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Impact of Corporate Misconduct on Industry Peers: A Case Study of Pakistan



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p-ISSN: 2521-2974

e-ISSN: 2707-0093

L-ISSN: 2521-2974

Citation: Awan, H., & Saeed, A. (2023). Impact of Corporate Misconduct on Industry Peers: A Case Study of Pakistan. *Global Economics Review*, VIII(II), 348-365. [https://doi.org/10.31703/ger.2023\(VIII-II\).26](https://doi.org/10.31703/ger.2023(VIII-II).26)

Abstract: According to a new study on stigma spillover, the crisis spillover effect spreads from one firm to the next within an industry. However, the impact and contributing factors to the crisis spillover remain unknown. We enhance this research by investigating two related questions: What influence does an accused firm's wrongdoing have on the performance of industry peers in the same industry? What influence do product similarity and distance have on this spillover effect? Using panel data from 240 companies in Pakistan, our linear model results reveal that product similarity negatively affects the cumulative abnormal returns on the industry peers while there is a positive effect of distance on the performance of industry peers, as measured by the duration of crisis spillover. Our findings make significant contributions to both the literature and practice.

Key Words: Spillover, Industry Peers, Accused Firms

JEL Classification:

Introduction

The term corporate misconduct refers to fraud committed by corporate entities to willfully erode shareholder value. Corporate misconduct stretches beyond malpractice in accounting, reporting, operations and misconduct. Researchers define corporate misconduct as actions and deeds carried out by organizational members with the intention of misleading or deceiving investors or other important stakeholders (Conyon & He, 2016; Baucus, 1994; & Baucus & Baucus, 1997). This comprises acts that are against the law, are prohibited by law, or are lawful but unethical

(Tanlu, Tetlock, Moore & Bazerman, 2006; Palmer, 2012). Corporate misconduct potentially harms the firms and negatively impacts the interests of corporate stakeholders (such as shareholders, employees, consumers, and suppliers). Dividend policy, financial statements, Earnings management, other accounting fraud, regulatory infractions, practices that result in class action litigation, and anticompetitive activity are examples of corporate misconduct (e.g., price fixing, monopoly, conspiracy).

Corporate misconduct can result in various penalties, such as a drop in the debt

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and equity values of the company. Existing studies already conducted demonstrate that corporate or financial misbehaviour, such as restatement, has the potential to negatively alter bank lending terms (e.g., Graham et al., 2008) or result in significant wealth losses capitalized in share price (Gande and Lewis 2009; Dechow et al. 1996; Murphy et al., 2009) through reputational damage. The damage that results in the expected loss in the present value of future cash flows due to lower sales and higher contracting and financing costs is assumed and calculated to be much higher than the sum of all penalties imposed through the formal legal and regulatory system (Karpoff et al. 2008b). Moreover, research to date has shown that when corporate misconduct occurs, the financial markets decline, reputations suffer, and executives leave their positions (Karpoff and Lott, 1993; Karpoff et al., 2008a, b). Similarly, earlier studies have shown that corporate malfeasance has a considerable negative impact on stock prices because it disturbs the order of the capital markets and distorts the information environment (Jory et al., 2015; Firth, Rui, and Wu 2011), cost of financing (Graham, Li, and Qiu 2008; Chava, Huang, and Johnson 2018), internal control and governance (Aharony et al., 2015), and reputation loss for firms (Johnson et al., 2014).

Furthermore, according to Tashfeen Hussain (2020), it is obvious that misconduct has serious consequences for the offending company and its employees. It is also important to consider whether the misconduct or fraud has an impact on competing firms. The spillover or contagion impact of corporate fraud refers to how one company's dishonesty affects its competitors. Now the questions may arise; Do investors and debt holders, for instance, alter their opinions of the reliability of financial data from like companies in the wake of a similar company's fraud? Are decisions made by innocent firms regarding operations and finance impacted by corporate misconduct perpetrated by another firm? (Hussain, 2020). Since corporate misconduct may result in externalities for other firms, these are crucial issues to investigate. Therefore, it is

likely that a firm's deception will have an impact on bystander firms. Industry peers, in this aspect, are generally considered to be firms that are innocent and belong to the same industry. According to organizational research, negative assessments of specific cases of corporate misconduct damage not only the accused firms but also innocent organizations that resemble the offender (Jonsson et al. 2009; Paruchuri & Misangyi 2015; Barnett & King 2008). Despite the fact that this phenomenon is frequently referred to as "guilt by association," the term "association" actually refers to third-party evaluators engaging in the socio-cognitive process of associating firms based on shared category membership and then generalizing misconduct from the offending firm to innocent firms (Naumovska & Zajac, 2022).

Previous studies have reported a guilt-by-association effect which causes the negative spillover, by means of which the bystander firms see their stock prices fall due to the shared industry affiliation with a company accused of financial malfeasance (Gleason et al., 2008; Gande and Lewis, 2009; Paruchuri and Misangyi, 2015; Naumovska and Lavie, 2021). Furthermore, Jonsson et al. (2009) discovered an increase in investors withdrawing money from firms similar to those not involved in deviant behaviour after a string of self-dealing incidents at one insurance firm. Similarly, another example can be seen from the corporation of Shuanghui where in March 2011, all pork product consumption was reduced for the whole year giving rise to a controversy, according to which it was said that a major meat plant of China included the narcotic clenbuterol in pork (Xinhua News, 2011) (Schnitkey, 2013). However, following the Shuanghui incident in 2011, per capita consumption of pork in China increased in the year 2012 (Schnitkey, 2013). Similarly, when WorldCom was accused of financial misconduct in 2002, its stock price fell from \$6.97 to \$ 0.83, and the accusation also led to negative stock market reactions for non-accused firms in its industry (Naumovska & Lavie, 2021). Based on their perception that a single incident of misbehaviour suggests other

industry peers may have engaged in similar misconduct, investors are said to exhibit the guilt-by-association effect (Naumovska & Zajac, 2022).

Previous research has identified the effects of corporate misconduct held by peer firms and discussed the negative effects of spillover on the performance of bystanders and accused firms generally. Moreover, the studies discussed that the consequences of misconduct result in a loss of legitimacy (e.g. Yu et al., 2008; Jia et al. 2016; Desai, 2011; Johnson et al. 2009; Barnett & King, 2008). There has been little research on the effects of corporate misbehaviour due to product similarity in the developing market, particularly in connection to the performance of industry peers, despite the fact that there have been many studies on the effects of corporate misconduct under other circumstances (e.g. Chen & Miller, 2012; Naumovska & Lavie, 2021; Naumovska & Zajac, 2022). In this study, the relationship between the disclosure of corporate wrongdoing and the performance of bystander firms is analyzed using an empirical analysis. This strategy contributes to the literature on corporate finance and business ethics while starting to close a known research gap.

As corporate misconduct-related issues in developing markets are understudied, this research helps fill this gap by identifying the effect on the performance of industry peers with the help of contingent factors; i.e. distance. The important factor that may intensify the performance of industry peers due to product similarity is distance. Being at a larger distance from the peer industry, there could be less impact of misconduct on the performance of bystander firms but if the bystander firm is located near its peer industry, then there would be a larger impact on the accused firm's misconduct on bystander firms.

Through the phenomenon of corporate misconduct spillover, bystander firms may experience a negative impact (Greve et al., 2010), although following aberrations by industry participants, the majority of businesses regain their credibility. The restoration of legitimacy as a side effect of

organizational wrongdoing has gained less attention. Desai (2011), for instance, believes that the best course of action in cases when violators and non-accused enterprises share characteristics is to wait patiently for the harmful spillover effects to subside. Nevertheless, for up to how much time, the industry peers should wait, which business sections regain their legitimacy most quickly and which contingent factors affect the performance of non-accused firms? These are still open questions. This study aims to fill this literature gap by utilizing organizational and institutional theories to explain how non-accused firms regain their legitimacy and compete in the market.

To be aligned with the above literature gap and study contributions it is argued that when peer firms are involved in some misconduct, it can negatively as well as positively affect bystander firms due to spillover. When negative spillover occurs from peer firms then innocent firms may lose legitimacy. Thus, loss of legitimacy may result in other unfavourable outcomes, i.e., firm devaluation (Jia & Zhang, 2016). This is a fact that losing legitimacy is a great loss and regaining legitimacy is a big success, as it's a reality that losing legitimacy lessens the capacity of the firm to shape and maintain stable alliances, find investors, as well as keep bases of the loyal customer (Vergne, 2012). According to Jonsson et al. (2009), reported deviance leads to commercial withdrawal from organizations that share characteristics with the deviant organizations. There is a negative impact (i.e. loss of reputation and decrease in market value etc.) on the performance of bystander firms due to product overlap (Sharkey, 2014; Karpoff, Lee and Martin, 2008b). It might become challenging for bystander firms or non-accused firms to respond to peer firm misconduct spillover to avoid loss of legitimacy. Furthermore, multiple organizational and contingency factors may influence the relationship between the bystander firm and the accused firm spillover.

However, the study aims to examine this phenomenon and investigate how bystander

firms are affected by peer firms' misconduct spillover. To delve deeper, it will be further examined how the relationship between bystander firm and peer firm's misconduct spillover is contingent upon the organizational characteristics of the bystander or peer firm.

The main intended contributions of the study are as follows. First, despite the fact that there have been some studies on the effects of corporate misconduct in various contexts, there has not been much research on the effects of corporate misconduct on bystander firms, particularly, in the developing market i.e. Pakistan. In this study, the relationship between the disclosure of corporate misconduct and abnormal returns of bystander companies is examined. Specifically, we exploit the unique characteristics of a developing country that may influence the effects of corporate misconduct on bystander firms in a contrasting way to the findings of earlier mainstream studies (e.g. Naumovska and Zajac, 2022; Xu, Najand, and Ziegenfuss, 2006; Chen and Miller, 1994; Goldman et al., 2012; Naumovska and Lavie, 2021) that have observed a negative effect on misconduct on stock return of bystander firms. Drawing on a multi-theoretical framework this study innovates the existing studies by focusing on the intra-industry spillover. Specifically, contingency factors are identified in the study, namely, product similarity and distance. By doing so, this study heeds the call for further research that examines how stigma effects vary across firms (e.g., Zou & Li, 2016; Jia & Zhang, 2016; Naumovska & Lavie, 2021).

With the help of the current study, managers, investors, policymakers, and stakeholders will be able to proactively assess the risks of the deviation of other firms on their products and develop mitigation plans. Managers may choose to support other prominent companies or distant enterprises if a company faces a high danger of being negatively impacted by such occurrences. For instance, a company with a high geographical distance may experience crisis spillover that lasts less time than a company with a low distance. Strategically, this visible disparity

gives a company a significant competitive edge in handling a crisis, luring investors, and expanding market share. (Orlando, 2004).

Theoretical Literature and Hypothesis Development

Theoretical literature

This work gives a number of insights into organization theory in general as well as institutional theory specifically. First, the research expands a theory about whether bystander firms have an impact during corporate misconduct and forecasts which contingent factors make firms most likely to recover and compete. Given the significance of misconduct in the study of industry-level institutional change, this is a significant contribution (Greenwood et al., 2002; Hoffman, 1999; Hoffman & Ocasio, 2001). The study expands the theoretical understanding of the industry-level responses that companies can take in the wake of disturbances.

The following theories will support the hypothesis in this research work.

Institutional Theory

The institutional theory recognizes the critical role of disruptive occurrences in fostering organizational transformation. These events, also known as "jolts," "disruptions," "shocks," and "abrupt changes," (Hoffman, 1999; Greenwood & Suddaby, 2006), have been described as brief, (Meyer, 1982) unpredictable occurrences with potentially harmful effects on organizations. These occurrences may take a variety of shapes, including judicial or administrative developments, natural disasters, and shifts in the environment (Hoffman, 1999).

At least two organizational approaches can be suggested during the misconduct using an adaptation of institutional theory. First, representatives from groups who were not directly involved in the misconduct may attempt to maintain or restore the legitimacy of their field by creating texts, statements, or other forms of discourse that convey comforting details about the disputed practices or other similar events (Suddaby & Greenwood, 2005; Maguire & Hardy, 2009;

Barnett & King, 2008). Such attempts might, for example, refute charges that questioned techniques are improper, contest allegations of unfavourable incidents, place the responsibility on individuals outside of the sector, or offer assurances that continuing operations are more trustworthy than is commonly assumed (Maguire & Hardy, 2009; Suchman, 1995).

The idea of managing the expectations of external components was put forth by Oliver (1991) and connected to this defensive institutional work. Oliver offers a typology of the steps businesses use to deal with challenges to their authority. The one most suitable to theories about how organizations may affect the validity of a discipline as a whole is manipulation. Other strategies, such as making concessions to stakeholders, disobeying institutional demands, and hiding activities, have an impact on how outsiders see the focus firm. Contrarily, manipulating external constituents' expectations may have a more widespread impact on how those parties perceive all organizations working in the industry. An increase in mistrust toward attempts to manage impressions may occur after accidents or other disruptions.

Using stigma spillover literature and institutional theory, it will be predicted how corporations regain their legitimacy—i.e., what institutional elements affect the duration of the crisis spillover. According to institutional theory, firms that operate in similar strategies are used in the same industry (Desai, 2011). The institutional theory is proposed to investigate how audience perceptions of the strength of an innocent company's ties to a deviant company are influenced by firm-level institutional signals. Furthermore, defensive actions taken by corporations not involved directly in crises carry danger, thus it's crucial to check whether businesses take such actions (Maguire & Hardy, 2009; Barnett & King, 2008). The existing study advances that purpose by developing a theory to anticipate whether and which organizations actively try to safeguard an organizational field when problems do arise.

Organization Theory

The organization theory has conceptualized the concept as a disparaging term that conjures a belief of the shareholder's group that firms in a similar form, such as an industry, share the beliefs of stakeholders that similar misdeeds have been committed by other companies in the business (Misangyi and Paruchuri, 2015). Moreover, an industry peer's misconduct raises concerns about the legitimacy of certain non-accused enterprises in the industry, as well as their perceived value (Greve et al., 2010). Hence, the downside risk for investors is decreased as the crisis' negative effects are spread out to other companies.

According to Christensen et al. (2007), Coordination in stigma management may be studied from a variety of angles, and organizational theory's structural-instrumental and institutional perspectives are used to investigate the structures and mechanisms of coordination in the crisis or stigma management system. Issues with legitimacy have an impact on crisis management in these situations. There is a need to look beyond a narrow instrumental perspective in order to grasp how crisis management functions in actual situations, which are frequently characterized by crises (Christensen and Laegreid, 2016). Therefore, it is crucial to comprehend how the area of misconduct management is organized in relation to various governance capacities and to look into the foundations of legitimate governance. Performance in crisis management is dependent on both objective reality and the opinions and perceptions of the general public (Lewis 2005).

A basic premise in an institutional approach based on organization theory is that context matters. According to organization theory, it may be predicted that the effectiveness of handling misconduct will depend on factors such as organizational culture, polity characteristics, citizen expectations of government behaviour, and public perceptions of government effectiveness. According to the degree of uncertainty and originality, as well as whether

or not a crisis has transboundary characteristics, we also anticipate variances in crisis management performance. The system is influenced by the views of the people while also having an impact on their trust and actions (Christensen and Laegreid, 2016).

The existing study uses the concept of organization theory because it will analyze that organizations that distinguish their tasks excessively, for example, lose credibility and attraction in their products, as well as market analysts evaluate them less frequently and positively than those that are more focused. Analysts expect businesses and their products to stay inside established categories and not cross over into others (Christensen and Laegreid, 2016).

Hypothesis Development

In the hypothesis development sections, the relationship between the study variables is discussed.

Based on empirical and theoretical evidence the study hypothesis is developed.

Product similarity between Accused and Industry Peers

Firms vary in terms of characteristics including organizational size, geography, and product offers. However, when stakeholders assess how much two organizations resemble one another, they frequently focus on the trait that is easiest for them to understand rather than all of them or the most diagnostic ones (Sherman, Judd, and Park, 1989). Product offerings are the reachable and frequently utilized feature for classifying businesses in an industry and determining how similar they are, according to research on industries as cognitive taxonomies (Durand & Vergne, 2014; Porac & Thomas, 1994; Hodgkinson & Johnson, 1994; Porac et al., 1995)

Audiences, who are shareholders in innocent companies, screen for possible criminals using a goal-based technique and an approach of the casual model. Audiences are expected to first determine the traits that characterize a class, then judge how much each affected company embodies those

characteristics and their causally associated implications, according to a causal-model approach (Durand & Paoletta, 2013). In 2011, following the Shuanghui Corp. crisis, for example, customers realized that maintaining connections with deviant producers was extremely risky (e.g., to their health). Audiences will be unable to evaluate and categorize companies based on whether or not they use clenbuterol in the manufacture of pork. Customers or audiences, on the other hand, can build a causal link between companies and the development of irrational behaviour, and rely on a few conveniently accessible features to simplify this difficult analytic procedure. In this case, the audience knew that clenbuterol appears in meat because of the pig rather than poultry (Jia & Zhang, 2016).

In past, research on stigma spillover supports the premise that when one corporation misbehaves, the public views all similar companies as possible culprits. Furthermore, audiences are motivated to categorize target organizations because they wish to avoid the negative consequences of maintaining contact with potential criminals (Yu et al., 2008). This risk can be reduced by screening out possible abusers and ending interactions with them. The fact that they belong to the same product category as a possible criminal, has ramifications and may cause loss although no wrongdoing has occurred. According to Jonsson et al. (2009), reported deviance leads to commercial withdrawal from organizations that share features with the accused firm. Hence, non-accused firms have to bear the result of the bad behaviour of businesses in comparable industries. Simply put, the wrongdoing of an industrial peer would have a greater negative impact on an innocent organization that is highly comparable to the peer in trouble. This action supports the likelihood of identifying a respectable company with an illegitimate criminal. Hence, it would take a long time for these innocent businesses to recover.

Due to the fact that shareholders are prone to classify and evaluate enterprises based on their product offerings, a larger negative

spillover might be expected for the bystander company. Furthermore, other stakeholders, suppliers, and customers would extrapolate their judgments to bystander firms, forcing them to avoid doing business with the companies that are like the accused peer for being afraid of losing their reputation and reallocating resources and attention. As a result, the stigma effect should be greater for non-accused businesses with higher product similarity than their accused counterpart. The Telecom Index of North America dropped by more than 10 per cent when WorldCom was blamed for financial malfeasance (Naumovska and Lavie, 2021). As per this simple logic, the more market similarity between a bystander company and an accused business competitor, the lower the bystander firm's stock market price. On the basis above discussion, the following hypothesis is proposed:

H1: The similarity of the product between an industry peer and the deviant firm will exert a negative impact on the performance of the industry peers.

Distance Between the Industry Peers and Accused Firms

Geographic closeness has been viewed as a facilitator of social contact, trust development, and thus information spillovers in this regard (Orlando, 2004). As a result, regardless of the number of enterprises, geographic closeness may provide some favourable externalities that outweigh the advantages of diversity. Numerous studies have searched for the exchange between the benefits of being close to similar businesses and the costs of increasing competition. Baum and Haveman (1997), for example, discovered that hotels choose to price themselves similar to their geographically closest competitors, but at different sizes. The benefits and drawbacks of geographic proximity were highlighted in the earlier studies. Baum and Mezias (1992), for example, discovered that having a higher geographical distance from all competitors in a similar area resulted in a lower subsistence rate, implying that there are some advantages to being close to them.

As previously stated, audiences connect qualities that constitute a category based on their prior experience and knowledge of the types of causal relationships that exist (Durand & Paoella, 2013). Audiences may just be interested in avoiding companies that produce similar goods and services and thereby misbehave if they learn of an industry member's wrongdoing; though, audiences may invent alternate explanations for causal links to unrelated businesses or legitimize the practices engaged in delivering affected items. The Pakistani business environment is particularly tumultuous, and many innocent businesses are subjected to recurrent exposés of industry members' wrongdoings. Finally, how customers evaluate the strength of their links with deviant enterprises is influenced by whether corporations openly replicate successful business strategies. There is a focus on a specific mimetic technique in the empirical context: worldwide market presence and geographic closeness. The study also discusses that if bystander firms operating at a far distance compared to accused enterprises, operate differently and self-regulate more, even when producing the same products as peer firms, they may adhere to international quality standards and compete globally.

Based on the above discussion, it can be said that as far as peer misconduct is concerned, there are both advantages and disadvantages of geographical proximity for bystander firms. Being at a larger distance from the peer industry, there could be less impact of misconduct on the performance of bystander firms but if the bystander firm is located near its peer industry, then there would be a larger impact on the accused firm's misconduct on bystander firms. The following hypothesis is offered based on these arguments:

H2: The distance between the accused and industry peers intensifies the effect of misconduct spillover on the performance of industry peers.

Methodology and Model

In this section, the sample, data collection, variable measurement, econometric models,

and estimation techniques are discussed. This chapter summarizes how the data is collected and tested to achieve study objectives.

Sample

The existing research study aims to contribute to the empirical evidence on corporate misconduct and its effect on industry peers in Pakistan as many studies have already been held on the developed economies. Pakistani market being the emerging economy is discussed in this study. The years from 2010 to 2021 are selected. The data is collected from the Osiris database, provided by Bureau van Dijk. The other required information is collected from the listed firms on the Pakistan Stock Exchange (PSX). The study uses information from the official websites of the Pakistan Stock Exchange and the sample companies' corporate websites to analyze data on a sample of about 63 accused firms. Non-financial information disclosure data is hand-collected from annual reports of the companies. Annual reports are used for data collecting since they are audited, publicized, and easily accessible to the general public. Additionally, data is accessible on the website of the stock market.

There are multiple reasons to choose Pakistan. For example, first, it has recently been elevated in the MSCI index from a frontier economy to an emerging market. Given the shifting nature of the global economy, particularly for rising and developing economies, this is a significant warning. Economic dynamism in the global economy has increasingly shifted in recent years from industrialized nations to emerging markets. These nations now house 85% of the world's population and produce close to 60% of the world's GDP, up from just under 50% a decade ago. Even though the global recovery has been slow, developing economies have been a major driver of global growth since the crisis, accounting for more than 80% of it (Lagard, 2016). Pakistan being the emerging economy has the key role due to its immense contributions and importance to the world economy. However, growing statistics i.e., rapid growth, world trade, and human

resource (World Trade Organization, 2015) increase the importance of emerging markets.

Secondly, Pakistan's progress in corporate governance perspective is highly significant due to quality financial reporting and strong corporate governance mechanisms to attract investors globally. These countries are following the International Standards of Accounting (ISA), which makes these countries trustworthy. Thus, ISA entitled these countries' corporate financial reports to be trustable and clean (Zamir & Saeed, 2020). However, these economies are ignored to examine the corporate governance mechanisms to mitigate corporate misconduct spillover. It is argued that due to peer firm involvement in corporate misconduct bystander firms lose their social legitimacy due to spillover.

Third, emerging economies have taken many initiatives to stop misconduct and stakeholders have higher pressure on listed companies of these economies to punish such firms that are involved in accounting misconduct. Thus, spillovers of peer firms' misconduct rapidly transfer to bystander firms. In fact, in emerging economies, negative consequences are badly faced by innocent firms due to such negative spillovers from peer firms. That's why Pakistan; being an emerging economy is the suitable sample to conduct this study.

Fourth, the increase in the number of multinational corporations is recorded in emerging economies because of high growth opportunities. It is argued that in the near future, these emerging economies will be a central hub of internal business and trade. Each year a number of large MNCs are moving to emerging economies due to higher labor force, expertise, natural resources, and quality of work at a lower cost.

To test the hypotheses, corporate misconduct is for Pakistan. According to Jonsson et al. (2009), organizational misbehaviour refers to acts that are deemed risky, detrimental, or in violation of social norms by individuals. Misconduct can be related to product quality; more serious cases involve the use of unlawful and harmful food

additives, such as melamine in milk. Furthermore, common observation reveals that many businesses recover quickly from the stigma spillover, but there are many other firms as well that take time to recover and suffer greatly. Thus, the firms with different recovery periods help us determine the factors that may impact the misconduct spillover. Product similarity and geographic proximity are some of the characteristics that intensify the performance of industry peers. Hence, with the help of this phenomenon, the hypothesis is tested.

Variable Measurement

There are various types of variables involved in this research; namely, the dependent variable, control variables, and the core independent variables. Based on the extant literature, these different types of variables, which are used in subsequent empirical studies, help us find the outcomes regarding misconduct spillover.

Independent Variables

According to Hypothesis 1, the product similarity between the accused firms and innocent industry peers is considered to be the independent variable, which is assessed by analyzing through standard industry classification procedure. The Compustat Segments database is used to collect secondary SIC data, while the Osiris database is used to calculate firm age based on the date of formation stated in SEC filings for each firm. The similarity in the segments of industry between the industry peer and deviant firm is considered to be based on the ratio of common 4-digit SIC segments to the total SIC digits specifically in the year of the allegation. A dummy variable is created that takes '1' in case the last 4 digits of the SIC code of the accused firm are the same, otherwise '0'.

The 2nd hypothesis describes the distance that has also an impact on the performance of the industry peer in order to measure the distance between the industry peers and accused firms. To create the proxy for distance, the distance is calculated in kilometres between the locations of headquarters. Furthermore, it is calculated by

taking the square root of the kilometres between the headquarters (Zamir & Saeed, 2020).

Dependent Variables

The hypotheses of this study will be tested by the

application of event study technique analyzing the abnormal stock market returns of the industry peers during the time when the misconduct was known to the public. The impact of the allegation event can be determined by tracking stock market reactions to the companies that were not implicated at the time of the allegation. In earlier studies, the approach of the event study was used to account for negative spillover based on the expectations of investors (Paruchuri & Misangyi, 2015).

There are three measurements; (DRs) daily returns, (CARs) cumulative abnormal returns and (ARs) abnormal returns which will be taken as an appropriate benchmark of movement of stock price to evaluate the recovery from crisis spillover. Around the event, the cumulative abnormal returns exhibit a clear pattern, initially falling and then rising above zero. The value of CARs in a specific window represents the impact of an event on the stock price. The sample stock no longer faces the negative effects of the crisis when the CARs are greater than zero. We follow three procedures, which are standard procedure, to measure this variable. We used daily returns over 242 trading days prior to each crisis to calculate each non-accused firm's CAR by applying the following formula:

$$R_t = \ln \left(\frac{q_t}{q_{t-1}} \right) \dots \dots \dots (1)$$

By relating the return of security to its market portfolio, the normal expected return may be calculated using the regression equation shown below:

$$R_{jt} = \alpha_j + (\beta_j R_{mt} + \epsilon_{jt}) \dots \dots \dots (2)$$

Where R_{jt} represents the security j return on the day t , market return is represented by R_{mt} , beta of the stock j is shown by β_j , α_j shows the intercept and ϵ_{jt} represents the error term.

The following formula is used to determine a company's daily abnormal adjusted return (AR) during the event timeframe:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}) \dots \dots \dots (3)$$

Here, α_j and β_j are the ordinary least square (OLS) parameters which are determined from the regression equation (4).

Since the CAR may be close to zero (for instance 0.000000001) 1 day and below zero (e.g., 0.01) the next, we are unable to rely on the evaluation of the legitimacy recovery whether the number is greater than zero. Hence, we also assess which day each non-accused firm's CAR is more than zero. We used the bootstrapping method like Jia & Zhang (2016) to resample (with substitute) the available data of CARs for analyzing the standard deviation of its distribution. Jia & Zhang (2016) then determined the critical CAR, which is a threshold value of CARs that is greater than 0 at the 95% significance level, in order to solve these issues.

Control Variables

Control Variables are included that have an impact on the cumulative abnormal return of the industry peers and measures that capture several facets of similarities and associations between the two firms. The following control variables are used: firm size, firm age, firm leverage, market-to-book value, sale growth, debt-asset ratio, return on assets, the ratio of cash to total revenue and interest expense.

A firm's total assets are naturally logged to determine its size (SIZE). Since previous research shows a strong correlation between firm size and the amount of transparency in

annual reports, firm size is included (Ioannou & Serafeim, 2012). Based on the date of formation stated in listed companies' SECP filings, company age (AGE) is calculated. According to Paruchuri and Misangyi, (2015), the Firm's age (bystander firm age, accused peer firm age), can affect the investor's familiarity with the firm. Utilizing the ratio of long-term debt to assets, firm leverage (LEVERAGE) is calculated. Log transformed cash to debt ratio is described by financial solvency (Fin_Sol). On the one hand, high leverage might serve as a control measure to lessen the free cash flow issue in the manager-shareholder relationship. On the other hand, it can result in excessive investment in wasteful ventures. So, varied outcomes are anticipated (Zamir & Saeed, 2020; Ioannou & Serafeim, 2012; Crane et al., 2016; De Villiers & Marques, 2016; Ioannou & Serafeim, 2012). Return on assets (ROA) is a measure of a Firm's performance that relates to both the strength of its market position (Makarevich, 2018) and its sustainability (Shepherd, 1999). The ratio of the market value of equity to assets is represented by Market to book value (MTBV). An increase in revenue over time is presented by Sale growth (sale-growth). As cash on hand is quite necessary for running and meeting the expenses, in this regard the variable of ratio of cash to total revenue is incorporated. Due to the interest expenses associated with borrowing money, which have an impact on a company's revenue and performance, the variable of Interest expense (Int_Exp) is included (Zamir & Saeed, 2020). The measurement of variables in the current study is shown in the following table.

Table 1
Description of Variables

Variable Name	Acronym	Measurement	Source
Cumulative Abnormal Return	CAR	Stock price movement of each stock price: AR = ER-Actual rate of return CAR = ΣAR CAR = CAR/N	Thomson Reuter
Product Similarity	Product_S	Product Similarity is measured through standard industry classification. Based on how many SIC segments both companies	SECP

Variable Name	Acronym	Measurement	Source
		participated in during the year of the allegation.	
<i>Distance</i>	Dist	The distance is measured by taking the log of the number of kilometres.	Thomson Reuter & Google Map
<i>Debt Asset Ratio</i>	Debt_A	Total debt is divided by total assets.	
<i>The ratio of cash to total revenues</i>	Cash_R	The ratio of cash equivalents to total revenues	
<i>Firm Size</i>	Firm_Size	Totals Assets of the firm	
<i>Firm Age</i>	Firm_age	Totals years of firms' incorporation	
<i>Firm Leverage</i>	Leverage	Book value of a firm's total debt (short term and long term) to the total assets.	
<i>Market to Book Value</i>	Market_B	ratio of market value of equity to assets	Thomson
<i>financial solvency</i>	Fin_Sol	The ratio of cash to debt; the value is log-transformed	Reuter
<i>Cash Flow</i>	Cash_flow	Net income before interest and taxes plus accumulated depreciation divided by total assets	
<i>Sale growth</i>	Sales_growth	firm growth and is a firm's one-year growth rate in net sales.	
<i>Interest Expenses</i>	Int_Exp	Interest expense on debt	

Model and Estimation

Since the objective is to find out the impact of the misconduct of accused firms on the performance of industry peers, OLS Regression Analysis is adopted. OLS Regression Technique is considered to be a popular technique for calculating the coefficients of linear regression equations that represent the connection between one or more independent quantitative variables and a dependent variable.

In this study, the dependent variable is the cumulative abnormal return of industry peers in OLS regressions to test hypotheses. This allows for testing cross-sectional predictions based on product similarity between industry peers and deviant firms while controlling for their differences. The model is estimated to see how much the CAR represents stigma (e.g. Naumovska & Lavie, 2021).

The mathematical model of linear regression adopts the structure shown below:

$$CAR_{jk} = \alpha_0 + \beta_1 Product_S_{jk} + \beta_2 Dist_{jk} + \beta_3 firm_size_{jk} + \beta_4 firm_age_{jk} +$$

$$\beta_5 Return_A_{jk} + \beta_6 firm_lev_{jk} + \beta_7 Mar_V_{jk} + \beta_8 fin_sol_{jk} + \beta_9 Cash_flow_{jk} + \beta_{10} Sale_growth_{jk} + \beta_{11} Debt_asset_{jk} + \beta_{12} Cash_R_{jk} + \beta_{13} Int_Exp_{jk} + \epsilon_{jk} \dots\dots (4)$$

In model (4), CAR_{jk} is the cumulative abnormal return for the industry peer j leading up to non-accused firm k 's allegation, and $Product_S$ is the product similarity between j and k at that time. $Dist$ is the distance in kilometres between j and k at that time, proceeded by the error term ϵ_{jk} and vector of control variables.

Empirical Findings

Statistical Description

In the current study, statistics (Table 2) show that the log-transformed mean value of CAR; cumulative abnormal returns are 0.805 and the untransformed value is shown by the mean value of 0.807 indicating that industry peers take more than 8 days to recover from crisis spillover. The mean value of product similarity is 0.4839, showing that almost 48 % of the

market products are similar among accused and non-accused companies. Minimum and maximum values of product similarity indicate 0 and 1 which shows that the existence of product similarity is shown by 1 and 0 otherwise. The standard deviation is represented by the value 0.50041. However, the distance statistics show that the log-transformed mean value is 2.27 while the untransformed value is represented by the mean value of 683.559 which indicates the

average distance in kilometres between the deviant and innocent firms. Its minimum value is negative which is -0.5686 and the maximum is 3.188. Similarly, the standard deviation is 1.083875. Furthermore, the mean value of the debt-asset ratio is 0.400. Likewise, the untransformed values of ROA, Firm size, and the ratio of cash to total revenue are 6.50, 1.23, and 0.055 respectively. The flow of data is normal which can be tested and analyzed further to run the regression analysis.

Table 2
Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Ln_CARs	230	0.802366	0.326285	0.477122	1.176099
Product_S	230	0.483913	0.50041	0	1
Ln_Dist	230	2.272955	1.083875	-0.568637	3.18809
Debt_Asset	230	0.40098	0.716466	0.00039	10.332
Return_A	230	6.505255	6.914975	-25.25	29.99
Cash_R	230	0.055268	0.090501	0.0000147	0.770147
ln_Firms_size	230	1.234239	0.072246	0.8502815	1.313325
Ln_Firm_Age	230	1.670926	0.154857	1.14613	2.209518
Leverage	229	0.362131	0.717459	0.00039	10.3317
Market_B	230	0.000664	0.00077	0.0000225	0.00655
fin_sol	230	-0.92906	3.03663	-21.58	5.25
Cash_Flow	230	9.301416	14.9269	-47.1	70.55
Sale_growth	230	0.090554	0.847233	-8.4	2.426818
Ln_Intrest_Expense	230	5.370711	0.909996	0	7.305898

As far as correlations among the variables for regression analysis are concerned; it is presented in Table-3. Some variables show significant correlations with dependent variables for instance; Product similarity, debt-asset ratio, return on assets, and the ratio of

cash to total revenue. Product similarity shows a negative correlation with CAR while the distance shows a positive correlation. The independent variables are not highly correlated with each other which that the problem of multicollinearity does not exist.

Table 3
Correlations

	Ln_CARs	Product_S	Ln_Dist	Debt_Asset	Return_A	cash_R	ln_Firms_Size	Ln_Firm_Age
Ln_CARs	1							
Product_S	-0.0679	1						
Ln_Dist	0.076	0.0782	1					
Debt_Asset	-0.0278	-0.0715	-0.006	1				
Return_A	-0.1013	0.0772	0.1127	-0.025	1			
cash_R	-0.0443	-0.0196	-0.099	0.1156	0.0143	1		
ln_Firms_Size	0.0736	0.1169	0.1904	-0.092	0.177	0.094	1	
Ln_Firm_Age	-0.0209	-0.1221	-0.096	0.0431	-0.0248	0.072	-0.0486	1

Regression Results

Regression results are shown in Table 3. Regression analysis is used to check the impact of crisis spillover that is measured in terms of spillover duration. As per Hypothesis 1, the similarity of products has an influence on the crisis spillover within the same business. The duration of each non-accused firm is evaluated to see the recovery after misconduct. The coefficient term of product similarity is -0.059 ; ($\beta=-0.059$, $P>0.1$), indicating that there is a negative impact of

similarity of product on misconduct. Furthermore, as far as hypothesis 2 is concerned, the coefficient value of the distance is 0.165 which shows that the coefficient value is positive ($\beta=0.165$, $P>0.1$) which shows that there is a positive effect of distance on cumulative abnormal returns during crisis spillover. The findings show that the similarity of the product and distance can play an important role in the stigma spillover (Jonsson et al., 2009; Naumovska and Zajac, 2022).

Table 4

Regression Results

Variable Name	Coefficient	Std. Err.	t-Stat
Product_S	-0.0598545	0.0443	-1.35
Ln_Dist	0.0165733	0.0208012	0.8
Debt_Asset_Ratio	-1.888192	1.971784	-0.96
Return_A	-0.0043491	0.004449	-0.98
Cash_R	-0.0610476	0.2447995	-0.25
ln_Firms_Size	0.5561478	0.3333309	1.67
Ln_Firm_Age	-0.0348541	0.1424554	-0.24
Leverage	1.87178	1.972168	0.95
Market_B	14.62572	33.64725	0.43
financial_solvency	0.0057728	0.007997	0.72
Cash_Flow	-0.0017576	0.0018985	-0.93
Sale_growth	-0.0616634	0.0264995	-2.33
Ln_Intrest_Expense	0.0243513	0.0268879	0.91
_cons	0.1012744	0.4673732	0.22

Conclusion and Discussion

The current study analyzed the effect of corporate misconduct on the industry peers' performance. Further, it also assessed the role of product similarity and distance on the performance of non-accused firms. Through the mechanism of crisis spillover, innocent companies experience the repercussions of misconduct, but the majority of companies rebuild their credibility after the misconduct of industrial members. Less emphasis has been paid to the recovery of legitimacy as an additional effect of organizational wrongdoing (Greve et al., 2010). But how long should innocent businesses wait, and which businesses bounce back the quickest? These queries are addressed by our studies. By utilizing organization theory to indicate how

industry peers regain their reputation and legitimacy, we fill in this knowledge vacuum.

As a result, we make two contributions to the related literature. First, we demonstrate how particular business characteristics affect audiences' perceptions of organizations' propensity for misbehaviour. In order for a corporation to quickly regain its legitimacy, we also stress how crucial it is to lessen the link between innocent and deviant firms. Another major contribution is added by providing empirical evidence from a developing country; Pakistan.

The research has thrown light on the significance of the context of literature on corporate misconduct and indicates the contingent elements of similarity of product and distance. Furthermore, the study

highlights how these factors can influence the performance of the industry peers. However, the study contributes to the current literature e.g. (Laufer et al., 2018; Feng et al., 2022) by illuminating boundary constraints that influence the performance correlation between corporate scandal-non-accused enterprises.

The study indicates some practical implications as well. Managers can proactively assess the dangers and outcomes of product deviation by other companies and develop plans to lessen crisis spillover. Managers need to understand how restoring legitimacy works. Managers need to be aware that regaining credibility takes time, particularly when their companies produce impacted products. This study demonstrates that it typically takes more than 8 trading days for the stocks of innocent enterprises to recover from the adverse effects caused by other people's crises. Managers might think about supporting other politically visible firms or going global if a company is at a high risk of being impacted by such occurrences. For instance, compared to a domestic organization, a company with an

international presence reduces the time it takes for a crisis to spread by two to three days. Strategically, this clear divide gives an international company a significant competitive advantage, including time savings in crisis management, investor attraction, and market share gains over domestic companies.

The current study has limitations as well. Firstly, the study is held on the emerging economy of Pakistan. Being an emerging economy, it has different market structures and investors' and audiences' perceptions which has influence on the market performance differently. So, it might be compared with other emerging economies in order to compare the results. Secondly, other contingent factors may be included in the study; e.g. role of media, government and politics to analyze the influence of spillover after misconduct. Thirdly, we think that corporate defence declarations assist businesses in lessening the perceived force of associations between law-abiding businesses and immoral businesses. Future research examines if these business tactics actually benefit innocent organizations.

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