinks to 30 companies due to the certain reasons and limitations like most of the industries was private haven't their share price in PSE (like flour mills, sugar mills, hospital waste etc.). Or some delisted by PSE due to the violations of their rules. Some merged in another companies, some companies change their respective name.

Filtration of Data:

By using MS excel. We filtered the data by removing the duplicate values of the stock prices of the companies. Than sort from the smallest to largest value. By talking the 256 value as working day. Than calculate the normal return by estimating Alpha and Beta, R-square and Standard Error. Using parameters as guidance. The predicted return (ER), cumulative abnormal return (CAR), and abnormal return (AR) were all estimated. In the end, the T-Statistics uses a formula to determine the study's significance.

Event Methodology:

With the help of the events the financial analyst can make better predictions for the future about the questioning of whether a similar event with positive influence or negative. And investor can get help from this to make investment decisions.

Major Periods for the Event Methodology

Explain the Event date Estimation the window (Before and After the event) Sample size, Choose Model, Estimation of Parameters Estimation of abnormal returns Analysis and result

Event definition:

The date that the Punjab Environment Protection Agency's list of environmental infractions with unfavorable consequences became public. Because the market model has many benefits, we employed it. $Rit = \alpha i + \beta i Rm + vi$ (*i*) E ($\dot{\epsilon}it = 0$) Var ($\dot{\epsilon}it$) = $\sigma \dot{\epsilon}2$

By utilizing equation (i) to compute the abnormal return and utilizing α and **r** throughout the event-covered days, one may approximate the abnormal profit. A period spanning from 120 to 210 days before the event to a few days before the occurrence is used in equation (i) to calculate the unusual return.

where eit is the error term for security I, i=1, 2, and t is the time index. N serves as a representation of the security return on security I.

$$ARit = Rit - \alpha i - \beta i Rmt$$
(ii)

The anomalous return is the disturbance term in the market model. The discrepancy between the actual return and the anticipated normal return is known as the prediction error. Conditioned, on the event window market return, according to the null hypothesis. A zero conditional mean, conditional variance σ , and a jointly normally distributed anomalous return are all required. Where

 $(ARit) = \sigma 2 \, \acute{\epsilon}i + 1/L \, (Rmt \cdot vm) \, 2/\sigma 2 \qquad (iii)$

The aggregate of the abnormal return is what enables us to make broad inferences about the interest of the capital markets' reaction, even though the abnormal return and relevant data may be computed for each event at any point in time inside the event window. To be more precise, we combine the anomalous return across the quantity of occurrences in two dimensions: time and securities.

 $AARt = 1/N \sum ARit$ (iv)

By calculating the cumulative abnormal return utilizing the abnormal return, the event's effect may be assessed for persistence.

CAR (T1, T2) where T1 < T1 < T2 < T2

The total of the included abnormal return is the CAR from T1 to T2. $CAR (T1, T2) = \sum AR it . (v)$ $VAR (CAR) (T1, T2)) = \sum VAR (AR i)$ CAR security aggregation over time. $CAAR (T1, T2) = 1/N \sum (CAR (T1, T2))$ (vi) VAR (CAAR (T1, T2) = $1/N \sum \sigma i 2 (T1, T2)$ For the Test Z = CAAR (T1, T2) (vii) VAR

(CAAR (T1, T2)1/2

Results and Conclusion

In results we want to know the return of the companies of the Faisalabad industries after the negative event happened. For this analysis we need abnormal return so the value cumulative average returns is used for this purpose. So our main focus value for checking the abnormal return is CAR. That to what experience in the company's return wen the negative news happened. It decreased or increased.

Sitara Chemicals Industries:

In Appendix A, the returns of this company strongly reject the null hypothesis of the study. That Pakistani stock market didn't react towards environmental violations. This company is notified by the Punjab Environmental Protection Agency due to the allegation under (11, 12 & 45). By source of the public complaints and was suffered from 200000Rs as fined by Punj EPA. Appendix A at the day 0 which is its notified day (allegation day) by EPA the AR by using market model showing negative trend at basis point of -1.1, at violation day 0 by looking appendix A its Cumulative Abnormal Return (CAR) is -0.7 basis point that showed decreased in its profitability. After the notified day at (Day 1) its trend change its showed increasing returns so here we have to check the analysis this can be done by looking at the ground reality that why company overcame from shock i.e. Its returns increased. We looked at the violations list provided by Punj EPA. The company had taken environmental friendly initiatives and disposed of its waste. Returns after the negative news after (day 0) at looked at day second and at day third the CAR was on the basis point of 0.31 and 0.31 respectively. For the sensitivity analysis to check the whether company had resilience against the negative news It can absorb the shock. T- Statistics value was *** -164.166 basis point compared with 2.56 showed that company lose its returns at high level when negative event happened.

United Brand Limited

In Appendix B the results of the company strongly reject the hypothesis of the study that capital market didn't react toward environmental violations such as Environmental Pollution, Waste Water Pollution, Air Pollution and Noise Pollution, Violations under section (2, 4 and 16...), Punjab Environmental Protection Agency notified this company by the source of the public complaints. Average Return (AR) for negative news was -0.07984 basis points by using market model which showed negative trend when negative event happens (company is notified by the Punj EPA). In Appendix B the table showed the Cumulative Abnormal Return CAR at Day (0) notification day which showed the actual situation of company at negative event. CAR -0.15672 basis points showed that company loses its profit at huge level. At second day this value showed decreasing

trend -0.10489 basis points similarly this trend was continued at third and fourth day. Its graph showed decreasing trend. So to check why this append after te notification. We have to go for the ground reality. For this purpose, by looking at the violations list provided by Punj EPA. In its status column United Brands Limited still not dispose of its dumping waste and yet not charge with fined. Punj EPA admitted its case in the Environmental tribunal court. And if the obligations is proved than the company can also suffered with heavy charged. To check the ability of company i.e. its resilience against the negative news. We used the T-statistics at the negative event the value is ***-3.054 that is highly significant and greater than 2.57 means company can suffered much from the loss in its profit due to the bad reputation in market.

Conclusion and Policy Recommendation:

countries like Developing India, Pakistan, Bangladesh and Malden has weak environmental regulation and weak government rules and implementations there is no traditional techniques even to control these environmental pollutions such as fines and penalties laws specified by the Environmental Protection Agency. Therefore, no developing countries seems to taking interest in investing pollution controls technique in their industries. And these developing countries due to have deficits budgets cannot bear huge environmental protection cost. Therefore, by the help of stock market we can take advantage as it is free of cost and helpful for the government to protect our environment. Developed countries like Canadian Stock Exchange they experienced negative return after the public disclosure negative news or any kind of the source whether it is voluntary published materials by company or by any Non-government organization or even by the government institute himself. So to check this analysis for the case of Pakistani Stock Exchange whether it's Stock Exchange reacts like others Stock Exchange markets such as India particularly which is its neighboring and developing country. Or reacts like a developed country (USA, Canada etc.) Stock Exchanges markets. Pakistan Stock Market had showed mixed results however several companies had experienced the declining trend in its returns which we analyzed by looking as it cumulative abnormal returns. So they

experienced negative profits after the negative event happen. Such as companies like Hina Sana Textile suffered from the negative returns CAR value -0.09593. Thandlianwala Textile Mill Faisalabad CAR value -0.18123. Ideal Spinning Mill CAR value -0.31547. Tri Star Polyster CAR value -0.40319. Mubarik Textile CAR value -0.74793. Dawood Textile CAR value -0.178. Zahid Jee Textile its CAR value -0.30974. Etc. companies' experienced negative abnormal returns at the day of the event and also these trends remains after the event day. So it proved that just like the others developing countries. Pakistan Stock Exchange market also react negatively.

Policy Implication

Follow the programed like ECOwatch and Prokash in Indonesia and in India hence strongly support these programs and supervision should be under the control of high authorities like at Prime Minister Level or at Presidential level.

The government should strengthen the Stock Exchange market and expand them by registering more companies etc.

An operator's machines which are environmental friendly should be installed at each company's level to check the situation of the environment. And this should be the policy in their management department.

Government should take further initiatives to gain project from the Green Fund by International organisation so by the help of these funds they can made investment in the environmental friendly techniques.

There should also the Environmental Protection Agency (franchised type) even at the district level and should be attached to each Municipals committees.

There should be also a separate department of recycling and reuse at every municipal committee because they direct collected the garbage and then can immediately recycled them.

Private waste management companies should be encouraging and provide them technical assistance hence also subsidies them to protect the environment. Acknowledgement

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Appendix	хA		Average Return, Cumulative Average Return and T-												
Fable No	1	Statistics)													
Result of	the Sitara	Chemi	icals Mill.	s by C	alculati	ng									
Name o Company	of Event Day	Day	T-5	-4	-3	1	-2	-1	0	1	2		3	4	5
SITARA Chemicals Industries	Dated 30-09- 2013	AR CAR T-stat	0.0012 0.00012 0.1033	0.000 0.001 0.012	143 0. 1 0. 2.	043 043 2031	0.01 0.131 0.44	2.324 2.3432 13.04	-1.1 -0.7 -24.2	0.114 -1.411 6.1	0. -0 1	201 3402 1.05	-0.142 -0.5 -7.8	0.51 0.031 3.1	0.00 0.03 0.25
SITA	ARA CHEMIC	CAL IND	USTRIES CA	R_ CH	ART										
		4	CAR				Ap	pendix	B						
CAR	4	2	2	-	• • • • •	6	(<i>R</i> a (<i>R</i> a	ble No esult of	the Uni	ted Br	and L	imited I	Mills by	Naraga	
-0		-2 TIME-	LINEE		*	0	Re	turn and	d T-Stat	istics)	keiurn,	Cumu	lalive A	verage	
Name of Company	Event Day	Day	T-5	-4	-3	-2	-1	0	1	2		3	4	5	
United Brand Limited	Dated 10-09- 2013	AR CAR T-stat	0.112 0.112 0.103	-0.051 0.005 0.112	-0.0524 -0.044 -0.834	0.011 -0.03 -0.61	.44 -0 113 -0 -1	.05 -0.0 .08 -0.3 .51 -3.0	084 0.6 22 -0. 055 -2.	5 11 1	0.03 -0.3 -1.5	-0.0120 -0.09 4 -1.702	0 -0.04 -0.123 -2.395	-0.04 -0.22 -3.151	1
CAR 10	Unit 0.2 -5 -0.2 Tir	ed Bra	and Lim	iited	Ser	ries1	AI Of Fa De By	pendix fice O isalaba tail Of Epa, P	C f The d Assbe Enviroi unjab Ir	Dis ly Qua nment n Disti	tric estion al Pro rict Fa	Officer No. 21/ itection islabaa	Envirc O/201 Orders I, 2013	onmen, Issued	
Name Respon	& Addr ndent	ess Is	sued No	& Dat	ted		Allega	tion	Service	e Rep	ort	Con stat	npliance us	/preser	nt
Saddiq	ue	N	0.				Waster	water	DD(R&	zI)EP	А,	Con	npliance	repo	ort
Proces	sino	Δ	D(RM)/F	SB(22)	6)/2012	0/35	nolluti	on	Puniah	Laho	re vide	will	he s	uhmitte	he

	Respondent				status		
71	Saddique	No.	Wastewater	DD(R&I)EPA,	Compliance report		
	Processing	AD(RM)/FSB(226)/2012/35	pollution	Punjab Lahore vide	will be submitted		
	Mills(PVT)	3		letter No.	after the expiry of		
	Limited Sargodha	Dated 07-08-2013		78/DOE/Faisalabad	stipulated period		
	Road Faisalabad			dated 17-08-2013			
72	Shaheen Cloth	No.	Wastewater	DD(R&I)EPA,	Compliance report		
	processing Mills	AD(RM)/FSB(231)/2012/35	pollution	Punjab Lahore vide	will be submitted		
	(PVT) Limited	54		letter No.	after the expiry of		
	Sargodha Road	Dated 07-08-2013		79/DOE/Faisalabad	stipulated period		
	Faislabad			dated 17-08-2013			
73	Sitara textile	No.	Wastewater	DD(R&I)EPA,	Compliance report		
	industries Sargodha	AD(RM)/FSB(237)/2012/35	pollution	Punjab Lahore vide	will be submitted		
	road, Faislabad	6		letter No.	after the expiry of		
		Dated 07-08-2013		80/DOE/Faisalabad	stipulated period		
				dated 17-08-2013			

Appe	endix D			-	-		-	
list of o	cases instituted by the EPA, punjab in environmental trib							
Sr. No	Title of complaint	 District 	🔻 medium 🔍	nature of violatio	date of filling		current status 🔻	Remarks
	1 Director General, EPA V/S M/S Ittamad Soap Factory, Jhang Road, Faisal abad	Faisalabad	Public complaint	Section 2,11&16	29-05-2006		Dispossed off	Fine Rs 5000 Director of Epo complied with
	2 Director General, EPA V/S M/S Cresecent Sugar Mills, Faisalabad	Faisalabad	Public complaint	Section 2,11&16	28-04-2007		Pending	Evidence Stage
	3 Director General, EPA V/S M/S Cresecent Sugar Mills, Faisalabad	Faisalabad		Section 2,11&16	29-07-2007		Dispossed off 24- 2-2010	Fine Rs 200000
	4 Director of General, EPA V/S M/S ittehad Textile Mills (pvt) Ltd, Faislabad	Faisalabad	Public complaint	Section 2,11&16	23/1/2008		Dispossed off 2- 11-2010	Fine Rs 200000

		Appendix E						
		List of Company	ies registered in PSE 100 Index					
<u>S.No</u>	<u>Companies Name</u>	<u>Symbols</u>	<u>Data Source</u>					
1	AA Textile Mill, Faisalabad	AATM	Business Recorder					
2	Ideal Spinning Mill, Faisalabad	IDSM	Business Recorder					
3	Asim Textile Mill, Faisalabad	ASTM	Business Recorder					
4	Ishfaq Textile Weaving Industry	ASHT	KSE-100					
5	Chenab Engineering Mill Limited		Business Recorder					
6	Ibrahim Textile Mill Faisalabad	IBFL	Business Recorder					
7	Ithehad Chemical Industry ICL	ICL	KSE-100					
8	Ishaq Textile Mill	ISTM	Business Recorder					
9	Jubilee Spinning and Weaving Mill	JUBS	Business Recorder					
10	Mubarik Textile Industry	MUBT	KSE-100					
11	Taj Rafiq Textile Mill	TAJT	Business Recorder					
12	Sargodha Spinning Mill	SRSM	Business Recorder					
13	Sitara Chemicals Industry	SITC	Business Recorder					
14	Hina Sana Textile	SNAI	Business Recorder					
15	Tri Star Polyster Dyeing Factory	TRPOL	KSE-100					
16	Dawood Textile	DWCM	Business Recorder					
17	Khursheed Spinning Mill	KHSM	Business Recorder					
18	Zahid Jee Textile Mill	ZAHID	Business Recorder					
19	Thandianwali Sugar Mill	TSMLR	KSE-100					
20	Usman Textile Mill	USMT	Business Recorder					
21	United Brand Limited	UBDL	Business Recorder					
22	Umar Fabrics	UMEF	Business Recorder					
23	Crescent Textile Mill	CCM	Business Recorder					
24	Shaheen Cotton Mill	SCML	Business Recorder					