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Corporate Entrepreneurship and Innovation Performance: The Mediating Effect of Employee Engagement through Leader's Supervision

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Abstract: The purpose of this paper was to investigate the mediated moderating effect of employee engagement (EE) by leader's supervision in the effects of corporate entrepreneurship (CE) on innovation performance (IP). The study applied the cross-sectional analysis with our own survey that provided the data for this design. A total of 248 participants (12 managers, and 236 employees) were recruited for this study. The relationship of CE and IP was mediated by EE. Additionally, leader's supervision moderated the relationship between CE and IP. Furthermore, leader's supervision had a mediated moderation effect from CE to the IP, through the EE. The significance of this study lies in its contribution to CE, IP, EE and leader's supervision literatures. It was revealed that CE behavior was found in the organizational learning processes that strengthen employees' ability to analyze markets and formulate new products.

Keywords: corporate entrepreneurship; innovation performance; mediating effect; employee engagement; leader's supervision

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1. Introduction

Organizations strive for survival, growth and profitability, look forward to that, and work hard to achieve their desired goals, with the many challenges facing economic and industrial establishments. Among the most important and most serious challenges facing enterprises in the twenty-first century is what has been called "globalization", which has resulted in pressures, blocs, unions, open markets, unity of competition, in addition to the emergence of innovations and creativity for industrial and commercial facilities alike (Kubartz 2009). Therefore, competitiveness in contemporary life requires a radical change and transformation in the way companies and institutions are managed to move from a strategy of crawling and freezing in front of the problems and challenges raised to a strategy of building capacity and devising practical non-traditional solutions and stimulating creativity, innovation, modernization and growth.

An organization is supposed to be competitive when it has a higher ability than other companies whose members work to compete, or reduce the impact of threats, and this competition comes from the organization's ability to make use of its material or HR, which may relate to quality, technology, or innovation and development, availability of financial resources, ability to reduce cost, marketing efficiency, or possessing qualified human resources (Adair 2010).

Any organization, institution or company must possess a distinct identity that reflects the basic features and qualities that distinguish it and give it privacy from other institutions. Some institutions may be similar in the elements and components of the physical environment, such as buildings, equipment, technology and other things, but they differ in their philosophy, culture and products, its human cadre, and this contributes to defining the identity of the organization and distinguishes it from others (Erbe 2014; Heavey and Simsek

2013). CE has been recognized as beneficial to bring positive organizational outcomes (Kassa and Tsigu 2020).

Hence, it can be said that the empirical and theoretical understandings come together in order to bridge the gap by testing the mediated moderating effect of EE by leader's supervision in the effects of CE on IP, in Tunisia in particular. Examining the mediating role of EE by leader's supervision would add to our understanding about the nature of the relationship between CE and IP.

2. Importance

This study contributes to CE, IP, EE and LS literatures. To the best of our knowledge, the model developed for this research is a new model, tested only in this research, especially in Tunisian society. The model developed for this research includes the mediating effect of employee engagement through leader's supervision. It is worth investigating the mediated moderating effect of employee engagement by leader's supervision in the effects of corporate entrepreneurship on innovation performance in the Tunisian context.

3. Aims

The aim is to investigate the mediated moderating effect of EE by leader's supervision in the effects of CE on IP.

4. Theoretical Background

Academics and practitioners have accepted CE as a legitimate route towards increased levels of organizational performance (Hornsby et al. 2009). Corporate entrepreneurship is said to be a useful strategy that all organizations should be able to adopt if they wish to pursue innovation and expansion (Bani-Mustafa et al. 2021). It also represents an employee's willingness and engagement towards achieving their entrepreneurial vision (Do and Luu 2020).

Hornsby et al. (2002) have outlined that positive perception about the internal factors of corporate entrepreneurship leads to numerous performance outcomes, including innovation performance. Moreover, Nasution et al. (2011) suggest that entrepreneurship and entrepreneurial climate within the organization are important in motivating employees to enhance productivity and bringing innovation to the business.

On the other hand, Lukeš and Stephan (2017) demonstrated the mediating role of perceived managerial support for supporting innovations in an organization. In other words, even if the organization supports innovation, this support does not function well when the support from middle managers is missing. Successful innovation requires new ideas to be put into practice and implemented, but there is a need for feedback from managers (Santos et al. 2021).

Moreover, a lack of employee engagement has been evidenced to represent corporate-wide potential losses in creativity (Gilson and Shalley 2004), productivity and corporate performance (Harter et al. 2002). The results of González-Tejero and Molina's work (González-Tejero and Molina 2022) yielded a positive and direct link between the organization and the training of business leaders in programs of skills and competencies, as well as between the training and corporate entrepreneurship processes carried out in the organization.

4.1. Corporate Entrepreneurship (CE)

CE "refers to entrepreneurial activities [which] receive organizational sanction and resource commitments for the purpose of innovation results" (Kuratko and Audretsch 2009, p. 55). Entrepreneurship is originally a French word, meaning a person who initiates or initiates the establishment of a business, and this was confirmed and indicated by most researchers that projects can flourish only in a society in which there is a spirit of entrepreneurship and love of self-employment (Byrne et al. 2016).

The importance of entrepreneurship is attributed to the role it plays in improving productivity and encouraging economic growth. Therefore, the organization helps to create new businesses through product or process innovation, market development, and adoption of strategic innovation (Tseng and Tseng 2019). It can be said that entrepreneurial processes can occur at the level of the organization, or at the level of the business unit, or the functional level, or the project, with the aim of improving the organization's competitive position and improving current performance. Therefore, the entrepreneurial behavior is the behavior that defines the organization in a purposeful and continuous manner and forms the field of its operations by distinguishing and exploiting entrepreneurial opportunities directed towards innovation and creativity (Hornsby et al. 2002; Huang and Li 2017; Miller and Friesen 1982). Entrepreneurially oriented firms are characterized by the following three well-known dimensions: (1) the firms must be innovative to explore new opportunities, (2) be proactive to market entry before rivals, and (3) be risk-taking to introduce new products.

4.2. Innovation

Innovation is the specific function of entrepreneurship. It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth (Drucker 2002; Medase 2020). It is about turning new ideas and imaginative ideas into reality. Effective use of this mental quality may produce the following outcomes: generating something completely new (this product may be rare, except in cases of high creativity), as well as consolidating or integrating a set of divergent and undifferentiated ideas in a new, unfamiliar way, finding new ideas for a product and finally, transferring existing and circulating ideas to other beneficiaries or new people (Pitsis 2012). Chaithanapat et al. (2022) underlined the importance of innovation and how it influences firm performance. The positive influence of organizational innovation on organizational effectiveness is greater among individuals who embraced improvements rapidly than among those who did not (Naveed et al. 2022).

Therefore, it can be said that innovation represents one of the most important foundations for achieving a competitive advantage in the long term. It is worth noting that innovation processes that have achieved success can achieve a major source of competitive advantages because they give the organization unique products that its competitors lack, allowing the imposition of high prices, especially if we consider that innovation processes that succeed in introducing new products contribute to building and strengthening competitive advantages, then innovative institutions today do not resort to innovation to only create these advantages, but also to dominate the industry and its leaders (Yuan and Woodman 2010). Entrepreneurship and innovation are positively related to each other and interact to help an organization to flourish (Jarrar and Smith 2014). They are complementary and a combination of the two is vital to organizational success and sustainability in today's dynamic and changing environment (Reihlen and Ringberg 2013).

4.3. Mediation of EE and Leader's Supervision

When an employee perceives CE components, he/she is likely to feel engaged (Umair et al. 2020). Hewitt (2015) reported that employee engagement led to competitiveness and achievement of performance targets. Saks (2006) suggests that when the employee becomes engaged to work, he/she has the feelings of control; hence, he/she will receive support and recognition from his/her organization. Shuck and Reio (2014) found that employee engagement results in better behaviors and outcomes. Kassa and Raju (2015) found a positive relationship between CE and EE.

Moreover, Abu Shams et al. (2017) found a positive relationship between EE and IP of the firms. Leadership helps in the implementation of strategy in a successful way (Panagopoulos and Avlonitis 2010). Having had transformational leaders, companies are more likely to increase innovation (Gumusluoglu and Ilsev 2009), as leaders help employees commit to the different strategic activities of their company when leaders act as

a role model for encouraging their employees to follow their moral values and behaviors (Podsakoff et al. 1996).

Leaders help their employees redefine their old problems, and solve old cases with innovative solutions (Eisenbeiss et al. 2008). This constitutes the cooperative relationship between employees and helps them figure out innovative solutions (Soyal 2020). The literature contradicts the mediating effect. For example, Abu Shams et al. (2017) reported that EE does not mediate the relationship between CE and IP (Abu Shams et al. 2017).

Soyal (2020) did not report a significant moderating effect of transformational leadership on the relationship between CE factors and IP. However, Engelen et al. (2012) found that transformational behaviors of leaders are a perquisite in order for the companies to implement entrepreneurial orientation to increase their performance.

5. Research Questions

Research Question 1: Does leader's supervision have a significant moderating effect between CE and IP?
Research Question 2: Does EE mediate CE and IP?
Research Question 3: Is there a mediated moderating effect of leader's supervision in the relationship between CE, IP and EE?

6. Hypotheses

H1. *Leader's supervision has a significant moderating effect between CE and IP.*

H2. *EE mediates CE and IP.*

H3. *There is a mediated moderating effect of leader's supervision in the relationship between CE, IP and EE.*

7. The Conceptual Framework

Figure 1 shows the research questions and research models according to the above research objectives.

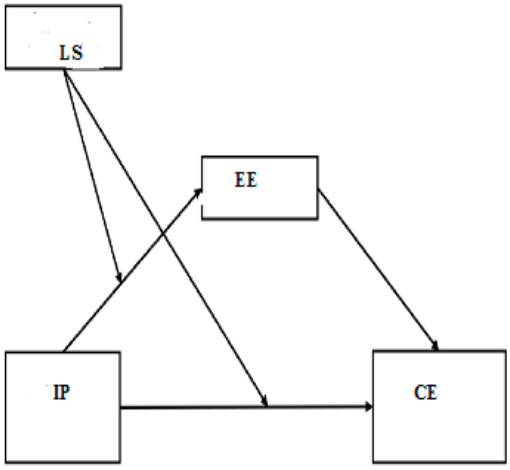

Figure 1. Research model.

8. Methodology

The study is cross-sectional, and survey-based in design. The Tunisian Insurance and Reinsurance Company is the context for the study.

Population of the Study and Data Collection

Société Tunisienne d'Assurance et de Reassurance (STAR; Eng. Tunisian Insurance and Reinsurance Company) is one of the Tunisian insurance companies. It was established

in 1958 as a government company. A total of 35% of its capital is transferred to the French insurance group called Groupama (French: Groupama). STAR is a leading company for Tunisian insurance companies, as it occupies the first place in the field of damage insurance and alone owns a percentage of 29%, and it is ranked ninth in the field of insurance life expectancy by 5%. Applying the random sampling technique, the study participants amounted to 248 (12 managers, and 236 employees). They were voluntarily asked to participate in the study. They were free to withdraw from participation at any time, although the researcher wished that they all continued to participate until the end of data collection. The survey consists of measures to obtain data pertaining to CE, IP, EE, and LS. Hornsby et al.'s survey of 5-items (Hornsby et al. 1992) is used to assess CE. EE is assessed by an instrument developed by Saks (2006), which has 6-items. IP is assessed by the 4-item scale developed by Janssen (2000). Peeters, Buunk, and Schaufeli's survey of 4 items (1995) is used to assess the supervisor. The survey has been translated into Arabic and translated back into English. The back-translated version is reviewed and approved by a panel of two professors fluent in English. The internal consistency of the survey is measured through Cronbach's alpha estimated at 0.89. The content validity of the scale is examined by a group of six experts. They assess the relevance of each item using a four-point Likert scale. The items of the survey are judged to be quite or highly relevant. A CVI is calculated at the item level (I-CVI = 0.90). The author sends 400 questionnaires. Only 248 complete surveys are gathered with complete data, representing a response rate of 0.62%.

9. Data Analysis

SPSS 25 (IBM Co., Armonk, NY, USA) is used to collect and analyze data and model 8 of PROCESS macro proposed by Hayes (2018). First, descriptive statistics and correlation analysis of each variable are performed using SPSS 25 (IBM Co., Armonk, NY, USA). In order to analyze research question 1, the interaction effect of the corporate entrepreneurship and leader's supervision on innovation performance through multiple regression analysis is confirmed and the significance is verified. To analyze research question 2, the mediating effect of EE is analyzed on the relationship between CE and IP through hierarchical regression analysis. Finally, using model 8 of the PROCESS macro, the mediated moderating effect of CE on IP through EE is confirmed according to leader's supervision.

10. Results

10.1. Correlation between Variables

The correlation between CE and IP, EE and leader's supervision was calculated using PCC. The results are shown in Table 1.

Table 1. Correlation among CE and IP, EE and leader's supervision.

	1	2	3	4
CE	-			
IP	0.35 *	-	0.42 *	
EE	0.42 *	0.36 *	-	
LS	0.31 *	0.43 *	0.49 *	-

Note: CE = corporate entrepreneurship, IP = innovation performance, EE = employee engagement, LS = leader's supervision. * $p < 0.01$.

As shown in Table 1, corporate entrepreneurship and innovation performance were positively correlated (r = 0.35, $p < 0.01$). In addition, there is a positive correlation between leader's supervision and innovation performance (r = 0.43, $p < 0.01$). Moreover, employee engagement and leader's supervision are positively correlated (r = 0.49, $p < 0.01$). Furthermore, there is a positive correlation between employee engagement and innovation performance (r = 0.36, $p < 0.01$).

10.2. Moderating Effect of Leader's Supervision on the Relationship between CE and IP

In order to analyze the mediated moderating effect, the interaction effect of the independent variable and the moderator on the dependent variable must be considered first (Feng et al. 2020).

A hierarchical regression analysis is performed to determine whether leader's supervision had a moderating effect between corporate entrepreneurship and innovation performance. Prior to analysis, to minimize the multicollinearity problem, mean centering of the independent variable and the control variable is performed and then used for the analysis. In addition, Durbin–Watson coefficient values are calculated to examine the presence or absence of autocorrelation between residuals (occurs when the residuals are not independent of each other; that is, when the value of e(i + 1) is not independent from e(i). The value of the coefficient was 0.76, less than 1.0, indicating that there is autocorrelation (Chatterjee and Simonoff 2013). Table 2 shows the results of the mediating effect of leader's supervision in the relationship between corporate entrepreneurship and innovation performance.

Table 2. Leader's supervision as a moderator of the relationship between CE and IP.

	β	*t*	R^2	*F*
CE(A)	0.32	5.39 ***	0.27	43.72
LS(B)	0.56	8.27 ***		
CE(A)	0.32	5.42 ***	0.28	33.52
LS(B)	0.55	8.03 ***		
A × B	0.21	2.11 ***		

*** $p < 0.001$.

In order to check the influence of CE on IP by interacting with leader's supervision, in the first stage, CE and leader's supervision, which is a controlling variable, were simultaneously input. As a result of inputting the interaction term, the R2 change amount is as much as 0.01, which was statistically significant ($p < 0.001$).

Table 3 shows the results of bootstrapping the regression coefficients according to the level of the control variable to find out which value of the control variable measured as a continuous variable shows the control effect.

Table 3. The results of bootstrapping the regression coefficients.

	95% CI				
Leader's supervision	*B*	*SE*	*t*	LL	UL
	0.57	0.23	7.54	0.89	0.52

As shown in Table 3, when leader's supervision is higher than the average and when CE increased by 1, IP was increased by 0.57, which is statistically significant (B = 0.57, $p < 0.01$). Through the analysis results of the moderating effect, it is confirmed that leader's supervision was controlling the effect of CE on IP.

10.3. Mediating Effect of EE on the Relationship between CE and IP

As a result of examining the multicollinearity of the variables to verify whether the assumption of multiple regression analysis is not violated in examining the mediating effect of employee engagement on the relationship between corporate entrepreneurship and innovation performance, the variance inflation factor is less than 10, and tolerance is greater than 0.1, indicating that multicollinearity does not exist. For the mediating effect analysis, multiple regression analysis based on the three-step approach model of Baron and Kenny (1986) is performed. Accordingly, the results of examining the mediating effect are shown in Table 4.

Table 4. The mediating effect.

Step	β	*t*	R^2	*F*
1- CE → EE	0.42	8.23 ***	0.19	52.11 ***
2- CE → IP	0.35	5.14 ***	0.12	44.33 ***
3- CE → IP	0.31	4.34 ***	0.10	40.15 ***
4- EE → IP	0.36	5.79 ***	0.13	49.63 ***

*** $p < 0.01$.

As shown in Table 4, in the regression model of the first stage, the independent variable, CE, significantly predicts EE, the mediating variable (β = 0.42, $p < 0.001$). In the two-step regression model, it can be observed that CE significantly predicted IP, the dependent variable (β = 0.35, $p < 0.001$). Finally, in the three-step regression model, employee engagement, a mediating variable, significantly predicted innovation performance as a dependent variable (β = 0.36, $p < 0.001$), and after controlling for EE as a mediating variable, the independent variable, the significant effect of CE on the dependent variable, IP, is still found (β = 0.31). Therefore, it can be said that EE has a partial mediating effect on the relationship between CE and IP.

10.4. Mediated Modulation Effect

Next, the research model is analyzed using model 8 of the PROCESS macro according to the mediated moderation effect analysis method (Hayes and Preacher 2014).

The significance of the moderating effect is analyzed in study question 1, according to the analysis procedure of the mediated moderating effect. Since the significance of this has been found, the next analysis will examine the mediated moderating effect.

The mediated moderation model is used to observe the effect of the moderating effect on the dependent variable via the mediating variable (Hayes 2009). The interaction term between the independent variable and the moderator variable leads to the mediating variable (direct effect) and the interaction term affects the dependent variable via the mediator variable (indirect effect), which should be significant (Hayes 2018). The analysis results are shown in Tables 5–7.

Table 5. Direct effect of employee engagement.

	Employee Engagement		
	SE	β	*t*
Constant	0.42		197.22 ***
CE	0.08	0.54	14.65 ***
LS	0.09	0.56	15.07 ***
CE × LS	0.06	0.49	11.22 ***

*** $p < 0.01$.

Table 6. Direct effect of innovation performance.

	Innovation Performance		
	SE	β	*t*
Constant	0.44		199.82 ***
EE	0.07	0.57	13.60 ***
CE	0.06	0.53	12.33 ***
LS	0.06	0.52	12.52 ***
CE × LS	0.05	0.48	10.97 ***

*** $p < 0.01$.

Table 7. Indirect effect of leader's supervision.

Indirect Effect				
Leader's supervision (LS)			**95% CI**	
	Effect	Boot *SE*	Boot LLCI	Boot ULCI
	0.053	0.031	0.073	0.021

According to Tables 5–7, the interaction variables of corporate entrepreneurship and leader's supervision significantly predicted employee engagement (β = 0.49, $p < 0.01$), and employee engagement has a significant direct effect on innovation performance (β = 0.49, $p < 0.01$), β = 0.53, $p < 0.001$). Next, the conditional indirect effect was analyzed using the bootstrap confidence interval to test the significance of the moderating effect, mediated by the interaction variable of corporate entrepreneurship and leader's supervision on innovation performance through employee engagement. As a result of the analysis, since 0 was not included in the 95% confidence interval at all levels, the mediated moderating effect was significant at all levels of the moderating variable, and as the leader's supervision increased, the positive indirect effect increased. The indirect effect index is 0.053 (95% CI (0.073–0.021)). These results indicate that the indirect mediating effect of the corporate entrepreneurship on innovation performance through employee engagement is regulated by leader's supervision.

11. Discussion

The aim is to investigate the mediated moderating effect of EE by leader's supervision in the effects of CE on IP. The research results according to the research questions are summarized and discussed as follows.

The results indicated that corporate entrepreneurship and innovation performance are positively correlated (r = 0.35, $p < 0.01$). In addition, there is a positive correlation between leader's supervision and innovation performance (r = 0.43, $p < 0.01$). Moreover, employee engagement and leader's supervision are positively correlated (r = 0.49, $p < 0.01$). There is also a positive correlation between employee engagement and innovation performance (r = 0.36, $p < 0.01$).

When leader's supervision is higher than the average and when CE increased by 1, IP is increased by 0.57, which is statistically significant (B = 0.57, $p < 0.01$). Through the analysis results of the moderating effect, it is confirmed that leader's supervision was controlling the effect of CE on IP.

The interaction variables of corporate entrepreneurship and leader's supervision significantly predicted employee engagement (β = 0.49, $p < 0.01$), and employee engagement has a significant direct effect on innovation performance (β = 0.49, $p < 0.01$).

It is found that the CE and IP were regulated by leader's supervision. In the relationship between CE and IP, the moderating effect of leader's supervision is found to be significant. This suggests that the effectiveness of CE in IP is determined by leader's supervision. Both CE and IP are vital, as well as an issue that can be described as a decisive issue in case of any firm wishes to compete in a world economy that is viewed as competitive entrepreneurial one. This is in line with Han and Park (2017), who confirmed that CE plays an important role in the happening of IP, and Hornsby et al. (2002), who confirm that when the internal factors of CE are positively perceived, this will lead to numerous performance outcomes, including IP.

Secondly, the mediating effect of EE is significant in the relationship between CE and IP. In other words, corporate entrepreneurship is a valuable means for stimulating companies and increasing productivity, effectiveness and affectivity (Varma 2013), that is, true CE success of any company depends on its employees being engaged in the firm's work. This is reflective of employees' ability to cope with the culture of a firm. These results are in line with previous studies (e.g., Janssen 2000) that when an employee perceives various work factors in his/her firm, this is likely to facilitate the prediction of IP. When

employees find that management supports them, time is available for them to work, freedom to do their work is allowed, resources are available for entrepreneurial activities, their behaviors become innovative (Pitt et al. 1996). In addition, this study suggests that there is a positive relationship between EE and CE. These results are in line with previous studies. For instance, Kassa and Raju (2015) reported that CEAI can be used to predict employee engagement. Engagement with work means employees feel joyful, enthusiastic, proud, and passionate and express contentment with the work (Schaufeli et al. 2002). It has been concluded that there is a direct and positive relationship between CE and EE (Kassa and Raju 2015). Employees who are engaged in work are likely to achieve good performance outcomes for any business, since they express active involvement in their work (Reijseger et al. 2017). When an employee is provided with support from their management, given extra time, allowed to work at his/her own pace, given clear organizational boundaries, and rewarded for his/her creativity and innovation, this will lead to deep and extensive engagement in work, and enhancement of business performance (Umair et al. 2020). Employees who receive healthy CE culture feel responsible to repay the business with engagement, which can lead to effective business performance (Saks 2006).

When outcomes are innovative, individuals are motivated to engage in innovative behavior. This also encourages individuals to have a positive perspective towards their organization (Tseng and Tseng 2019).

In Umair et al.'s study (2020), the environment was corporate entrepreneurial. Employees receive management support, time, work independence, clear organizational boundaries and rewards. As a result, they feel committed to their company and increased business performance. Employee innovative behavior is shaped by their leaders through support and encouragement during the creative process, as proposed by some researchers (e.g., Faraz et al. 2018; Hansen and Pihl-Thingvad 2019; Ismail and Mydin 2019).

It can be concluded that leader's supervision moderates the relationship between CE environment and IP by affecting the employees' motivation to be creative and innovative (Bass 1999; Kamatigam 2017; Soyal 2020).

12. Conclusions

The significance of this study lies in its contribution to CE, IP, EE and leader's supervision literatures. It was revealed that CE behavior was found in the organizational learning processes that strengthen employees' ability to analyze markets and formulate new products. The interaction variables of corporate entrepreneurship and leader's supervision significantly predicted employee engagement, and employee engagement had a significant direct effect on innovation performance. The mediated moderating effect was significant at all levels of the moderating variable, and as the leader's supervision increased, the positive indirect effect increased. These results indicate that the indirect mediating effect of the corporate entrepreneurship on innovation performance through employee engagement is regulated by leader's supervision.

13. Research Implications

It is confirmed that individual employees can play various roles in the process of corporate entrepreneurship, but the most important role in the facilitation of CE is from a sponsor, i.e., a high-ranking manager who functions as the advocate of entrepreneurial activity. Leaders promote creativity and improve team members' engagement in innovation activities to further progress CE phenomenon in firms.

14. Limitations

This paper has focused on just one firm, that is, Société Tunisienne d'Assurance et de Reassurance (STAR), which may be too small a sample to draw sweeping conclusions from. It is necessary and important to study more than one firm. Further studies should also involve more respondents and more settings.

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Institutional Review Board Statement: There is no ethical committee in the institution in which this study was conducted but the ethical code of Zitouna University in Tunisia was followed.

Informed Consent Statement: Informed consent was obtained from all subjects.

Data Availability Statement: Data should be accessed from the author in request at prof_fatmacherif 1970@yahoo.com.

Conflicts of Interest: No potential conflict of interest relevant to this article was reported.

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