The Impact Of Operational Risk Management And Food Safety Policy On The Organizational Performance Of Dairy Firms In Egypt

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Abstract

Operational risk management is an important aspect of an organization's ability to manage operational risk efficiently. Hence, this study aims to study the impact of operational risk management and food safety policy on the organizational performance of dairy firms in Egypt after the Covid-19 pandemic, which presents an exceptional and unprecedented challenge for competent authorities with responsibilities for national food safety control systems to continue conducting routine functions and activities in accordance with national regulations and international recommendations. In order to implement this study, data was collected from 390 managers who work in dairy companies via a questionnaire.

Purpose: The purpose of this paper is to examine the effect operational risk management and food safety policy on the organizational performance of dairy firms in Egypt.

Design/methodology/approach: A questionnaire strategy was used to understand the research argumentempirically. The collected data were analyzed using regression analysis to validate the proposed model.

Findings: This research has practical contributions for managers of dairy industry in Egypt; they can understand the operational risk management and food safety policy that may enhance the firm's sustainable performance. The results are especially useful in helping them to revise the current operational risk and food safety model concept, which effect on a firm's sustainable performance. The research results and findings are demonstrated by the end of the research with further recommendations.

Research limitations/implications: This study provides researchers new insight into the effect of operational risk management on a firm's sustainable performance. However, the study cannot show the dynamic nature of sustainable performance. Therefore, the sample's small size and time limitation to finish the research will consider as research limitations.

Theoretical Contribution: This research is one of a kind in its field, since there has been lots of research that studied the operational risk management factors that enhance the implementation of dairy organizations, but almost none has applied this field with food safety policy, especially after Covid-19 occurred in the dairy sector in Egypt. Therefore, the current research fills the gap and enhances the literature by examining these factors in the Egyptian context in particular to see if they would have the same results and findings and then comes up with a conclusion.

Practical implications: This research provides a number of practical contributions as well. The practical results are important since the empirical framework aims to provide practical contributions via a scientific path by providing a solution towards some of the practical problems with ORM. Additionally, this research provides new insights into the actual ORM in dairy sector. However, these insights can be used for further empirical research projects and the results provide a kind of ranking about the feasibility or existence of a certain phenomenon that will affect the firm's sustainable performance.

Originality/value: This paper studies the effect of operational risk management and food safety policy on a firm's sustainable performance in the dairy industry in Egypt. This will help decision-makers arrange their priorities for selecting which operational risk management practices should apply and monitor. Finally, it is important to mention that this work provides practical guidance for successful implementation in the dairy sector also certain reference value for building a sustainable development in dairy industry in Egypt.

Keywords: Operational risk (OPR), Operational risk management (ORM), National food safety authority (NFSA), Supply chain risk management (SCRM).

1. Introduction

With the rise of competition today, Dairy organizations are operating in a very competitive market and face several challenges that arise from the current globalizing trends and consumer pressure to reduce cost and improve quality. These challenges were further exacerbated with the advent of covid-19 and associated economic pressures. Accordingly, several dairy companies have shown a trend towards developing their operations to be cost-efficient through managing operational risk is absolutely crucial for businesses. New challenges rise each day that plays a crucial role in all

countries' economy; hence, it is necessary for these institutions to continuously monitor the operational risks associated with their products and services. Specially with increasing requirements, complexity, and a growing volume of operational risks, highlights the benefits for integrating risk management activities and optimizing performance, companies operate mainly at risk, more than others it manages corporate risks and risks of each of its customers so, companies should use new technologies and implementing improvement initiatives to manage operational risk (Dairy market et al.,2021).

Operational risk is one of the most frequently used terms in the economic literature, and many different definitions and categories are used. For example, price fluctuations, as well as various operational risks, are particularly prevalent in the dairy market. While in the past, the dairy market was strongly regulated. Dairy firms are continuously undergoing changes in the business environment, and this has been fostered by increasing customer expectations, changes in regulatory requirements mainly related to food and safety practices, technological innovation, and stiff competition. With this comes an increased chance of failure or errors from operations and may result in increased operational risks which need to be investigated (Segal, 2020).

Manufacturing sectors are under immense strain in today's dynamic and highly competitive business climate, owing to the free market economy, rapid technical development, and constant changes in client needs, Operational risk refers to the chance of loss stemming from an issue with people, systems, procedures, and external events. This is the broad definition, more narrow definitions limit the risk solely to events arising from within an organization, or even more specifically, to those caused solely by human error (Cheprasov,2019).

Operational risk focuses on how things are accomplished within an organization and not necessarily what is produced or inherent within an industry. These risks are often associated with active decisions relating to how the organization functions and what it prioritizes. While the risks are not guaranteed to result in failure, lower production, or higher overall costs, they are seen as higher or lower depending on various internal management decisions (Segal, 2020).

2. Literature Review

2.1 Operational risk management (ORM)

Operational risk management is the risk of financial losses and negative social performance related to failed people, internal processes, and systems or from external events. Operational risks lead to better decision-making through the observation and analysis of past operational risk events. Operational risk exists in every organizational activity. Operational risk management that isn't done properly can lead to large losses (Segal, 2020).

Operational risk management is a systematic, ongoing process of detecting and controlling hazards in order to improve the predictability of outcomes. To enable effective risk-based decision making,

this process includes recognizing hazards, assessing risks, establishing controls, and monitoring risk controls, Furthermore, ORM aims to gather feedback and input from all levels of the business to make the best decisions possible while minimizing unexpected consequences. "Essentially, risk management is decision-making in the face of uncertainty" (Thompson et al., 2016).

ORM has a specific goal: to increase the ability of employees to foresee hazards and lower the risk of loss, improving the likelihood of a successful outcome. Operational risk management is a critical component of an organization's ability to effectively manage operational risk. The previously discussed points lead to the first research hypothesis development

Hypothesis 1 (H 1): The existence of supporting operational risk management is positively related to organizational performance of dairy firms in Egypt.

2.2 Organizational performance

Organizational performance has always been a priority for all businesses, whether for profit or not. Managers must understand which factors influence an organization's success in order to take the necessary steps to address them. The success or failure of a business is determined by the performance of the organization. Organizational performance enables businesses to identify and address significant issues. The importance of conducting research on an organization's performance is that it not only identifies the primary financial and non-financial aspects that influence success or failure, but also assesses other departments, performance management, performance processes, and employee wellbeing (Ling & Hung, 2010).

Before an organization invests in a variety-enabling strategy in operations, it could test different levels of product complexity and observe changes in the operational key performance indicators. When adding product variety, firms should also consider adding product variants that are like existing products, which imposes a lower cost on the production and distribution systems (Trattner et al., 2019). Hence, sound operational risk management reflects the effectiveness of the board and senior management in administering its products, activities, processes, and systems (Pattanayak et al., 2019).

2. 3 Covid-19 Pandemic

Covid-19 has negatively impacted the availability of feed resources, the import of livestock products, and the capacity to control animal diseases, leading to price increases and a serious threat to the consumption of animal protein. Moreover, lockdowns and restrictions challenged and limited the efficacy of existing capacity-building programs. In Uttar Pradesh, India (Kumar et al., 2021), job mobility has posed a severe threat to the sector by reducing farm productivity and the income of many potential migrants, who were forced to stay in their home communities where salaries dropped due to the excessive amount of labour. In dairy sector in Egypt many companies

were downsizing during the pandemic, laying off workers appointed over the past two years. These workers often belonged to the lower middle-income class, life under the coronavirus would result in more people losing their jobs and an increase in the number of the poor, seasonal and daily workers were losing their jobs also most of diary industries in Egypt stoppage for some times due to shortage in raw materials , packaging materials and machines spare parts (Mounir, 2020). The previously discussed points lead to the second and third research hypothesis development:

Hypothesis 2 (H2): The existence of supporting Covid-19 moderate the relationship between operational risk management and organization performance of dairy firms in Egypt.

Hypothesis 3 (H3): The existence of supporting Covid-19 is positively related to organization performance of dairy firms in Egypt.

2.4 Food safety policy

Demand for safe food in developing countries has increased because of two main factors: the modernization of food systems through the rise of supermarkets that impose food safety requirements (Reardon et al.,2019), and the outbreaks of food-borne diseases that, according to a World Health Organization report, there were 91 million cases of foodborne diseases and 137,000 deaths in Africa in 2010 (WHO, 2015). Safe food is food without biological (e.g., bacteria), chemical (e.g., veterinary drug residues, disinfectants), or physical hazards (e.g., plastic, metal) (FSA,2009). Despite the importance of safe food, improvement in food safety remains a major challenge in developing countries because of a lack of knowledge, low incentives to invest in food safety along the food value chain, the weakness of the public institutions responsible for regulatory enforcement and limited empirical knowledge regarding food safety application and food-borne diseases (Hoffmann et al., 2019).

Dairy can be an important source of foodborne diseases, and milk can be contaminated by the farm itself. The dominance of rural smallholder production farms in Kenya's dairy sub-sector presents challenges to the effective monitoring and enforcement of food safety measures at the farms (ILRI, 2018). The Egyptian parliament established the new National Food Safety Authority (NFSA, 2017). The new authority is an independent organization under the Office of the Egyptian Prime Minister. Its mission is to protect consumer health, by ensuring that food products consumed, distributed, marketed, or produced in Egypt meet the highest standards of food safety and hygiene. The previously discussed points lead to the fourth and fifth research hypothesis development:

Hypothesis 4 (H4): The existence of supporting food safety is positively related to organizational performance of dairy firms in Egypt.

Hypothesis 5 (H5): The existence of supporting food safety policy mediate the relationship between operational risk management and organizational performance of dairy firms in Egypt.

2.5 Conceptual framework and Hypotheses Development
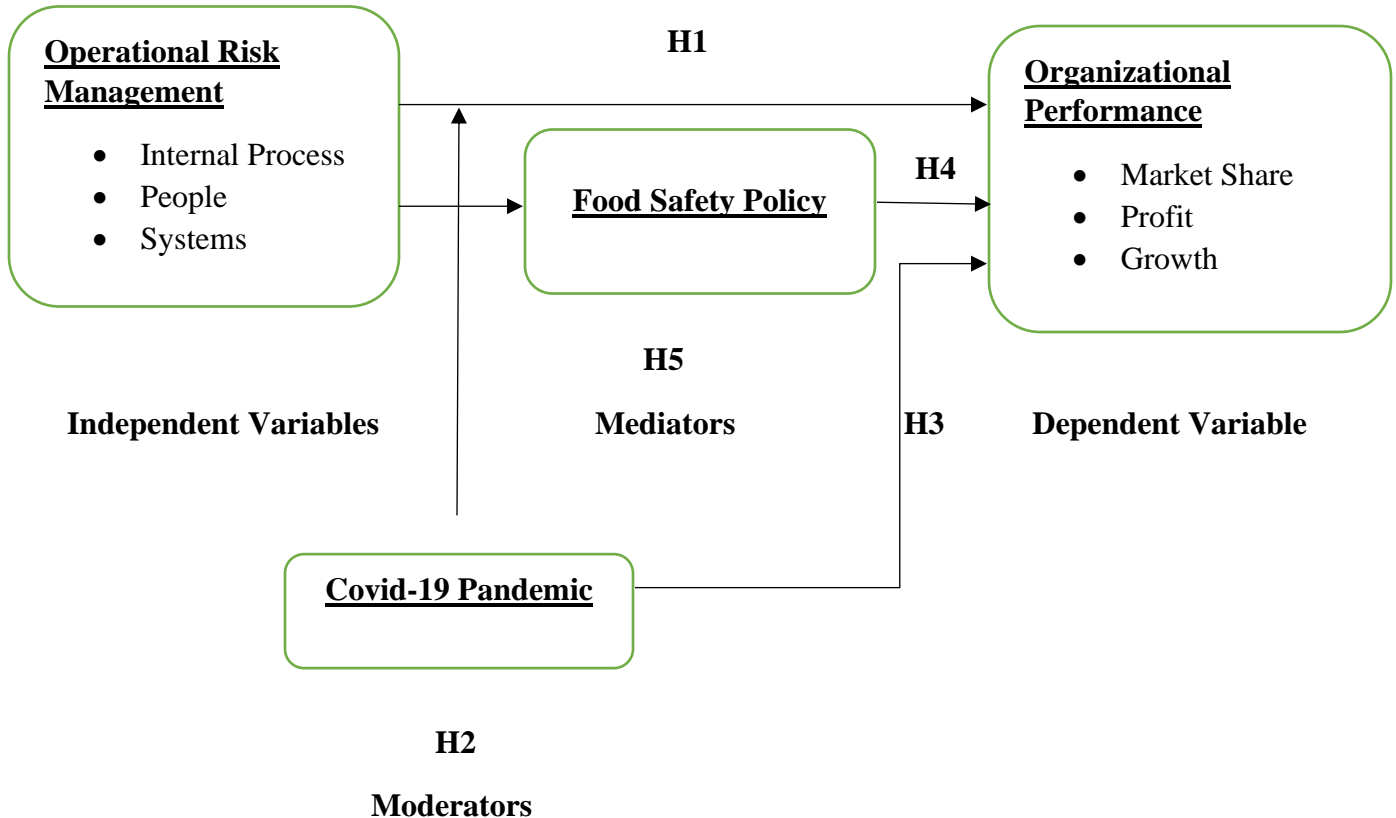
Research Hypothesis:

H1	**Operational risk management have significant positive impacts in organizational performance in the dairy sector.**
H1.1	Internal processes have a significant positive impact on market share in the dairy sector.
H1.2	People have a significant positive impact on market share in the dairy sector.
H1.3	Systems have a significant positive impact on market share in the dairy sector.
H1.4	Internal processes have a significant positive impact on profitability in the dairy sector.
H1.5	People have a significant positive impact on profitability in the dairy sector.
H1.6	Systems have a significant positive impact on profitability in the dairy sector.
H1.7	Internal processes have a significant positive impact on growth in the dairy sector.
H1.8	People have a significant positive impact on growth in the dairy sector.

H1.9	Systems have a significant positive impact on growth in the dairy sector.
H2	**Covid-19 Pandemic moderate the relationship between operational risk management and organization performance.**
H2.1	Covid-19 Pandemic moderate the relationship between internal processes and market share.
H2.2	Covid-19 Pandemic moderate the relationship between people and market share.
H2.3	Covid-19 Pandemic moderate the relationship between system and market share.
H2.4	Covid-19 Pandemic moderate the relationship between internal processes and profitability.
H2.5	Covid-19 Pandemic moderate the relationship between people and profitability.
H2.6	Covid-19 Pandemic moderate the relationship between system and profitability.
H2.7	Covid-19 Pandemic moderate the relationship between internal processes and growth.
H2.8	Covid-19 Pandemic moderate the relationship between people and growth.
H2.9	Covid-19 Pandemic moderate the relationship between system and growth.
H3	**Covid-19 Pandemic impacts on organizational performance in the dairy sector.**
H3.1	Covid-19 Pandemic have a significant positive impact on market share.
H3.2	Covid-19 Pandemic have a significant positive impact on profitability.
H3.3	Covid-19 Pandemic have a significant positive impact on growth.
H4	**Food safety policy impacts on organizational performance in the dairy sector.**
H4.1	Food safety policy have a significant positive impact on market share.
H4.2	Food safety policy have a significant positive impact on profitability.
H4.3	Food safety policy have a significant positive impact on growth.
H5	**Food safety policy mediate the relationship between operational risk management and organization performance.**
H5.1	Food safety policy mediate the relationship between internal processes and market share.
H5.2	Food safety policy mediate the relationship between people and market share.
H5.3	Food safety policy mediate the relationship between system and market share.
H5.4	Food safety policy mediate the relationship between internal processes and profitability.
H5.5	Food safety policy mediate the relationship between people and profitability.
H5.6	Food safety policy mediate the relationship between system and profitability.
H5.7	Food safety policy mediate the relationship between internal processes and growth.
H5.8	Food safety policy mediate the relationship between people and growth.
H5.9	Food safety policy mediate the relationship between system and growth.

3.Research Methodology

This research started with reviewing the extant literature of OPR and ORM practices and firm sustainable performance. The main aim is to understand how the effect of operational risk

management practices (ORM) and food safety policy on organization Performance. Also, to develop an empirical association between operational risk management, sustainable organizational performance. Besides that, this research describes and analyses the main techniques that could be utilized to collect and prepare the necessary data used to examine whether operational risk management, organizational performance was affected by government new regulation especially under Covid post effect. After highlighting the research philosophy of this research, the research theoretical approach will be justified. The measurement of the independent variables (operational risk management) and the dependent variable (organizational performance) will be clarified, and this is followed by a discussion of how the moderator and mediator variables will be measured.

3.1 Sampling and data collection
The data were collected from the operational managers ,quality managers and top management of Egypt's dairy industry firms. Due to their direct involvement in the manufacturing process, they have knowledge and experience of their firms' operational risk management practices and consequently can respond to the items of this study.The managers were selected from different organizational departments.

Accordingly, based on the complexity of the proposed conceptual model, a sample size of 500 from the middle management and top management is considered suitable for this research, which was drawn from the population of 750 employees in the 20 dairy firms in the dairy sector in Egypt. The questionnaires were mailed and linked to 500 target respondents in the dairy industry firms in Egypt , and after four weeks, a reminder notification was sent again to non- respondents. The questionnaires collected within 3 months. Thus, the researcher distributed 750 questionnaires, about 50% more than the sample size of 500, in anticipation of a low response rate. The potential respondent participants of the Egyptian dairy industry managers are invited to participate in the 7-10-minutes Google form survey via professional social media LinkedIn, Emails, and direct communication. A total of 390 completed questionnaires from the questionnaires distributed were returned to the researcher, giving a response rate of 78% from the sample size response.

3.2 Questionnaire Design
The data required for this study were collected through a questionnaire that was constructed from the study by (SEWANYANA,2006;NDAIGA, 2016) and (https://nunofsoares.com/food-safety-culture-how-can-you-measure-it/) .). Prior to distribution, a peer review of the questionnaire was conducted. In addition, some of operational managers , quality mangers and top management from dairy industry sectors, this were requested by the researcher to get their feedback about the questionnaire. The objective of this review was to pre-test the suitability and comprehensibility of the questionnaire The identified questionnaire respondents were then asked to answer according to their experience level, also pilot work was done with 79 from operational managers , quality

mangers and top management from dairy industry sectors. The questionnaire was developed based on two sections: General data of respondents in their dairy manufacturing organizationsin Egypt. The questions were multiple choice based on a 5-points Likert scale with '1' representingstrongly disagree, '2' disagree, '3' neutral, '4' agree, and '5' strongly agree.

3.3 Analysis Technique

The questionnaire analysis utilized descriptive statistics, reliability, factor analysis, correlation, and regression tools to justify the proposed research model with the dependent factors and independent factors. SPSS version 26.0 was used for checking the validity andreliability of the data for 79 samples as a pilot study. Furthermore, the correlation was used to measure the strength of the relationships between the independent factors and dependent factors. Correlation is an essential statistical method that measures the strengths among the variables and the relationships between those involved variables (Hair et al., 2009). Regression analysis in this research is used to detect the relationship between independent and dependent variables. This study will highlight the impact of operational risk management and food safety policy on the organizational performance of dairy firms in Egypt.

4. Results and Findings

This chapter introduces the outcome of quantitative data, the analytical research is carried out on data gathered and are presented throughout the chapter to confirm or reject the role of the relationship between Operational risk management and organizational performance, examine if food safety policy that applies a good implementation with an organized team will mediate the relationship between operational risk management and organizational performance and examine if Covid-19 moderate the relationship between operational risk management and organizational performance inside the dairy manufacturing sector in Egypt.

4.1 Validity and Reliability Tests

A Validity and Reliability Test is conducted to be sure the questionnaire statements are phrased in a good format (Taherdoost,2016). The Kaiser-Meyer-Olkin (KMO) Test is a measure of how suited data is for Factor Analysis (Hamed Taherdoost,2016). The test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance (Taherdoost,2016). The lower the proportion, the more suited your data is to Factor Analysis. KMO returns values between 0 and 1. A rule of thumb for interpreting the statistic:
   - KMO values between 0.8 and 1 indicate the sampling is adequate.
   - KMO values less than 0.5 indicate the sampling is not adequate and that remedial action should be taken. Some authors put this value at 0.6.

KMO Values close to zero mean that there is large partial correlations compared to the sum of correlations. In other words, there are widespread correlations which are a large problem for factor analysis.

Cronbach's alpha tests to see if multiple question Likert scale surveys are reliable. These questions measure latent variables, hidden or unobservable variables like a person's conscientiousness, neurosis, or openness. These are very difficult to measure in real life. Cronbach's alpha will tell how closely related a set of test items are as a group (Douglas G. Bonett,2014).

Cronbach's alpha greater than or equal to 0.7 is accepted, and less than 0.5 is not accepted. The Kaiser-Meyer-Olkin (KMO) test and Cronbach's alpha test are used jointly to check that the findings of both tests are the same (Douglas G. Bonett,2014), as illustrated in the following Table 4.1 below.

Table 4.1: Validity and Reliability Tests for the Research Variables – Complete sample

	Variables	KMO	Scale-AVE	Cronbach's Alpha	Items	Factor Loading
X1	Operational Risk Management Internal Processes	0.821	23.150	0.705	Q7	0.704
					Q8	0.625
					Q9	0.612
					Q10	0.785
					Q11	0.722
					Q12	0.790
					Q13	0.680
X2	Operational Risk Management People	0.861	23.252	0.736	Q14	0.659
					Q15	0.618
					Q16	0.736
					Q17	0.777
					Q18	0.779
					Q19	0.684
					Q20	0.672
X3	Operational Risk Management Systems	0.859	23.255	0.738	Q21	0.832
					Q22	0.818
					Q23	0.613
					Q24	0.673
					Q25	0.617
					Q26	0.716
					Q27	0.612

					Q49	0.818
X4	Food Safety Policy.	0.912	26.254	0.938	Q50	0.901
					Q51	0.898
					Q52	0.846
					Q53	0.881
X5	Covid-19 Pandemic	0.857	23.251	0.733	Q54	0.735
					Q55	0.825
					Q56	0.719
					Q57	0.610
					Q58	0.706
Y1	Organizational Performance Market Share	0.840	21.252	0.721	Q28	0.668
					Q29	0.623
					Q30	0.608
					Q31	0.612
					Q32	0.649
					Q33	0.714
					Q34	0.673
Y2	Organizational Performance Profitability	0.823	20.532	0.781	Q35	0.692
					Q36	0.672
					Q37	0.746
					Q38	0.656
					Q39	0.641
					Q40	0.670
					Q41	0.744
Y3	Organizational Performance Growth	0.889	21.525	0.882	Q42	0.742
					Q43	0.772
					Q44	0.732
					Q45	0.751
					Q46	0.754
					Q47	0.744
					Q48	0.630

From Table 4.1, the validity and reliability tests for the whole sample of 390 responses indicated that factors loading are greater than 0.6, that the questions are clear and can describe the independent variable, KMO values between 0.821 and 0.912 indicate the pilot sampling is

adequate. Cronbach's alpha for all variables is greater than 0.7, which means multiple questions Likert scale surveys are reliable.

4.2 Descriptive Analysis

The descriptive statistics is a tool in which it explains and gives a distinct understanding of the features of a certain data set, by giving short summaries about samples and how to measure the data. The three major types of descriptive analysis are frequency, measures of central tendency such as averages, and measure of variability such as standard deviation. Measures of variability describes the level of how different the scores are from the mean (Bhandari, 2022). Measures of central tendency suggest unique value that generally represents the entire scores set, as illustrated in the following Table 4.2 below.

Table 4.2: Descriptive Analysis for the Research Variables

	N		Mean	Std. Deviation	Frequency					
	Valid	Missing			1	2	3	4	5	
X1 Internal Processes	390	0	4.1615	.72563	1	6	52	201	130	390
X2 People	390	0	4.2615	.72651	4	2	35	196	153	390
X3 Systems	390	0	4.0000	.75884	4	8	64	222	92	390
X4 Food Safety Policy	390	0	4.4769	.75082	6	2	19	136	227	390
X5 Covid-19 Pandemic	390	0	4.2359	.79893	1	11	50	161	167	390
Y1 Market Share	390	0	4.4564	.62666	1	2	16	170	201	390
Y2 Profitability	390	0	3.9051	.85968	7	13	83	194	93	390
Y3 Growth	390	0	4.4000	.70182	3	3	22	169	193	390

Frequency statistics sum up how many times each variable is repeated. Table 4.2 has means, standard deviations, and frequency statistics which are conducted on the research variables. It could be observed that the mean and the frequencies of most responses are in the agreement zone, as the mean values for the research variables: internal process, people, system, food safety policy, Covid-19, market share, profitability and growth are 4.1615, 4.2615, 4.0000, 4.4769, 4.2359, 4.4564, 3.9051 and 4.4000 respectively.

If we calculate three standard deviations of 99.73%, that means the value of each variable will be between average±3sigma, for internal process values will be between 1.9846 and 6.3384, people values between 2.082 and 6.441, system values between 1.7235 and 6.2765, food safety policy

value between 2.2245 and 6.7293, Covid-19 value between 1.8391 and 6.3329, market share value between 2.5764 and 6.3364, profitability value between 1.3260 and 6.4841, growth value between 2.2945 and 6.5054. Low standard deviation means data are clustered around the mean, and high standard deviation indicates data are more spread out.

4.3 Normality Testing for The Research Variables

In order to check the normality of the data, two types of tests are conducted: formal and informal. Table 4.3 shows the formal testing of the normality assumption for the research variables using the Kolmogorov-Smirnov test of normality.

Table 4.3: Formal Testing of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
X1_Internal_Process	.261	390	.000	.805	390	.000
X2_People	.254	390	.000	.760	390	.000
X3_System	.305	390	.000	.806	390	.000
X4_Food_Safety	.339	390	.000	.666	390	.000
X5_Covid19	.259	390	.000	.797	390	.000
Y1_Market_Share	.323	390	.000	.715	390	.000
Y2_Profitability	.280	390	.000	.838	390	.000
Y3_Growth	.299	390	.000	.723	390	.000

As The P-value of internal process, people, system, food safety policy, Covid-19, market share, profitability and growth are 0.261, 0.254, 0.305, 0.339, 0.259, 0.323, 0.280, 0.299 and all less than 0.05; It could be observed that the research variables are not normally distributed.

Table 4.4: Informal Testing of Normality

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
X1 Internal Processes	390	-1.662	0.124	0.648	0.247
X2 People	390	-1.173	0.124	2.974	0.247
X3 Systems	390	-1.852	0.124	1.764	0.247
X4 Food Safety Policy.	390	-1.991	0.124	5.739	0.247

X5 Covid-19 Pandemic	390	-1.906	0.124	0.559	0.247
Y1 Market Share	390	-1.095	0.124	2.266	0.247
Y2 Profitability	390	-1.817	0.124	1.084	0.247
Y3 Growth	390	-1.412	0.124	3.587	0.247
Valid N (listwise)	390				

As the formal test shows that the values are not normally distributed, an informal test is used to detect the approximate normality. Table 4.4 shows the informal test of normality, where it could be shown that the skewness and kurtosis values are all above the acceptance level of ±1, which means that the data under study are not normal. Consequently, Spearman's rho correlations are used to describe the relationships between the research variables.

4.4 Testing Regressions Assumptions

This section investigates and verifies the regression assumptions for the above-conducted models. The problems of multicollinearity, autocorrelation, and heteroscedasticity are discussed below. Multicollinearity: By testing VIFs, it could be observed that the VIFs of the research variables are less than 5 (Table 4.5), implying that there is no problem of multicollinearity between the independent variables.

Table 4.5: Multicollinearity Test (Y1 Market Share)

Model		Collinearity Statistics	
		Tolerance	VIF
	X1 Internal Processes	0.604	1.656
	X2 People	0.428	2.339
	X3 Systems	0.483	2.072
	X4 Food Safety Policy.	0.562	1.780
	X5 Covid-19 Pandemic	0.802	1.247

4.5 Regression Analysis

This section investigates and verifies the regression assumptions for the above-conducted model; this will investigate the regression analysis between independent variables (Internal Process, People, System and Market share, Profitability and Growth) and the second investigation with the same independent variables after affecting of Food Safety Policy (as mediator) and after affecting

of Covid19 (as moderator). Test independent variables including both Food Safety policy and Covid-19 with dependent variables Market Share, Profitability and Growth as shown in Tables (4.6 - 4.7 – 4.8).

Dependent variable
Market Share

Independent variables:
Internal Process, People, System, Food safety policy, Covid19. As illustrated in the following Table 4.6 below.

$Y_1 = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5.$

a. Dependent Variable: Y1_Market_Share

Predictors: (Constant), X5_Covid19, X3_System, X1_Internal_Process, X4_Food_Safety, X2_People

Table 4.6: Coefficients of the Model

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.245	.182		6.848	.000
	X1_Internal_Process	.252	.041	.332	5.564	.001
	X2_People	.172	.049	.199	3.519	.000
	X3_System	.248	.044	.289	3.89	.008
	X4_Food_Safety	.277	.041	.332	6.718	.000
	X5_Covid19	.223	.032	.284	6.871	.000

a. Dependent Variable: Y1_Market_Share

Internal process, People, System, Food safety policy and Covid-19 are significant to Market Share, as the Sig. value is 0.001, 0.000, 0.008, 0.000, 0.000 respectively.

H1.1   Internal process has a significant positive impact on market share.
H1.2   People has a significant positive impact on market share.
H1.3   System has a significant positive impact on market share.
H3.1   Covid-19 Pandemic have a significant positive impact on market share.
H4.1   Food safety policy have a significant positive impact on market share.

Dependent variable:
Profitability

Independent variables:
Internal Process, People, System, Food safety policy, Covid-19. As illustrated in the following Table 4.7 below.

$$Y_2 = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5$$

a. Dependent Variable: Y2_Profitability

b. Predictors: (Constant), X5_Covid19, X3_System, X1_Internal_Process, X4_Food_Safety, X2_People

Table 4.7: Coefficients of the Model

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.254	.255		-.999	.319
	X1_Internal_Process	.142	.058	.120	2.460	.014
	X2_People	.141	.057	.121	2.462	.015
	X3_System	.319	.062	.282	5.171	.000

X4_Food_Safety	.320	.058	.280		5.537	.000
X5_Covid19	.330	.056	.281		5.430	.000

a. Dependent Variable: Y2_Profitability

Internal process, People, System, Food safety policy and Covid-19 are significant to Profitability, as the Sig. value is 0.014, 0.015, 0.000, 0.000 ,0.000 respectively.

H1.4 Internal process has a significant positive impact on Profitability.

H1.5 People has a significant positive impact on Profitability.

H1.6 System has a significant positive impact on Profitability.

H3.2 Covid-19 Pandemic have a significant positive impact on Profitability.

H4.2 Food safety policy have a significant positive impact on Profitability.

Dependent variable:

Growth

Independent variables:

Internal Process, People, System, Food safety policy, Covid19. As illustrated in the following Table 4.8 below.

$Y3 = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5$

a. Dependent Variable: Y3_Growth

b. Predictors: (Constant), X5_Covid19, X3_System, X1_Internal_Process, X4_Food_Safety, X2_People.

Table 4.8: Coefficients of the Model

 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.756	.196		3.864	.000
	X1_Internal_Process	.096	.044	.099	2.167	.031

X2_People	.210	.053	.217	3.993	.000
X3_System	.091	.045	.097	2.060	.029
X4_Food_Safety	.397	.044	.425	8.934	.000
X5_Covid19	.080	.035	.091	2.279	.023

a. Dependent Variable: Y3_Growth

Internal process, People, Food safety policy and Covid19 are significant to Growth, as the Sig. value is 0.031, 0.000, 0.029,0.000, 0.023 respectively.

H1.7   Internal process has a significant positive impact on Growth.

H1.8   People has a significant positive impact on Growth.

H1.9   System has a significant positive impact on Growth.

H3.3   Covid-19 Pandemic have a significant positive impact on Growth.

H4.3   Food safety policy have a significant positive impact on Growth.

4.6 Conclusion of the Questionnaire Analysis

The data presented by the questionnaires are analyzed empirically to test the research hypotheses by measuring the variables concluded from the literature review through a descriptive, correlation, and regression analysis using SPSS, Table 4-9 shows a summary for the conducted analysis.

Table 4.9: Summary of Research Hypotheses test

Hypothesis	Description	Results
H1.1	Internal process has a significant positive impact on market share.	Fully Supported
H1.2	People has a significant positive impact on market share.	Fully Supported
H1.3	System has a significant positive impact on market share.	Fully Supported
H1.4	Internal process has a significant positive impact on profitability.	Fully Supported
H1.5	People has a significant positive impact on profitability.	Fully Supported
H1.6	System has a significant positive impact on profitability.	Fully Supported
H1.7	Internal process has a significant positive impact on Growth.	Fully Supported
H1.8	People has a significant positive impact on Growth.	Fully Supported
H1.9	System has a significant positive impact on Growth.	Fully Supported
H2.1	Covid-19 pandemic moderate relation between internal process and market share.	Not Supported

H2.2	Covid-19 pandemic moderate relation between people and market share.	Not Supported
H2.3	Covid-19 pandemic moderate relation between system and market share.	Not Supported
H2.4	Covid-19 pandemic moderate relation between internal process and profitability.	Not Supported
H2.5	Covid-19 pandemic moderate relation between people and profitability.	Not Supported
H2.6	Covid-19 pandemic moderate relation between system and profitability.	Not Supported
H2.7	Covid-19 pandemic moderate relation between internal process and growth.	Not Supported
H2.8	Covid-19 pandemic moderate relation between people and growth.	Not Supported
H2.9	Covid-19 pandemic moderate relation between system and growth.	Not Supported
H3.1	Covid-19 Pandemic have a significant positive impact on market share.	Fully Supported
H3.2	Covid-19 Pandemic have a significant positive impact on profitability.	Fully Supported
H3.3	Covid-19 Pandemic have a significant positive impact on growth.	Fully Supported
H4.1	Food safety policy have a significant positive impact on market share.	Fully Supported
H4.2	Food safety policy have a significant positive impact on profitability.	Fully Supported
H4.3	Food safety policy have a significant positive impact on growth.	Fully Supported
H5.1	Food safety policy mediate relation between internal process and market share.	Fully Supported
H5.2	Food safety policy mediate relation between people and market share.	Fully Supported
H5.3	Food safety policy mediate relation between system and market share.	Fully Supported
H5.4	Food safety policy mediate relation between internal process and profitability.	Fully Supported
H5.5	Food safety policy mediate relation between people and profitability.	Fully Supported
H5.6	Food safety policy mediate relation between system and profitability.	Fully Supported
H5.7	Food safety policy mediate relation between internal process and growth.	Fully Supported
H5.8	Food safety policy mediate relation between people and growth.	Fully Supported
H5.9	Food safety policy mediate relation between system and growth.	Fully Supported

5. Discussion, Conclusion and Recommendations

This research was intended to enhance understanding the impact of operational risk management and food safety policy on the organizational performance of dairy firms in Egypt and give recommendations on potential future research in the areas of operational risk management for successful implementation.

5.1 Research Conclusion

1- The relationship between internal process, people, and system as an independent variable with market share, profitability, and growth as dependent variables is significant.

2- The relationship between Food safety policy as an independent variable with market share, profitability, and growth as dependent variables is significant.

3- The relationship between Covid-19 Pandemic as an independent variable with market share, profitability, and growth as dependent variables is significant.

4- Moreover, Covid-19 pandemic doesn't moderate the relation between internal process, people, and system as an independent variable with market share, profitability, and growth as dependent variables.

5- Moreover, Food safety policy mediate the relation between internal process, people, and system as an independent variable with market share, profitability, and growth as dependent variables.

The findings of this study have practical contributions for the managers of dairy firms. First, they can understand the operational risk management practices, which make a greater contribution to the sustainable performance of firms. In addition, top management should give special attention to food safety policy to get maximum sustainable performance.

5.2 Research Recommendations

Based on the findings made during this research, the following recommendations are made to improve operational risk management and food safety amongst Egyptians dairy firms. They include:

1- Companies should ensure that frequent and adequate workshops and trainings should be put in place to encompass all possible operational risk scenarios. It can be argued that the operational risks companies face increases by the day. Therefore, trainings and workshops should be frequent, also, training should include a new system technology which will help them to develop operations through fast reports to identify occurrences of risks during the performance of their duties.

2- From the findings, operational risk management and food safety policy were found to be significant predictors of organizational performance. Therefore, the management of the organization should put in place the required structures, promote a good organizational culture, and apply food safety controls on the operations as this will enhance the growth in terms of profitability and market share of the firm.

3- Keeping an eye on emerging trends and innovations that can have positive impacts on the food safety arena will ensure that there is ample time to weigh the pros and cons and therefore be better placed to take advantage of them as they materialize in the mainstream.

4- Company procedures must be communicated effectively. As soon as updates or modifications have been made, the company procedures must be communicated effectively adequately and with speed to reduce the company's exposure to operational risks and losses.

5- Currently high political risks require great attention from firms. Quick and reliable political decisions about the future of the dairy sector, would considerably reduce political risks as perceived by firms and would allow them to focus on improving their production processes, efficiency, and competitiveness. Therefore, there is a great need for early and reliable decisions on the future of the dairy system and other political regulation of the dairy market.

6- Firms should invest more in technological lines to automate all processes in production lines to reduce risks.

5.3 Research Limitations

This research has a number of limitations as follows: -

1-The researcher collected the data from the dairy sector in Egypt for companies' security reasons. The research will be limited by the company's name as some of participants don't like to refer to the name of the company they work for.

2-This research is quantitative in nature; therefore, generalizations are limited. The results might be different when applying mixed approach.

3-Only Egyptian organizations participated in this research. Results might not specifically true in other countries, so it is suggested to collect data from another country (developed and/or developing) and compare the results to see if the findings of the current research which is applied in Egypt are similar if applied to another country.

4-The dairy industry was studied, but other sectors might result in severe differences in other countries and might be influenced by different aspects such as laws, regulations, and culture.

5-Another limitation of this research is the sample size, bigger sample could give different results specially in the moderation variable relationship.

5.4 Suggestions for future research

As this research provides some answers to unanswered questions, all research leads to new research Possibilities. Therefore, this section provides some future research directions.

First: The research did not include financial risks which are crucial nowadays specially through the harsh economic conditions and there is need to analyse effect of other risks which includes compliance and legal, technological, reputational, and strategic risks.

Second: Future research may use case study analysis to examine this research model.

Third: The goal of this research was to explore a new maturity model. Larger samples are needed for further validation of the research model. Additionally, additional research should lead to further improvement of the maturity model.

Fourth: More research in different sectors to trace the difference between industries i.e., petrochemicals, health care, transport, retail, real estate, insurance etc. to reach more real conclusions by comparative studies. To start, more details are required regarding organization performance in various industries.

Fifth: More research could be performed specially after the Russian and Ukraine war and its effect on operational risk management either directly or indirectly, hence on organization performance either on dairy sector or other sectors.

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