

Investigate the Relationship between Corporate Entrepreneurship with Financial Performance in Pakistan: An Empirical Study

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Abstract

The main purpose of this research is to look into the link between corporate entrepreneurship and financial performance in Pakistani manufacturing firms. Corporate entrepreneurship is becoming increasingly popular among huge corporations. The idea is employed in major corporations to stimulate innovation or to improve the company's performance. Existing companies' new ventures confront numerous obstacles, and data suggests that the majority of them fail. For large corporations, corporate entrepreneurship is very important. This is a quantitative study that used a questionnaire research methodology since it was deemed appropriate for this type of research.

The respondents were chosen from the manufacturing sector of the Lahore Chamber of Commerce using simple random sampling. The study's target population was managers in Pakistan's manufacturing industry. This study employed a sample size of 307 people from a population of 10,000. The validity and reliability of the research instruments utilised in the

study were tested in a pilot study. The Statistical Package for Social Sciences (SPSS) was used to analyse the study's findings (SPSS version 21). For assessing associations between variables, the researchers utilised the Pearson-Correlation Coefficient and the Multiple Linear Regression Model.

The study established that corporate entrepreneurship dimensions (innovation, new business ventures, strategic renewal, pro-activeness, risk-taking, and autonomy) were found to have a statistically significant link with financial performance in the study. Strategic renewal and autonomy were also found to have a high relationship with financial performance in the study. According to the findings, corporate entrepreneurship features such as innovation, new business ventures, risk-taking, strategic renewal, pro-activeness, and autonomy have a favourable impact on manufacturing companies' financial performance in Pakistan.

The report suggests that managers in Pakistan's manufacturing sector concentrate on corporate entrepreneurship characteristics. You'll need a goal and a plan if you want your corporate entrepreneurship attempts to succeed. Open to risk, encourage partnerships, create skills and expertise, offer management assistance, allow access to critical resources, maintain a supportive organisational structure, and set realistic performance targets are all characteristics of the most successful entrepreneurial cultures. For the best results, don't forget to analyse your entrepreneurial environment on a frequent basis.

Keywords: Corporate entrepreneurship, financial performance and manufacturing companies

1. Introduction

Economists define entrepreneurship as a combination of invention and risk-taking. When such activity expands, large growth rates are achieved, as well as opportunities for all members of society, including the poor. The government's intrusive involvement in Pakistan has severely impeded innovation and risk-taking. If Pakistan is to develop an entrepreneurial culture, the country's legal and policy framework that promotes entrepreneurship must be dismantled. The rise of entrepreneurship as a conscious mechanism in Pakistan is a recent post-colonial phenomenon. It's crucial to remember that entrepreneurship is a system in which a range of environmental elements, such as cultural norms, beliefs, and institutions, interact with a variety of economic variables, such as loan availability, barriers to new firm entrance, and property rights, to mention a few. The government plays an important role in this system (Kumar, 2020).

The country's economic policies, on the other hand, have a considerable impact on corporate entrepreneurship. The internet is widely used all across the world. The rise in popularity of online shopping and selling, as well as social media marketing, has generated a slew of new business ideas. This trend has accelerated rapidly during the last decade. As a result, Pakistani business schools, like those in other countries, are seeking to highlight entrepreneurship as a separate discipline. Entrepreneurs play a vital role in bridging the gap between Main Street and high-tech activity. The primary function of educational institutions in the economy is to create jobs, change, and develop ideas (Ahmed et al., 2019).

The execution of a value creation process in an organisational setting is known as corporate entrepreneurship. A "new combination" is established, according to the Schumpeterian view of entrepreneurship that should have a direct impact on the firm's performance, and the process of establishing this new combination is the result of a complex social mechanism influenced by both internal and external influences (Fis and Cetindamar, 2019). Today's businesses are very competitive. Organizations used to have to compete primarily in the physical world. They must now up the ante by implementing a multi-channel digital branding strategy.

To survive and flourish, large businesses must use their resources and abilities to establish a competitive edge that allows them to not only achieve higher performance but also surpass their competitors. Enterprises' willingness to engage in and support new ideas, innovation, experimentation, and creative processes that may result in new items, services, or technical procedures will catch customers' rapidly changing tastes. Profitability will increase as a result of the company's ability to deliver a wide range of products and services. By improving or implementing new procedures and technology, this will also save money (Ambad and Wahab, 2016).

Entrepreneurial finance difficulties differ significantly from those confronted by corporate executives. The most obvious is "financial," which is something that almost every firm is familiar with. To the average entrepreneur, this essentially means "finding money." The majority of entrepreneurs focus almost entirely on the process of attracting investors. While important, it is not the only financial decision a business owner must make. New enterprises,

on the other hand, have no market for their financial claims and must rely on investors for funding. As a result, companies routinely fund initiatives in the hopes of generating a positive net return on investment, whereas a new firm would reject the identical concept unless it could raise cash. Current studies in the disciplines of management and business are deficient on corporate entrepreneurship of businesses and enterprises (Daryani and Karimi, 2007).

As a competitive and performance improvement strategy, all firms, regardless of size, should engage in corporate entrepreneurship. Companies must develop an environment that encourages employees to act entrepreneurially by offering support systems, structures, and resources in order for corporate entrepreneurship to thrive. When studying the effects of corporate entrepreneurship on business performance, numerous measures of growth and profitability should be investigated because its application is broad and spans many organisational parts (Mokaya, 2012).

The company's performance is a frequently used structure for assessing the impact of a company's strategic direction. A reduction in corporate performance is unquestionably a problem and a challenge for the company's strategy orientation to maintain the firm's excellent performance through a strategic orientation to stay in business. Management theory implies that a corporate entrepreneurial approach to decision-making is important to the organization's success in overcoming these challenges (La Nafie et al., 2016).

On the one hand, in the face of intense market competition, globalisation and technological development, innovation, and differentiation - as a requirement for any company - has led companies to consider the need to exploit new opportunities in the international arena in order to gain market success and maintain competitive advantage. In global competition arenas, entrepreneurial companies can help huge corporations as their key clients produce competitive profit by lowering costs and speeding up technical development. As a result, given the importance of entrepreneurship in various organisational aspects on one hand, and the undeniable role of small and medium businesses in the national and international economy on the other, the study's presented and approved model can be used to administer small and medium businesses in Iran, and necessary planning must be done on the basis of it to improve organisational performance (Kahkha et al., 2014).

The purpose of this paper is to evaluate the impact of corporate entrepreneurship dimensions on financial performance, given the foregoing and the fact that corporate entrepreneurship has a significant impact on financial performance and is an important contributor to a firm's long-term and competitive wealth creation. First, review literature on financial performance and corporate entrepreneurial traits, and then compare the performance indicators used in both processes. The research contributes to existing knowledge and understanding of financial performance and corporate entrepreneurship, as well as measures of the effects of firms' use of these instruments to build wealth and competitive advantages.

1.2 Research question

1. What is the relationship between corporate entrepreneurship and financial performance in manufacturing companies of Pakistan?

1.3 Research objective

1. To analyze the relationship corporate entrepreneurship and financial performance in manufacturing companies of Pakistan.

2. Literature review

2.1 An overview of corporate entrepreneurship

Corporate entrepreneurship, which combines startup-like qualities with established corporate structures, appears to need its own role model. Existing role models, on the other hand, serve as a framework for investigating new corporate entrepreneurship opportunities. Companies can no longer expect to reap the full benefits of internationalisation just by transplanting their domestic business practises to foreign markets. To win in global markets, companies must be entrepreneurial when deciding when, how, and where to expand internationally. As a result, internationalisation provides a unique opportunity to study corporate entrepreneurship and its links to performance in both new and established businesses (Dess et al., 2003).

Furthermore, corporate entrepreneurship may be an effective remedy for large-company staleness, a lack of innovation, sluggish top-line growth, and the lethargy that afflicts many of the world's largest, mature businesses. Corporate entrepreneurship could also be viewed as an oxymoron, a unique approach to new business growth that sits oddly, if not impossible, beside the meticulous planning, structure, and organisation that many huge firms have established over time (Thornberry, 2001). Managing organisational knowledge is essential for producing unique combinations of knowledge resources, among other things, in order to be innovative. It brings a fresh viewpoint to the current literature on corporate entrepreneurship, which has previously focused on the functions and features of the entrepreneur/multiple intrapreneur (Christensen, 2004). Entrepreneurial activities include the use of new resources, connection with new customers, involvement in new markets, and/or novel combinations of the company's current resource portfolio, customer base, and served markets (Bhardwaj and Sushil, 2012).

Corporate entrepreneurship is defined as entrepreneurial actions that use organisational resources and commitments to improve the firm's competitive and market positions through increasing organisational, product, and process innovativeness (Ogunsiji and Ladanu, 2017). Product development, process innovation, and market expansion are all examples of business entrepreneurship (Salvato et al., 2009). Corporate entrepreneurship, on the other hand, attempts to duplicate the benefits of flexibility and innovation associated with small businesses in the framework of a large enterprise. Corporate entrepreneurial activities serve as a counterweight to an organization's natural tendency to become stagnant and rigid (Thomson and McNamara, 2001). As a result, corporate entrepreneurship is a management tool that executives can utilise to launch new enterprises (Veenkar et al., 2006).

Despite the growing popularity of corporate entrepreneurship, academics have been unable to come to an agreement on the term. As a result, corporate entrepreneurship is described as corporate initiatives that encourage entrepreneurship within an existing business. It is a process that occurs within a government agency that results in new and improved services,

technology, administrative procedures, and new and improved strategies (Kearney et al., 2007). Due to financial constraints, when a new firm is successfully founded within an existing corporation, it is often reintegrated into the bureaucratic architecture. Individuals in charge of completing the project may become disillusioned and leave the company, taking with them their innovative focus and critical understanding (Brazeal, 1993).

2.2 Dimensions of corporate entrepreneurship

Pursuing corporate entrepreneurship at the corporate level is a significant barrier for both large and small businesses seeking to thrive in competitive markets. Corporate entrepreneurship is frequently the product of a big number of people's entrepreneurial effort (Ferreira, 2001). Entrepreneurship is generally connected with inventiveness and risk-taking, both of which are significant attributes that influence the order and timing of new product releases (Srivastava and Lee, 2005).

Top organisational leaders should include a mandate to use corporate entrepreneurship techniques and thinking to design the future and organise to provide the best chances for realisation of their vision in this environment (Cohen, 2002). Autonomy, creativity, proactivity, competitive aggressiveness, risk-taking, new business venturing, and self-renewal are seven components of corporate entrepreneurship that have been studied previously (Kenney and Mujtaba, 2007; Bhardwaj and Sushil, 2012).

Under the entrepreneurial orientation construct, **innovativeness** is defined as a firm's proclivity to participate in and foster new ideas, innovation, experimentation, and creative processes that may result in new goods, services, or technological processes (in broad Schumpeterian terms) (Lassen et al., 2006). **Risk-taking:** The ability to take risks is a trait that is often used to describe entrepreneurship. Depending on the context in which it is used, it can have a variety of meanings. Uncertainty and unfamiliarity are frequently associated with taking risks in the unknown, which can apply to a wide range of situations.

New business venturing: Internal corporate entrepreneurial endeavours that result in the formation of new company groups are referred to as new business venturing. They may be the result of or lead to innovations that take advantage of new markets, product offers, or both. They may be the result of or lead to innovations that take advantage of new markets, product offers, or both. External corporate venturing occurs when corporate venturing initiatives result in the formation of semi-independent or autonomous organisational units that operate outside of the current organisational area. Internal corporate venturing occurs when corporate venturing activities result in the creation of organisational entities that operate within an existing organisational domain (Ramachandran, et al., 2006).

Pro-activeness refers to taking the initiative and anticipating future issues, requirements, or changes in the entrepreneurial process. As a result, entrepreneurship has become synonymous with foreseeing and pursuing new opportunities, as well as participation in emerging markets (Lassen et al., 2006). Early product releases and projecting future demand characterise pro-activeness, which is a forward-thinking, opportunity-seeking mentality (Eze, 2018). **Strategic renewal** is more serious since it redefines the company's relationship with its

markets or industry position, putting the company's current market segment and brand position in risk. The focus of this sort of corporate entrepreneurship is usually on market variations rather than changes in the supply side of products and services (Frederiksen and Davies, 2008).

Entrepreneurship is defined by the creation of new, self-contained businesses, which is a crucial component of **autonomy**. As a result, their behaviours are unrestrained, and they are free to act autonomously, make important decisions, and proceed through the process. In these circumstances, emphasising autonomy was also discovered to be a key characteristic in the development of radical innovation. The emphasis on the individual, the organisational concept of radical innovation, and managerial strategies all demonstrated autonomy. **Competitive aggressiveness**, on the other hand, is concerned with how businesses interact with one another, namely how they respond to market trends and demand (Lassen et al., 2006).

2.3 Financial performance

Financial performance measures or measurements are metrics that are used to determine the effects of a company's actions and activities in utilising its resources, and hence how well the company's actions and activities fulfil the balanced expectations of its stakeholders (Ogunsiji and Ladanu, 2017). Quantitative criteria such as profits over assets, profits over own resources, profits over sales, and sales growth in major products/services and markets, all examined over multiple years and compared to primary competitors, can be used to evaluate success. Sales growth, changes in market share in contrast to the firm's main competitor, return on assets, and new product success as measured by revenues and market share can all be tracked (Rupcic et al., n.d).

Furthermore, investors, shareholders, and other stakeholders expect to be updated on a frequent basis on the company's performance. Financial data (such as return on investments, return on equity, sales growth, profitability, and so on) is the most basic and reliable of the other performance indicators. Financial data, on the other hand, should be shared with regulatory and supervisory agencies so that specific fiscal difficulties and taxation can be investigated. The amount of financial data that should be disclosed is determined by the characteristics of the firm, such as whether it is a private or public corporation, its size, and whether it is listed or unlisted (Aktan and Bulut, 2008).

2.4 Linking corporate entrepreneurship with financial performance

As previously non-entrepreneurial businesses continue to do so in order to survive and grow in more competitive and financially restricted contexts, the scope of corporate entrepreneurship is also expanding (Phan et al., 2009). Corporate entrepreneurship demands a diverse set of resources, and entrepreneurship activities may be limited in their availability. A fledgling company, for example, might be short on finance; new product development might be limited by technical resources; and developing businesses might be short on administrative resources (Xianguo et al., 2009).

The term "corporate entrepreneurship" refers to the collaborative efforts of all company

departments. To have a more advantageous synergistic effect on corporate performance, corporate entrepreneurship activities should be integrated into the learning organisation architecture. A corporation can better assess the market setup, find latent requirements, provide greater value, and develop breakthrough ideas with the potential to disrupt the market by adopting adaptive and generative organisational learning methodologies (Rupcic et al., n.d).

If corporate management does not know what they intend to achieve, encouraging corporate entrepreneurship becomes difficult. Managers must set goals for new initiatives, new products, process improvements, and new markets, among other things (Morris et al., 2009). It's crucial to remember that corporate entrepreneurship is an attempt to instil the mindset and skill set of successful start-up entrepreneurs into the cultures and operations of a huge corporation. Corporate entrepreneurship can counteract staleness, a lack of innovation, slow development, and the lethargy that often afflicts the world's largest, well-established corporations (Thornberry, 2001).

In the literature, corporate entrepreneurship and its various features have been studied and linked to operating performance. When it comes to future business performance, corporate entrepreneurship has a lot of predictive potential (Karacaoglu et al., 2013). These companies are critical because they contribute significantly to national gross domestic product, employment, and the relief of economic problems (Kahkha et al., 2014). Product and service innovation may be viewed as critical to a company's success and growth. Strategic partnerships may be beneficial to a company's long-term development (Antoncic and Scarlet, 2005). Through risk-taking, innovation, corporate venturing, proactiveness, and strategy renewal, corporate entrepreneurship fosters non-financial success (market share and employee pleasure) (Eze, 2018).

On the other hand, financial data should be shared with regulatory and supervisory agencies so that they can analyse specific fiscal difficulties and taxation. CE's strengthened competitive position in the marketplace may result in considerable financial benefits in the long run. As a result, in the manufacturing business, one parameter, sales, was employed to determine the relationship between CE and financial performance (Lwamba et al., 2014). Corporate entrepreneurship boosts a company's performance in the short, medium, and long term. It also has a bigger positive influence on company performance in countries with fewer employee protection rules (Vanacker et al., 2020).

2.5 Theoretical framework

Corporate entrepreneurship

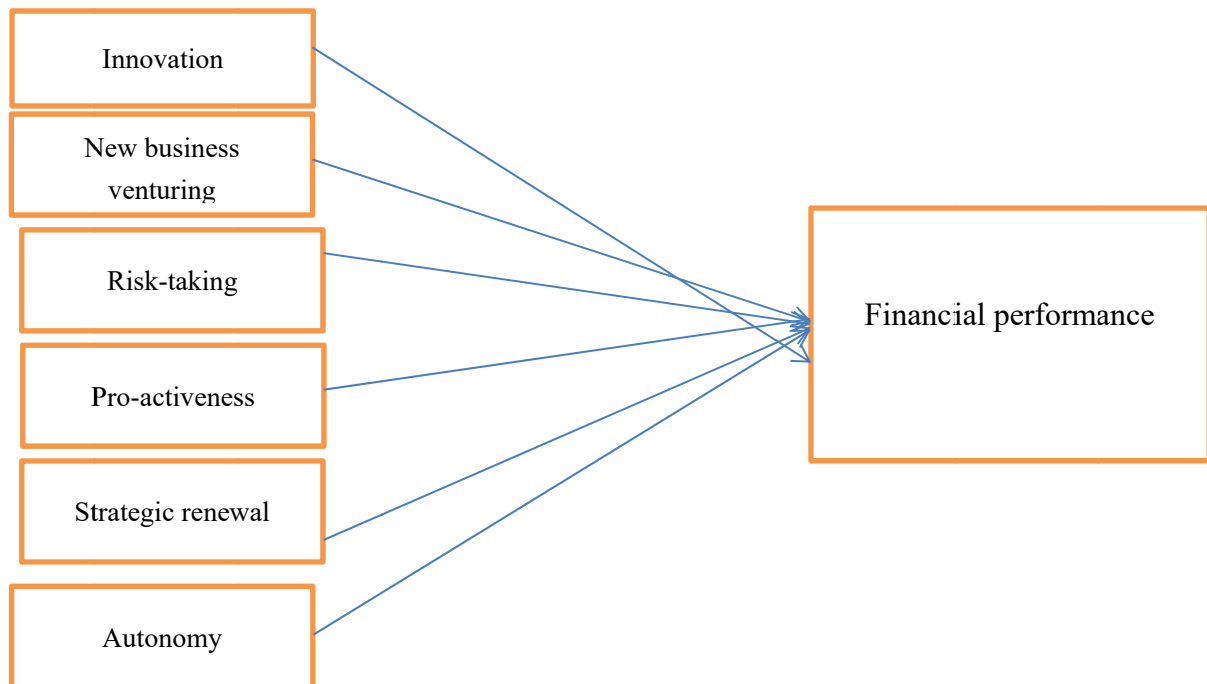


Figure 1. Theoretical framework

2.6 Hypothesis development

i. Innovation and financial performance:

Companies often sign collaborative knowledge-sharing agreements with one another to boost their innovation performance since innovation is crucial to organisational success and stability. A growing corpus of research has examined how a company's portfolio of such connections affects its learning and innovation (Wadhwa et al., 2016). Organizational innovation is critical for a company's long-term success, particularly in the manufacturing industry (Jingnan and Yunus, 2018). Only by establishing adequate inventive activities can an organization's entrepreneurial spirit be able to adapt with and benefit from rapidly changing market conditions (Aktan and Bulut, 2008). In small and medium-sized enterprises, there is a significant link between innovation and profitability (La Nafie et al., 2016; Abosede et al., 2018). We observed that financial performance and innovation are negatively related (Shamsuddin et al., 2012). As a consequence, we've come up with the following hypothesis:

H1: Innovation has positive effect on financial performance.

ii. Risk-taking and financial performance

Acting aggressively without understanding the implications is known as risk taking (Ijeoma and Onuoha, 2018). Profit, revenue, return on assets, return on equity, and return on capital, to mention a few financial measures, are all required to take calculated risks in the unknown (Oladimeji et al., 2019). In small and medium-sized organisations, there is a strong link

between risk-taking and corporate performance (La Nafie et al., 2016; Abosede et al., 2018). Taking risks has no influence on the financial success of the organisation (Shamsuddin et al., 2012). As a result, our second hypothesis is as follows:

H2: Risk-taking has positive effect on financial performance.

iii. New business venturing and financial performance

Financial performance is the process of calculating the monetary outcomes of a company's policies and actions. There is a link between Corporate venturing and corporate growth, but no link between profitability (Ambad and Wahab, 2017; Abosede et al., 2018). New company ventures, on the other hand, have a direct, positive, and significant impact on market share and performance (Wiklund and Shepherd, 2003; Holt et al., 2007). As a result, our third hypothesis is as follows:

H3: New business venturing has positive effect on financial performance.

iv. Pro-activeness and financial performance

Proactivity can assist in the implementation of a company's change. In the first workouts, proactivity is emphasised. It is inextricably linked to ingenuity. They claimed that proactiveness entails foreseeing events and having the bravery to confront opponents decisively (Ijeoma and Onuoha, 2018). In small enterprises, there is a strong link between proactiveness and firm performance (La Nafie et al., 2016; Abosede et al., 2018). Proactivity has a significant and favourable impact on a company's bottom line (Shamsuddin et al., 2012). As a result, we've come up with the following four hypotheses:

H4: Pro-activeness has positive effect on financial performance.

v. Strategic renewal and financial performance

Strategic renewal is frequently considered as a transformative effort involving the environment, objectives, strategy, and structure in order to achieve long-term goals. Strategic renewal refers to a situation in which the content and process of strategy are heavily intertwined, involving multiple magnitudes of change, such as those affecting competition, firm resources and capabilities, organisational structure, cognition, and decision-making routines and processes. According to our findings, self-renewal and financial performance are negatively associated. Self-renewal, on the other hand, has a direct, positive, and significant impact on market share and performance in SMEs (Abosede et al., 2018; Shamsuddin et al., 2012). As a result, our sixth hypothesis is as follows:

H5: Strategic renewal has positive effect on financial performance.

vi. Autonomy and financial performance

Autonomy is a crucial part of business, and it is most evident when new, independent enterprises are established. promoting decentralisation, low formalisation, dynamic conduct, learning, and adaptability in association constructions and processes, encouraging autonomy in a hierarchical setting may include levelling pecking orders and designating power to work

units. A company's amount of autonomy did not appear to be linked to its financial performance (Karacaoglu et al., 2013; Lwamba, 2014). As a result, our sixth hypothesis is as follows:

H5: Autonomy has positive effect on financial performance.

3. Methodology

3.1 Research procedure and sample

This study began with a systematic review of the available literature on corporate entrepreneurship and entrepreneurial performance, using a deductive technique, to lay the groundwork for the conceptual framework and research assumptions. Furthermore, a questionnaire has been chosen as a quantitative research method, and it contains questions connected to the study subjects and hypotheses. This research used a cross-sectional research design, in which data is collected via a questionnaire at a particular point in time in order to gain quantitative data on two or more variables.

The researcher, for example, investigates the impact of corporate entrepreneurship on the financial performance of Pakistani SMEs. The target audience for this study will be the roughly 10,000 businesses listed in the Lahore Chamber of Commerce. A fraction of the population is referred to as a "sample." The sample size refers to how many items are included in the sample. The total number of participants in the sample is estimated to be around 384. Then gather information from businesses that are members of the Lahore Chamber of Commerce. A list of their members can be found on their website.

3.2 Measures, data collection instrument and approach

The corporate entrepreneurship scale was adopted from (Zahra, 1993; Antoncic/Hisrich, 2001; Covin/Slevin, 1989; Ozdemerci, 2011). From there, the financial performance scale was adapted (Kellerman and Eddleston, 2000, Hafeez et al., 2012; Krieser et al., 2010; Zhang et al., 2013). There are 18 items in the corporate entrepreneurship dimensions measurement. There were additional eight questions concerning financial performance and seven questions about the participant's demographic information. The new business venture has three elements adapted from (Zahra, 1993), and innovation has three items adapted from (Zahra, 1993). (Zahra, 1993, Antoncic Hisrich, 2001; Antoncic and Scarlet, 2005). Covin/Slein, 1989; Ozdemerci, 2011) modified four items for strategic renewal. Three things have been modified from Autonomy. Eight financial components have been modified from (Kellerman and Eddleston, 2000; Hafeez et al., 2012; Krieser et al., 2010).

The statistics on corporate entrepreneurship and financial success of managers comes from the Lahore Chamber of Commerce. It signifies that the study relied on primary source data. This data was collected between March 2019 and December 2020. 3000 surveys were emailed to employees and managers, with 307 useable questionnaires returned and analysed. Managers and staff were surveyed on their views on the impact of corporate entrepreneurship on financial performance. The questionnaires were distributed online in order to get a large number of responses. The questionnaires were created as online questionnaires using Google

Forms.

The online questionnaire was given to chosen groups via emailed surveys and WhatsApp to obtain a diverse background of respondents. The number of replies gathered is insufficient for a statistically relevant sample size for a scientific study ($n=200$) even after distributing the questionnaire on a variety of internet sites. As a result, the offline questionnaire was hand-delivered to the target population, including the Lahore Chamber of Commerce ($n=107$). It's worth emphasising that, despite the fact that the offline questionnaires are distributed in person, the respondents remain anonymous and unaffected while filling out the mobile questionnaires. The data collected from the questionnaires was examined using the SPSS statistical programme (V. 18). Statistical methods such as descriptive statistics, correlation coefficients, and multiple regressions were used to analyze the data.

3.3 Reliability, Validity test and factor analysis

Although reliability helps to ensure the validity of a survey, it is not a sufficient condition for its validity. The questionnaire is intended to be a methodical, accurate, and reliable tool for evaluating the relationship between national culture and corporate entrepreneurship and financial performance. The total dependability of the questionnaire is 0.765, which is higher than 0.7, therefore we can say that it is trustworthy. We include all of the components of corporate entrepreneurship in our questionnaire because they are larger than .7 (innovation, new company ventures, strategy renewal, proactiveness, risk taking, and autonomy). The KMO and Bartlett's tests, as well as factor analysis, were used to assess the instrument's validity.

The tables below show the results of numerous tests. The KMO value, on the other hand, is .732, which is much greater than the required value of .6 as previously indicated. As a result, the KMO test verifies the need for factor analysis. The phenomena is also confirmed by Bartlett's test, which provides a significant result ($p > .05$). The association between the instrument's items or variables is revealed by Bartlett's test. Based on a significant Bartlett's test, we accept the alternative hypothesis and reject the null hypothesis.

Table 1. Reliability and validity of the questionnaire

Constructs	Cronbach's Alpha	KMO and Bartlett's test	Items	Factor loadings	Items deleted	Mean	Standard Deviations
Innovation	.727	.732	I1	.721	All items remained in the instrument	4.0966	.72491
			I2	.904			
			I3	.859			
Risk taking	.727		RT1	.792	All items remained in the instrument	3.6450	1.01347
			RT2	.843			

			RT3	.915			
Pro-activeness	.717		P1	.849	P3 item deleted because factor loading is less than .4	3.5418	.51781
			P2	.909			
			P3	.827			
Strategic renewal	.758		SR1	.826	SR1 item deleted because factor loading is less than .4	3.9780	.62502
			SR2	.818			
			SR3	1.000			
			SR4	1.000			
New business venturing	.742		NB1	.870	All items remained in the instrument	4.2601	.67965
			NB2	.918			
			NB3	.747			
Autonomy	.733		A1	.833	All items remained in the instrument	4.0130	.68002
			A2	.863			
			A3	.802			
Financial performance	.731		F1	.862	F8 item deleted because factor loading is less than .4	3.9269	.56363
			F2	.563			
			F3	.656			
			F4	.532			
			F5				
			F6	.850			
			F7	.831			
Over all reliability of the questionnaire	.765						

The above table 1 shows the component matrix or factor loadings for each assertion of corporate entrepreneurship and entrepreneurial success. There are 18 components in the corporate entrepreneurship construct. Except for SR1 and P3, all elements have a factor loading value greater than .4 and hence stay in the instrument. As can be seen, all of the numbers are way outside of the permitted range. The factor loading value approaching 1 is quite acceptable and nice. There are eight components in the financial performance framework. Except for FNF8, all elements have a factor loading value greater than .4 and hence stay in the instrument.

4. Results

4.1 Correlation between corporate entrepreneurship and entrepreneurial performance

Table 2. Correlation between CE and FP

Corporate entrepreneurship dimensions		Financial performance
Innovation	Pearson Correlation	.529**
	Sig. (2-tailed)	.000
New business Venturing	Pearson Correlation	.508**
	Sig. (2-tailed)	.000
Strategic renewal	Pearson Correlation	.609**
	Sig. (2-tailed)	.000
	N	307
Proactiveness	Pearson Correlation	.217**
	Sig. (2-tailed)	.000
Risk taking	Pearson Correlation	.361**
	Sig. (2-tailed)	.000
Autonomy	Pearson Correlation	.664**
	Sig. (2-tailed)	.000
	N	307

The Pearson product-moment correlation coefficient was used to investigate the relationship between corporate entrepreneurship dimensions (innovation, new business venturing, strategic renewal, proactiveness, risk taking, and autonomy) and entrepreneurial performance (financial or non-financial performance, and operational performance). Preliminary investigations were carried out to check that the assumptions of normality, linearity, and homoscedasticity were not violated. Between corporate entrepreneurship aspects and

entrepreneurial success, there was a significant positive big association.

4.2 Hypothesis testing

Corporate entrepreneurship is significantly related with financial performance

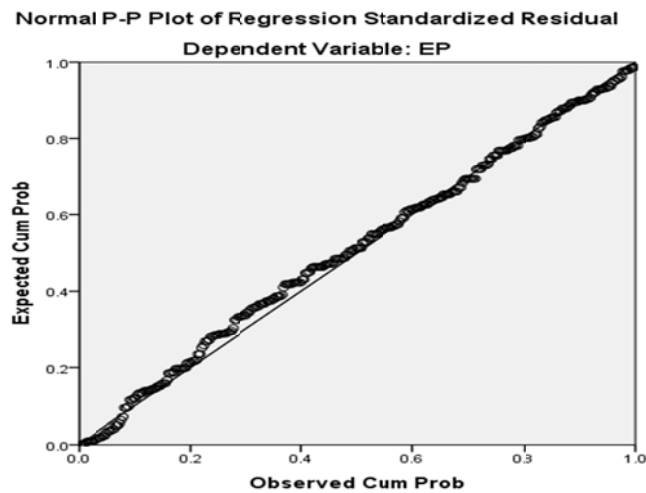


Figure 3. Normal P-P plot

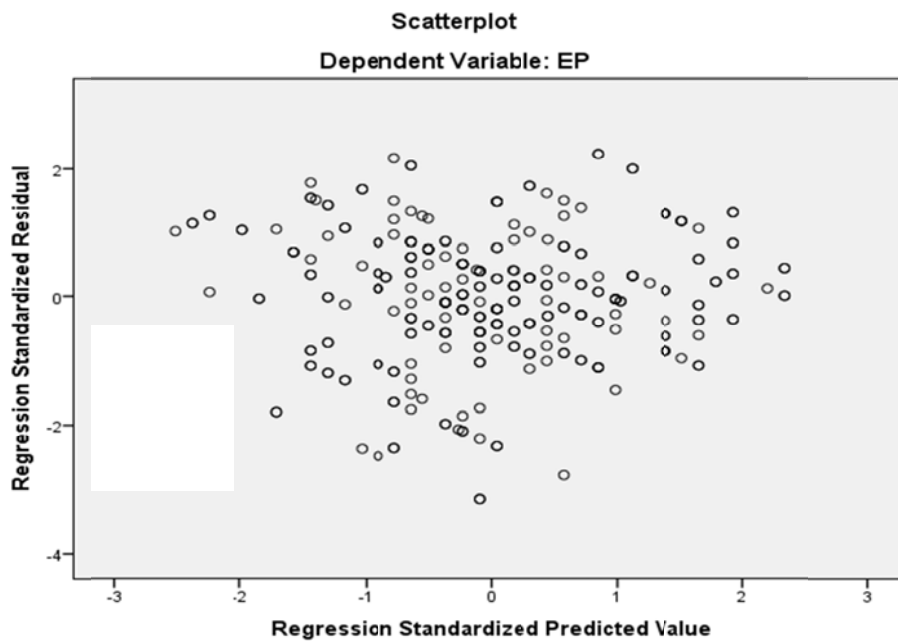


Figure 4. Scatter Plot

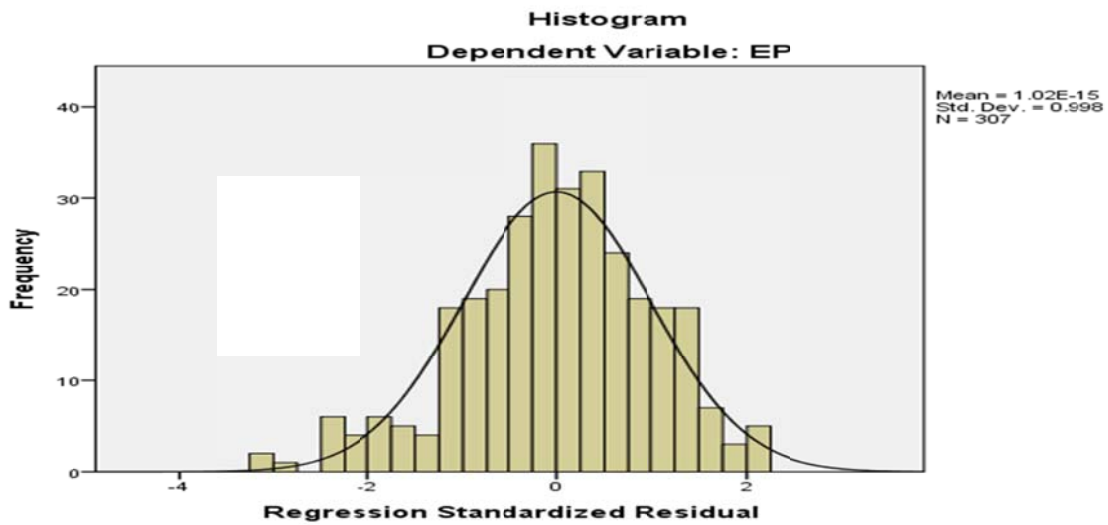


Figure 5. Histogram

Table. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.657 ^a	.432	.420	.38098	2.005
a. Predictors: (Constant), A, P, RT, Innovation, NB, SR					
b. Dependent Variable: FP					

Table 4. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.072	6	5.512	37.974	.000 ^b
	Residual	43.545	300	.145		
	Total	76.617	306			
a. Dependent Variable: FP						
b. Predictors: (Constant), A, P, RT, Innovation, NB, SR						

Table 5. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
	B	Std. Error	Beta		Tolerance	VIF
(Constant)	1.374	.199		.000		
Innovation	.084	.042	.122	.045	.519	1.925
New business venturing	.060	.047	.081	.203	.468	2.137
1 Strategic renewal	.240	.059	.300	.000	.346	2.893
Pro-activeness	.015	.048	.016	.746	.780	1.282
Risk taking	-.033	.027	-.066	.227	.641	1.560
Autonomy	.256	.038	.349	.000	.717	1.395

a. Dependent Variable: FP

The points in figure 3 lay along a pretty straight diagonal line from bottom left to right, as indicated by the Normal P-P Plot. This means there is no significant divergence from the norm. The standardized residuals scatter plot shows a fairly rectangular distribution, with the majority of the scores clustered in the center, near zero. The data is linear, hence this shows that it is linear. There are no notable outliers in the scatter plot. Table 5 shows that numerous correlations with other variables are low under the title of 'coefficients' and in the 'collinearity statistics' column (the values for 'tolerance' are higher than 0.1). Furthermore, the Variance Inflation Factor (VIF) values are less than 10, indicating that there is no multicollinearity, according to Pallant (2010). The multicollinearity assumption is not violated.

In table 3 the model summary results of regression analysis' influence of corporate entrepreneurship on financial performance. The R-value is.657, whereas the R 2 value is.432. This R 2 suggests that our independent variable (financial performance) causes 43 percent of the variation in our dependent variable (financial performance) (Corporate entrepreneurship). The DW value is between 1.5 and 2.5, which is within the permissible range. Because the DW value is 2.00, there is no difficulty with autocorrelation in the data. The results of an ANOVA table 4 on corporate entrepreneurship and financial performance. The total square value is 76.617, and the degree of freedom (df) value is 306. The value of F is 37.974. The p-value of.05. is also crucial. It also demonstrates the model's physical fitness.

For corporate entrepreneurship and financial success, the outcome is the regression coefficient. The t-value of strategic renewal and autonomy is statistically significant with financial performance, as seen in the table. The t-value of innovation, new business ventures, proactiveness, and risk taking, on the other hand, is not statistically significant when it comes to financial performance. At a.05 level of confidence, this t-value is significant. The coefficient (B) value of corporate entrepreneurship is positive, indicating that as corporate entrepreneurship grows, financial performance will improve favourably and considerably. The p-value is less than or equal to.05. It implies that corporate entrepreneurship has a strong link to financial performance.

4. Discussion

Corporate entrepreneurship is fast becoming acknowledged as a crucial technique for assuring firm survival and profitability in today's highly competitive market. The process of incorporating fresh and inventive ideas into a commercial operation is known as corporate innovation. By rewriting old business models with fresh concepts, it raises the value of a company's existing business models. By investigating the impact of corporate entrepreneurial elements on financial performance, this study adds to the body of knowledge. According to the conclusions of the study, corporate entrepreneurship features (innovation, risk-taking, new business venturing, proactiveness, strategy renewal, and corporate entrepreneurship) have a significant positive impact on financial performance. These findings are largely consistent with those of previous empirical studies. Business profitability and growth were found to be positively linked to innovativeness, proactivity, risk-taking (EO traits), and corporate venturing (Chen et al., 2014).

In its various forms, corporate entrepreneurship "Innovation" is the most crucial factor in a company's survival and success, demonstrating that it also includes leveraging existing innovation and applying unconventional thinking to create new value and make significant changes in the public sphere. Successful businesses don't only respond to their customers' current needs; they also anticipate future trends and produce an idea, service, or item that can meet future demand quickly and efficiently. As a result, the organization's "financial success" is the most important aspect in executing an entrepreneurial strategy, meaning that administrators are considered as one of the company's most important resources, and are too close to the representatives. Decision managers are critical in fine-tuning and selecting the firm's long-term goals, which could be the difference between success and failure.

In a quickly changing business world, corporate entrepreneurship is critical for inventing and responding to change. Employee productivity and morale may be boosted by corporate entrepreneurship, which gives employees the freedom and chance to take on new tasks and implement new ideas. Corporate entrepreneurship is gaining popularity as a viable method for reviving and revamping existing businesses (Dunlap-Hinkler et al., 2010). It's worth noting that a corporate entrepreneurship plan is critical to accomplishing a company's strategic objectives. As a result, firms can gain a competitive advantage by using intra-preneurship abilities among their personnel (Enginoglu and Arikan, 2016).

Corporate entrepreneurship is built on the concept of innovation, which is defined as a new technology, product category, or business strategy that provides a long-term competitive advantage to the company that created it. Its successful commercialization offers the company with a new source of top-line growth. Through incremental enhancements and follow-on ideas, it creates a long-term revenue possibility. As a result, corporate entrepreneurship requires far more than just launching a new product or breaking into a new market (Kelley, 2011).

6. Conclusion

The findings of this study provided empirical basis for further research into the impact of

corporate entrepreneurial aspects on financial performance. According to the findings, features of corporate entrepreneurship have a favourable and considerable impact on financial performance in Pakistani manufacturing companies. Corporate entrepreneurship is becoming more widely recognised as an important component of ensuring a company's long-term viability and continuity. Corporate entrepreneurship has been employed as a primary strategy for organisational renewal and increased performance in numerous firms. As a result, the entrepreneurial process encompasses not only the formation of new businesses but also the creation of new products, services, technology, management styles, and strategies.

Companies must have the necessary culture in place to foster and encourage innovation in order to effectively adopt corporate entrepreneurship. Managers must look for individuals who have an entrepreneurial spirit and be willing to create an environment that encourages the creation and implementation of new ideas. Companies must also invest in the skills required to segment the market, predict trends, and comprehend client requirements. As a result, encouraging and locating corporate entrepreneurship in the workplace is ideal for intra-preneurs who will create new goods and ideas, ultimately boosting the company's performance. In order for corporate entrepreneurship to grow, firms must create an atmosphere that encourages individuals to act entrepreneurially by providing support systems, structures, and resources.

To summarise, corporate entrepreneurship has been identified as a vital component of organisational performance that has a beneficial impact on the success of the firm. Every company need an environment in which innovation may grow and be warmly received. Business owners must consider the impact of management decisions on profitability, cash flow, and the financial health of their company. Every part of a company's operations has an impact on its financial success, and the owner is responsible for assessing and overseeing these activities.

In the early stages, most businesses lose money and have a negative cash flow. At this point, financial management is critical. Even if more money is going out than coming in during the early months of a business, managers must guarantee that they have adequate cash on hand to pay staff and suppliers. This means the owner will need to estimate negative cash flows in order to figure out how much money will be required to fund the company until it becomes profitable.

Every company is required to report on its operations. Shareholders expect to get regular updates on the performance and safety of their assets. State and local governments require reports in order to collect sales tax.

Other sorts of reports, such as those with key performance indicators that evaluate the actions of various sectors of a company, are also required by business managers. A complete financial management system might also generate the various types of reports that each of these businesses requires. The government is always looking for new ways to generate cash. Taxes must be paid on time, and financial management must plan accordingly. Every owner or manager of a small business must be able to manage their finances. Every decision a business owner makes has a financial impact on the company, and these decisions must be made in the

context of the entire organization.

6.1 Implications for managers

In order to turn ideas into business realities, a corporate entrepreneur places a premium on invention and creativity. Employees are instilled with an entrepreneurial mindset by a charismatic boss. These business owners must have the ability to lead. They must be adaptable and resourceful. Entrepreneurs encourage collaboration and the formation of a support network. A performance entrepreneur is someone who is constantly striving to deliver their best while remaining aware of the organization's environment, according to the team. In today's industry, which is extremely competitive, businesses are attempting to become more inventive. Companies are looking for somebody who can come up with new ideas.

A company's financial performance helps in the achievement of its aims and objectives. A finance manager's primary responsibility is to assess organisational efficiency through efficient resource allocation, procurement, and administration. Profitability is a financial performance statistic that gauges your company's earnings after all expenses have been paid. While increasing your company's profitability may appear difficult, as a manager, you are in a position where every move you make has the potential to affect your company's bottom line. Breaking down a large goal into smaller action items, like any other large goal, makes it more manageable.

7. Limitation and future research

First, this study looked at 307 Pakistani manufacturing-based businesses. Second, unlike a longitudinal research, this is a limited cross-sectional inquiry. Finally, this research does not look at non-financial performance. Other moderators, such as entrepreneurial orientation, might be used in future research to evaluate the relationship between non-financial performance and corporate entrepreneurship elements, as proposed by this study. Larger sample sizes and a variety of service firms can be employed as well.

References

- Ahmed, N., Arshad, M., & Nawaz, M. H. (2019). Developing Entrepreneurship in Pakistan through Higher Education. *Global Social Sciences Review, IV(IV)*, 119-125. [https://doi.org/10.31703/gssr.2019\(iv-iv\).16](https://doi.org/10.31703/gssr.2019(iv-iv).16)
- Abosede, J. A., Fayose, J., & Eze, B. U. (2018). Corporate entrepreneurship and international performance of Nigerian banks. *Journal of Economics and Management, 32(2)*.
- Aktan, B., & Bulut, C. (2008). Financial Performance Impacts of Corporate Entrepreneurship in Emerging Markets: A Case of Turkey. *European Journal of Economics, 12*.
- Ambad, S. N. A., & Abdul Wahab, K. (2017). THE RELATIONSHIP BETWEEN CORPORATE ENTREPRENEURSHIP AND FIRM PERFORMANCE: EVIDENCE FROM MALAYSIAN LARGE COMPANIES. *International Journal of Business and Society, 17(2)*. <https://doi.org/10.33736/ijbs.524.2016>
- Antoncic, B., & Scarlet, C. (2005). CORPORATE ENTREPRENEURSHIP AND

ORGANIZATIONAL PERFORMANCE: A COMPARISON BETWEEN SLOVENIA AND ROMANIA. *Proceedings of the 6th International Conference of the Faculty of Management Koper Congress Centre Bernardin*.

Antonic, B., & Hisrich R.D. (2001). Intrapreneurship: Construct refinement and cross-cultural validation. *Journal of Business Venturing*, 16, 495-527.

BR Bhardwaj, & Sushil. (2012). Corporate Entrepreneurship: Application of Moderator Method. *Journal of Chinese Entrepreneurship*, 29(1).

Brazeal, D. V. (1993). Organizing for internally developed corporate ventures. *Journal of Business Venturing*, 8(1), 75-90. [https://doi.org/10.1016/0883-9026\(93\)90012-t](https://doi.org/10.1016/0883-9026(93)90012-t).

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75-87. <https://doi.org/10.1002/smj.4250100107>

Chen, Y., Tang, G., Jin, J., Xie, Q., & Li, J. (2014). CEOs' Transformational Leadership and Product Innovation Performance: The Roles of Corporate Entrepreneurship and Technology Orientation. *Journal of Product Innovation Management*, 31, 2-17. <https://doi.org/10.1111/jpim.12188>

Christensen, K. S. (2004). A classification of the corporate entrepreneurship umbrella: Labels and perspectives. *Int. J. Management Enterprise Development*, 1(4).

Cohen. (2002). MAINSTREAMING CORPORATE ENTREPRENEURSHIP: LEADERSHIP AT EVERY LEVEL OF ORGANIZATIONS. *B a B S O N E N T R E P R E N E U R I a L R E v I E W*.

Daryani, M. A., & Karimi, A. (2017). Effect of Corporate Entrepreneurship on Firm Performance in Iranian ASMEs: The Mediation Role of Knowledge Creation and Learning Orientation. *J. Agr. Sci. Tech*, 19, 261-277.

Dess et al., G. (2003). Emerging Issues in Corporate Entrepreneurship. *Journal of Management*, 29(3), 351-378. [https://doi.org/10.1016/s0149-2063\(03\)00015-1](https://doi.org/10.1016/s0149-2063(03)00015-1)

Dunlap-Hinkler, D., Kotabe, M., & Mudambi, R. (2010). A story of breakthrough versus incremental innovation: corporate entrepreneurship in the global pharmaceutical industry. *Strategic Entrepreneurship Journal*, 4(2), 106-127. <https://doi.org/10.1002/sej.86>

ENGİNOĞLU, D., & ARIKAN, C. L. (2016). CREATING A CORPORATE ENTREPRENEURSHIP STRATEGY FOR COMPETITIVE ADVANTAGE. *International Review of Economics and Management*, 4(1). <https://doi.org/10.18825/irem.77735>

Eze, B. U. (2018). Corporate Entrepreneurship and Manufacturing Firms' Performance. *EMAJ: Emerging Markets Journal*, 8(1), 12-17. <https://doi.org/10.5195/emaj.2018.146>

Ferreira, J. (2001). Corporate entrepreneurship: A strategic and structural perspective. *New England Journal of Entrepreneurship*, 4(2), 59-70. <https://doi.org/10.1108/neje-04-02-2001-b006>

Fis, A. M., & Cetindamar, D. (2019). Unlocking the Relationship between Corporate Entrepreneurship and Firm Performance. *Entrepreneurship Research Journal*, 0(0). <https://doi.org/10.1515/erj-2018-0213>

Frederiksen, L., & Davies, A. (2008). Vanguard and ventures: Projects as vehicles for corporate entrepreneurship. *International Journal of Project Management*, 26(5), 487-496. <https://doi.org/10.1016/j.ijproman.2008.05.006>.

Hafeez, M.H. et al., (2012). Relationship between Entrepreneurial Orientation, Firm Resources,

SME Branding and Firm's Performance: Is Innovation the Missing Link?

American Journal of Industrial and Business Management.

IJEOMA, O. A., & ONUOHA, B. C. (2018). CORPORATE ENTREPRENEURSHIP AND ORGANIZATIONAL PERFORMANCE OF THE BANKING SECTOR IN RIVERS STATE. *International Journal of Advanced Academic Research*, 4(5).

JINGNAN, W., & YUNUS, N. K. Y. (2018). The Relationship Between Corporate Entrepreneurship and Innovation in Manufacturing Companies in Perak. *International Journal of Business and Economic Affairs*, 3(1). <https://doi.org/10.24088/ijbea-2018-31004>

Kahkha, A. O., Kahrazeh, A., & Armesh, H. (2014). Corporate Entrepreneurship and Firm Performance Important Role of Small and Medium Enterprise. *International Journal of Academic Research in Business and Social Sciences*, 4(6). <https://doi.org/10.6007/ijarbss/v4-i6/916>

Karacaoglu et al., K. (2013). The Impact of Corporate Entrepreneurship on Firms' Financial Performance: Evidence from Istanbul Stock Exchange Firms. *International Business Research*, 6(1).

Kellermanns, F. W., & Eddleston, K. A. (2006). Corporate Entrepreneurship in Family Firms: A Family Perspective. *Entrepreneurship Theory and Practice*, 30(6), 809-830. <https://doi.org/10.1111/j.1540-6520.2006.00153.x>.

Kearney, C., Hisrich, R., & Roche, F. (2007). A conceptual model of public sector corporate entrepreneurship. *International Entrepreneurship and Management Journal*, 4(3), 295-313. <https://doi.org/10.1007/s11365-007-0048-x>

Kelley, D. (2011). Sustainable corporate entrepreneurship: Evolving and connecting with the organization. *Business Horizons*, 54(1), 73-83. <https://doi.org/10.1016/j.bushor.2010.09.003>

Kenney, M. and, & Mujtaba, B. G., (2007). Understanding Corporate Entrepreneurship and Development: A Practitioner View of Organizational Intrapreneurship. *Journal of Applied Management and Entrepreneurship*, 12(3).

Krieser, P. M., & Davis, J. (2010). Entrepreneurial orientation and firm performance: the unique impact of innovativeness, proactiveness and risk taking. *Journal of Small Business and Entrepreneurship*, 23(1), 39-51.

Kumar, M. (2020). Entrepreneurship Ecosystem and Development of Entrepreneurship in Pakistan. *Open Journal of Business and Management*, 08(04), 1734-1770. <https://doi.org/10.4236/ojbm.2020.84109>

La Nafiel, N. A. *, Tjambolang1, T. A., & Panel, D. (2016). The Effect of Corporate Entrepreneurship on Firm Performance (Case Study on SMEs Processing Refined Seaweed Product in South Sulawesi, Indonesia). *European Journal of Business and Management*, 8(3). 301811987_The_Effect_of_Corporate_Entrepreneurship_on_Firm_Performance_Case_Study_on_SMEs_Processing_Refined_Seaweed_Product_in_South_Sulawesi_Indonesia

Lassen, A. H., Gertsen, F., & Riis, J. O. (2006). The Nexus of Corporate Entrepreneurship and Radical Innovation. *Creativity and Innovation Management*, 0(0), 061006030313001-???. <https://doi.org/10.1111/j.1467-8691.2006.00406.x>

Lwamba et al., N. M. (2014). Then, in the long run, these improvements in the competitive position in the marketplace may create higher financial returns as the outcomes of CE. Therefore, one criterion, that is, sales was used to reveal the association between CE and financial performance of manufacturing firms. *International Journal of Academic Research in Business and Social Sciences*, 4(1).

Mokaya, S. (2012). Corporate Entrepreneurship and Organizational Performance Theoretical Perspectives, Approaches and Outcomes. *International Journal of Arts and Commerce*, 1(4). https://doi.org/https://ijac.org.uk/images/frontImages/gallery/Vol._1_No._4/12.pdf

Morris, M. H., van Vuuren, J., Cornwall, J. R., & Scheepers, R. (2009). Properties of balance: A pendulum effect in corporate entrepreneurship. *Business Horizons*, 52(5), 429-440. <https://doi.org/10.1016/j.bushor.2009.04.007>

Ogunsiji, A. S., & Ladanu, W. K. (2017). A Theoretical Study of Performance Measures in the Strategic and Corporate Entrepreneurship of Firms. *International Journal of Life Sciences*, 1(1), 42-49. <https://doi.org/10.21744/ijls.v1i1.23>

Oladimeji et al., M. S. (2019). CORPORATE ENTREPRENEURSHIP AND SERVICE FIRMS' PERFORMANCE IN NIGERIA. *Economic Review - Journal of Economics and Business*, 8(1).

Ozdemirci, A. (2011). Corporate entrepreneurship and strategy process: A performance based research on Istanbul market. *Procedia social and behavioral sciences*

Phan, P. H., Wright, M., Ucbasaran, D., & Tan, W.-L. (2009). Corporate entrepreneurship: Current research and future directions. *Journal of Business Venturing*, 24(3), 197-205. <https://doi.org/10.1016/j.jbusvent.2009.01.007>

Rupcic et al., N. (n.d.). *LEARNING ENVIRONMENT - FRAMEWORK FOR SUCCESSFUL CORPORATE ENTREPRENEURSHIP*.

Ramachandran, K. T P Devarajan, & Sougata Ray. (2006). *Corporate Entrepreneurship: How? 31(1)*.

- Salvato, C., Sciascia, S., & Alberti, F. G. (2009). The Microfoundations of Corporate Entrepreneurship as an Organizational Capability. *The International Journal of Entrepreneurship and Innovation*, 10(4), 279-289. <https://doi.org/10.5367/000000009790012291>
- Srivastava, A., & Lee, H. (2005). Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship. *Journal of Business Venturing*, 20(4), 459-481. <https://doi.org/10.1016/j.jbusvent.2004.02.002>
- Shamsuddin et al.,. (2012). The dimensions of corporate entrepreneurship and the performance of established organization. *ACRN Journal of Entrepreneurship Perspectives*,. https://doi.org/https://www.researchgate.net/publication/310670864_THE_DIMENSIONS_OF_CORPORATE_ENTREPRENEURSHIP_AND_THE_PERFORMANCE_OF_ESTABLISHED_ORGANIZATION
- Thornberry, N. E. (2001). Corporate entrepreneurship: teaching managers to be entrepreneurs. *Journal of Management Development*, 22(4), 329-344. <https://doi.org/10.1108/02621710310467613>
- Veenkar et al., S. (2006). Organizational Conditions for Corporate Entrepreneurship in Dutch Organizations. *Journal of Entrepreneurship*.
- Vanacker, T., Zahra, S. A., & Holmes, R. M. (2020). Corporate entrepreneurship, country institutions and firm financial performance. *Journal of World Business*, 101162. <https://doi.org/10.1016/j.jwb.2020.101162>
- Wadhwa, A., Phelps, C., & Kotha, S. (2016). Corporate venture capital portfolios and firm innovation. *Journal of Business Venturing*, 31(1), 95-112. <https://doi.org/10.1016/j.jbusvent.2015.04.006>
- Wicklund, J., & Shepherd, D. (2003). Research notes and commentaries: knowledge based resources, entrepreneurial orientation and performance of SMEs. *Strategic Management Journal*, 24.
- Xianguo, Y., Weixiang, W., & Zhouqi, R. (2009). Corporate entrepreneurship in the enterprise clusters environment—Influence of network resources and entrepreneurial orientation on firm performance. *Frontiers of Business Research in China*, 3(4), 566-582. <https://doi.org/10.1007/s11782-009-0027-x>
- Zahra, S. A. (1993). A Conceptual Model of Entrepreneurship as Firm Behavior: A Critique and Extension. *Entrepreneurship Theory and Practice*, 17(4), 5-21. <https://doi.org/10.1177/104225879301700401>.
- Zhang, Z., Lin, H., Liu, K., Wu, D., Zhang, G., & Lu, J. (2013). A hybrid fuzzy-based personalized recommender system for telecom products/services. *Information Sciences*, 235, 117-129. <https://doi.org/10.1016/j.ins.2013.01.025>.