

THE (COSO) FRAMEWORK: IMPLICATIONS OF INTERNAL CONTROL COMPONENTS ON THE PERFORMANCE MANUFACTURING COMPANIES

Sardar Jalal Braim

Department of Accounting and Finance, College of Administration and Economics, Lebanese French University, Erbil, Kurdistan Region, Iraq.

sardar.jalal@lfu.edu.krd

Rebin Bilal Mohammed

Department of Accounting and Finance, College of Administration and Economics, Lebanese French University, Erbil, Kurdistan Region, Iraq.

rebin.bilal@lfu.edu.krd

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ABSTRACT

The study examines the implications of internal control components on risk assessment using the Committee of Sponsoring Organizations (COSO) framework on manufacturing companies in Erbil, Kurdistan. A multivariate analysis was applied on 250 responses in modelling the individual effects of internal control components (control environment, risk assessment, control activities, information and communication, and monitoring) on risk assessment. The results of the study indicated that the integrated internal control environment, risk assessment, control activities and monitoring components have significant positive effects on organisational performance compared to information and communications. The present study advances the literature on internal control as corporate governance and performance-enhancing tool. Additionally, it also advances internal control's conceptual framework on organisational performance. Lastly, the results of this study advance construct and item development involving internal control components and organisational performance while testing relationships to uncover the significance of their implications in enhancing organisational performance.

1. Introduction

The global economy has been associated with various forms of risks and firms across the world are devising innovative changes in internal control and value chains in regulating costs and leveraging capabilities. Numerous examinations contend that risk assessment is essential in enhancing corporate performance and safeguarding a company's competitive position in an industry (Heinonen et al., 2022). This is of huge importance, especially at a time when risks posed by the Covid-19 pandemic caused companies to go bankrupt, liquidate, downsize operations, and experience severe performance challenges (Ilinova, Dmitrieva & Kraslawski, 2021; Chi, 2021; Grondys et al., 2021; Heinonen et al., 2022). Amid the rising demand for improved and effective organisational performance-enhancing strategies and methods, is the calling for sound internal control practices to enhance organisational performance. As such, the Committee of Sponsoring Organizations (COSO) amended the internal control framework in response to increased organizational and global business risks and organisational complexities undermining organisational performance (COSO, 2022).

Previous studies dwelt on the effects of financial control, strategic control or management control on innovation (Chan, Chen & Liu, 2021; Li, 2020; Li et al., 2019). The impact of internal control on organisational performance is underexplored. Additionally, the individual impact of each internal control component (control environment, risk assessment, control activities, information & communication, and monitoring) is not examined. Knowing that internal control includes a broader scope of aspects (COSO, 2022), it remains an interesting inquiry to uncover the mystery of internal control and assess the effects of its five individual components on organisational performance (Dixit, et al., 2020). Given the above considerations, this study aims to examine the impact of internal control components to enhance understanding of the specific internal control methods on organisational performance. Specifically, the study analyses the impact of the control environment, risk assessment, control activities, information and communication, and monitoring on the performance of manufacturing companies. Using a judgmental sample of 300 manufacturing companies in Erbil, Kurdistan, this study builds an integrated model that analyzes the impact of all the distinct five internal control components as a whole on organisational performance. Such is guided by previously established ideas suggesting that all the individual internal control components do not equally affect organisational indicators like innovation

(Chan, Chen & Liu, 2021; Chen et al., 2017), especially in the restricted scope of manufacturing companies' organisational performance capabilities. Besides, there is a lack of clarity surrounding the impact of internal control on vital aspects like organisational performance. For instance, Li et al. (2019) argued that solid internal control practices can hinder managers from approving risky innovative projects, but can also reduce financial constraints and enhance information quality leading to better performance. Using Chan, Chen and Liu's (2021) ideas, this study argues that internal control components are a 'double-edged sword' to a company's performance management initiatives. Irrespective of the company's intentions to warrant safe and effective management of the company's financial resources and investments, internal control can pose challenges, rigidities and tensions hindering the innovative establishment of innovative organisational performance enhancement strategies and practices. It is to the author's knowledge that this study is the first of its kind to uncover the individual effects of internal control components on organisational performance. Leveraging the development of unique organisational performance and internal control measurement constructs, this study uses the COSO framework in assessing such effects on manufacturing companies in Erbil, Kurdistan. Furthermore, the study's contributions are in advancing literature on corporate governance's impact on organisational performance. This is distinct from prior examinations documenting the role of financial determinants, entrepreneurial or management on risk assessment, our study documents an accounting-based determinant of organisational performance, suggesting that internal control as an accounting element in a firm's corporate governance structure plays a crucial role, not only in financial reporting but also in other vital corporate outcomes, like organisational performance. This study also advances internal control's conceptual framework on organisational performance. Lastly, the results of this study advance construct and item development involving internal control components and organisational performance while testing relationships to uncover the significance of their implications in enhancing organisational performance.

Literature review

The principle agent theory: Implications of the COSO's internal control framework on organisational performance

The principal-agent theory is a theoretical idea that was designed to ensure that managers as agents of the organisational owners (principals) execute their duties in

a manner that safeguards and enhances the principals' interests (Gailmard, 2012). The rationality behind such theoretical ideas is that managers do not always act in the best interest of the organisation's owners and are driven to make decisions based on their self-interests. Amid such actions, fraud and other corporate governance misconducts have been observed as notable cases that can be traced to the Enron Saga (Hebert & Durusomo, 2019). Given that fraud and other cases of corporate governance misconduct affect not only the principals' interests, but also hinder the organisation's performance, the importance of auditing and establishing sound and effective control in organisations has been widely welcomed across accounting and auditing disciplines. Hence, propositions made by the principal agent theory play a vital role in improving and devising effective internal controls leading to better organisational performance (Mohammed, et al., 2022). Meanwhile, the COSO's internal control framework is a framework that was designed to assist organizations in improving their performance by developing thought leadership that enhances fraud deterrence, risk management, internal control and governance (COSO, 2022). This definition highlights some of the key aims and propositions of the principal-agent theory. There have been remarkable improvements made in ensuring that the framework effectively attains its goals to improve internal control and corporate governance practices in organisations leading to improved organisational performance. For instance, the framework was revised in 2013 to assist organizations in designing and implementing internal control amid numerous changes in business and operating environments since the adoption of the first Framework in 1992 (COSO, 2022). In 2004 the framework was adjusted to encompass Enterprise Risk Management so as to consider the effects of risks on strategy and performance (COSO, 2022). It is an interesting inquiry to note that the COSO's internal control framework works to attain propositions made by the principal-agent theory and improve organisational performance. Nonetheless, such attempts have been empirically sidelined. Furthermore, little has been done to uncover the implications of the COSO's internal control framework on organisational performance by integrating the effects of its five individual components. Thus, in order to accomplish such as task, the next section reviews the related internal control studies (Braim,2020).

Empirical literature review

In a prior exploratory study by Stringer and Carey (2002) on internal control re-design in Australian organisations. The importance of internal control was underscored and linked to various organisational activities and outcomes. Furthermore, their findings outlined that the stability and performance of an organisation rely on the existence of sound internal control practices. It is in this regard that similar benefits are expected in Kurdistan's manufacturing companies that have lacked examinations. However, extending such ideas to organisational performance remains of huge importance as there are contrasting ideas surrounding the concept of internal control and how it affects organisational performance. For instance, Stoel and Muhanna (2011) found that internal control possesses weaknesses that can undermine firm performance. Therefore, it remains to be ascertained as to whether the purported internal control benefits on organisational performance are conceivable in the Middle Eastern context of Kurdistan's manufacturing companies (Hamza, et al., 2022). Efforts to examine the impact of internal control on organisational performance have been surrounded by mixed results and various disparities and shortfalls. For instance, attempts by Mahadeen et al. (2016) to examine the impact of an organization's internal control system on organizational effectiveness in Jordan neglect the impact of each individual internal control. This crowds judgements into overlooking the exact internal channels and their significance in driving organisational performance. Besides, Alfartoosi and Jusoh (2021) contend internal control system can mediate the relationship between e-accounting and the performance in Small and Medium Enterprises. Thus, further complicating ideas surrounding the interactive connections linking internal control and organisational performance. Chan, Chen and Liu (2020) conducted a study aimed at analysing the impact of the COSO framework on innovation. Their findings established that internal control is an integrated system that significantly affects a company's innovation in a positive manner. This implies that all the five internal control components will either individually or combined work together to improve innovation a key determinant of organisational performance. Therefore, this study builds on Chan, Chen and Liu's (2020) and contends that all the five internal control components will either individually or combined work together to improve organisational performance (Sharif, 2017). Anh et al. (2020) analysed factors influencing the effectiveness of internal control in cement manufacturing companies. The importance of internal control components

as factors influencing the effectiveness of internal control was highlighted. That is, how the control environment, risk assessment, control activities, information and communication, and monitoring affect the performance of cement manufacturing companies. This aligns with Chan, Chen and Liu (2020) contemporary study suggestions reemphasizing the importance of analysing internal control components' effects on other vital aspects such as organisational performance. Simon (2021) analysed the effect of internal control on the performance of telecommunications companies in Nigeria. Outstandingly, internal control's risk assessment and control activities insignificantly drive the performance of telecommunications companies in Nigeria. Nonetheless, the effects of other internal control components (monitoring, information and communications, and the control environment) were excluded and thereby crowding internal control judgements on limited factors. This study seeks to address such methodological limitations by building an integrated model that includes all the five internal control components' effects on organisational performance (MOHAMMED, 2020).

Hypothesis development: The impact of individual components of internal control on organisational performance

Based on the COSO framework conceptual point of view, internal control comprises five components (monitoring, information & communication, control activities, risk assessment and control environment) simultaneously operating together in an integrated manner (COSO, 2022). Though studies address the impact of internal control on organisational outcomes such as innovation (Chan, Chen & Liu, 2020), and stock price crashes (Li et al., 2019), building an integrated model that analyses the integrated effects of all the internal components has been empirically sidelined. Amid such observations, the conceptual contributions of this study are engraved in building an integrated model analysing the integrated effects of all the five internal control components. Additionally, Alfartoosi and Jusoh (2021) contend that measuring the individual effects of all the five internal control components is limited by the lack of decomposed measures. In that regard, the study contributes to the development of internal control constructs. Furthermore, the impact of the five control components is tested to determine how each component affects organisational performance (Hamad et al., 2021). As a result, hypotheses were

formulated based on the interactive connections linking all the five components to organisational performance as follows;

Impact of the control environment on organisational performance

The COSO framework considers the control environment as the first component essential for dealing with issues undermining organisational performance through thought leadership development so as to improve fraud and governance deterrence, risk management and internal control (COSO, 2022). In a study by Chen et al. (2017), it was established that the control environment is vital for setting for companies and influences their employees' control conscience. Interestingly, this entails that efforts to boost organisational performance using internal control require changes in directors' and managers' actions, awareness and overall attitude. Such aligns with the behavioural theory (Schewe et al., 2017) and empirical studies that do not distance vital aspects like actions, awareness and overall attitude from organisational performance (Grobler & Du Plessis, 2016; Nason, Bacq & Gras, 2018). Besides, a company's human resources procedures and policies, audit committee oversight, organisational structure, operating style, management philosophy, ethical values and culture reflect its control environment. Outstandingly, all these aspects are linked to organisational performance. In an attempt to examine the impact of internal control on innovation, Chan, Chen and Liu's (2020) discovered that a company's control environment affects its personnel decisions. Again, the influence of the control environment on organisational performance cannot be underestimated as personnel decisions are linked to a company's effective ability to recruit, retain and compensate highly skilled and qualified personnel crucial for improving its performance. Hence, adopting the COSO framework can be regarded as strengthening internal control's influence on key aspects essential for boosting organisational performance. Amid such discovery, the following hypothesis was formulated;

- **H₁**: The control environment designed according to the COSO framework has a significant positive impact on organisational performance.

Impact of risk assessment on organisational performance

Studies reckon that there is an interactive connection between risk assessment and organisational performance (Huang, 2021; Milazzo, 2016). However, analysing the key drivers of risk assessment's influence on organisational performance has been restricted to quantitative measures such as interest and returns (Simon, 2021). Hence, leaving a huge disparity regarding the importance of qualitative risk assessment measures in driving the performance of an organisation. The COSO framework regards risk assessment as instrumental in deterring fraud and fostering good corporate governance practices and hence, proposed that thought leadership be used to boost organisational performance (COSO, 2022). This aligns with Chan, Chen and Liu's (2020) study findings denoting that risk assessment deals not only with risks but also fraudulent activities, threats and errors hindering a company from achieving its goals. Spira and Page (2003) outlined that when effectively applied, risk assessment enhances the effectiveness of existing corporate governance practices and provides an external oversight of risks affecting the company at firm, industry and macro levels. Ultimately, a company's response and effectively ability to manage risks rely on how effective its risk assessment practices are structured and this is conceivable using the COSO framework. It is in this regard that the following hypothesis was proposed;

- **H₂:** Structuring risk assessment practices according to the COSO framework has a significant positive impact on organisational performance.

Impact of control activities on organisational performance

The COSO internal control framework recommends that control activities be implemented in all organisational functions and levels (COSO, 2022). Provided reasons embedded in academic studies show that this is essential for ensuring that companies achieve their objectives (Mahadeen et al., 2016; Simon, 2021). Other studies outline that control activities serve a vital purpose of mitigating asset misappropriations and enhancing financial stability (Vovchenko et al., 2017), inefficiencies (Kim, Yeung & Zhou, 2013), irregularities and risks of errors (Chan, Chen & Liu, 2020) resulting in improved accounting quality, which is a key factor in improving organisational performance. There is substantial evidence linking control

activities-related benefits to performance-enhancing benefits. For instance, a study by Zhong (2018) established that sound control activities result in improved accounting quality required in optimizing a company's investments. In another study, Healy and Palepu (2001) established that information asymmetry problems faced by companies can easily be eradicated by enacting effective control activities that boost the quality of a company's accounting. The supposed performance-enhancing benefits of the COSO's control activities are conceivable as some studies attribute improved corporate governance practices (Mahadeen et al., 2016), innovation (Chan, Chen & Liu, 2020), better risk management (Simon, 2021) and financial stability (Vovchenko et al., 2017) to effective control activities. Given such analysis, it, therefore, becomes apparent that control activities are well posed to boost organisational performance when structured according to the COSO framework. As a result, this study formulated the following hypothesis;

- **H₃:** Structuring control activities according to the COSO framework has a significant positive impact on organisational performance.

Impact of information and communication on organisational performance

The key function of accounting is to communicate information to improve decision-making (Stoel & Muhanna, 2011). The existence of challenges and complexities in organisations can hinder the effective ability of companies to make informed decisions, especially when barriers to communications are prevalent. Information and communication have proved to be significant challenges hindering organisational performance (Stoel & Muhanna, 2011). Other studies attribute other problems such as fraud, risks, errors and poor corporate governance practices (Chan, Chen & Liu, 2020; Mahadeen et al., 2016; Simon, 2021) to information and communication problems. Given that internal control is designed to prevent such problems, applying the COSO's internal control framework is a highly welcomed strategy.

There is tangible evidence supporting the adoption of the COSO's internal control framework in improving companies' information and communication activities so as to boost performance, and eliminate fraud, risks, errors and poor corporate

governance practices. For instance, Stoel and Muhanna. (2011) opine that the internal control framework on information and communication ensures that reliable and relevant information is communicated throughout the entire organisation. In another instance, Savage, Norman and Lancaster (2008) highlight the importance of using the COSO's internal control framework to support information and communication activities citing that they ensure that complete information is dispersed to organisational managers for effective decision making. Some studies significantly consider the benefits of the COSO's internal control framework citing that it ensures the timely communication of information. When analysed as an integrated aspect, these individual information and communication benefits are responsible for the formulation of rational decisions essential for improving organisational performance. Besides, better and effective information and communication channels and methods assist companies in making strategic decisions essential for boosting organisational performance by safeguarding the companies' market share and competitive positions (Stoel & Muhanna, 2011). Therefore, the perceived benefits of information and communication in improving organisational performance are attainable. Hence, in that regard, the following hypothesis was formulated;

- **H₃:** Structuring information and communication methods and practices according to the COSO framework has a significant positive impact on organisational performance.

Impact of monitoring on organisational performance

The monitoring component is designed to monitor the effectiveness of the other four components and ensure their effectiveness (COSO, 2022). Chan, Chen and Liu's (2020) underscored the importance of the monitoring component citing that it uses separate evaluations or ongoing surveillance or a combination of both methods to ensure that the other components are effectively contributing to improving the company's performance. Monitoring activities are well posed to boost organisational, especially when considerations are made that they comprise fraud detection systems, periodic audits, responsibility accounting supervisory activities, regular management and other actions (Chan, Chen & Liu, 2020; Mahadeen et al., 2016; Simon, 2021). Besides, Alfartoosi and Jusoh (2021) discovered that material

weaknesses and internal control deficiencies are effectively dealt with by enacting sound monitoring controls allowing managers to timely solve organisational problems. With effective monitoring tools and programs, managers can manage and regulate risks (Stringer & Carey, 2002), ensure that employees are well motivated and satisfied to execute their duties (Anh et al., 2020), creating an internal control system that matches the company’s organisational structure, operating style, management philosophy, ethical values and culture and enhance organisational performance. Other studies contended that effective monitoring is linked to innovation (Li et al., 2019), better management (Kim, Yeung & Zhou, 2013), quality accounting that reduces waste (Chan, Chen & Liu, 2020), etc. broadly analysing all the connected benefits reveals that monitoring activities are linked to performance-enhancing mechanisms and measures. As a result, more significant performance-enhancing mechanisms and measures can be established by using the COSO framework targeted at improving companies’ monitoring activities and tools. In that regard, this study contends that the COSO framework’s monitoring activities and tools play a key role in improving organisational performance.

- **H₅**: Monitoring activities and tools designed according to the COSO framework have a significant positive impact on organisational performance.

Given the established five hypotheses highlighting the suggested impact of each of the internal control components on organisational performance, the conceptual framework shown in Figure 1 was established.

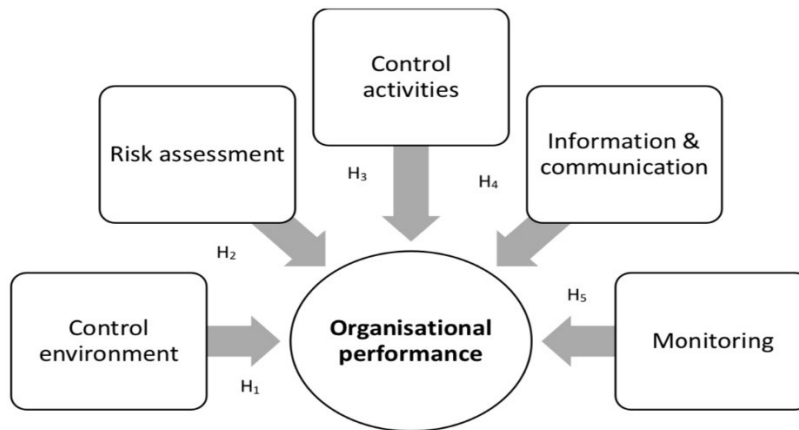


Figure 1. Conceptual model

Arrows stretching towards organisational performance represent the hypotheses about the proposed effects of the control environment, risk assessment, control activities, information and communication, and monitoring. Thus, this framework plays a crucial role in the formulation of the multivariate model that was used to assess the implications of the adoption of the COSO internal control framework on organisational performance.

METHODOLOGY

Data used in this study was collected from the 3rd of May to the 28th of June 2022 using structured questionnaires that were randomly distributed to manufacturing companies in Erbil, Kurdistan. The study focused on manufacturing companies because of the rising levels of corporate governance misconduct and the nature of risks faced by manufacturing companies, especially at a time when the Covid-19 pandemic has almost crippled every economic sector. Hence, the application of the COSO framework was deemed fit for dealing with risk, corporate governance and fraudulent issues affecting manufacturing companies in Kurdistan (COSO, 2013). Additionally, attention was shifted to Kurdistan because of a lack of studies examining related issues and similar studies are confined to countries like China (Chan, Chen & Liu, 2021; Chen et al., 2017) and the United States of America (Briciu et al., 2014). The questionnaire was developed using ideas available in related studies (Amundo & Imanga, 2009; Gamange et al., 2014; Ho, 2016). All the variable items were measured using a seven-point Likert scale measuring from one (totally disagree) to seven (totally agree). A focus group involving three managers was used in assessing the validity of the questionnaire and determining if it was easy to read and understand as well as analyse to see if it contains no double-barreled questions. Both managers expressed satisfaction with the questionnaire's ability to solicit the required responses. 250 manufacturing companies were selected based on a judgemental sampling approach, which Manna and Mete (2021) defined as a non-probability sampling method used by researchers in selecting sampling units according to their own professional judgment or existing knowledge. Table 1 describes the study sample.

Table 1. Sample description

Number of employees			Respondent's positions			Main functions		
Category	Frequency	%	Category	Frequency	%	Category	Frequency	%
≤ 49	106	12.8	Managers	70	28	Male	165	66
50 ≥ 150	86	34.4	Assistants	60	24	Female	85	34
150 ≥	58	23.2	Others	120	48			
Total	250	100	Total	250	100	Total	250	100

The 106 manufacturing companies' respondents were drawn from a category with less than or equal to 49 employees, 86 respondents from a category of 50 ≥ 150 employees and 58 respondents from a category of at least 150 employees. This indicates that the manufacturing companies varied in size from small and medium to large corporations. Nonetheless, the study sample comprised 70 managers, 60 assistants and 120 other employees. Among the 250 respondents, 66% of employees were male and 34% were female employees.

Validity and reliability tests

Factor loadings were applied in assessing the internal control components and organisational performance variable constructs' relatedness (Browne, 20001). This was done following stipulations put forward by Hair et al. (2017) that variables with factors of at least 0.70 provide valid explanations of the study subjects. It is in this regard that 5 control environment, 3 risk assessment, 4 control activities, 6 information and communication, 5 monitoring and 5 organisational performance constructs were selected as shown in Table 2.

Table 2. Factor loadings

No.	Selected constructs	Loadings
CE2	The company's managers develop strategies that enhance employee independence.	0.74

CE3	Managers set, promote and communicate ethical conduct rules throughout the company.	0.81
CE4	The company has a code of conduct regulating employees' and managers' activities.	0.72
CE5	The company effectively monitors' all the employees' and managers' activities.	0.84
CE7	The company equally treats its employees and managers.	0.82
RA1	The company considers risks affecting the organisations when setting its goals.	0.76
RA3	The company conducts periodic assessments of the company's achievement of objectives.	0.71
RA5	Operational, compliance and reporting are appropriately and clearly set.	0.81
CA1	All transactions are recorded all the time before they are recorded.	0.80
CA2	The company's operational activities are verified before there are documented.	0.86
CA3	The company has qualified managers and auditors to control its activities.	0.78
CA4	Control activities are designed according to each job, function and activity.	0.73
IC1	Information is timely communicated to all departments.	0.84
IC2	The company has effective information systems assisting in communicating information.	0.86
IC3	The company's managers ensure that there are no barriers affecting communication.	0.70
IC4	Employees are given a chance to communicate their problems and requirements.	0.81
IC5	All employees are informed of organisational changes before they are implemented.	0.74
IC6	The company makes sure that employees are well informed about all the costs	0.78

	and time.	
MN2	The company effectively monitors its activities.	0.83
MN3	The company carries out periodic monitoring of its entire activities.	0.72
MN5	The monitoring process establishes the company's functions, activities and processes.	0.70
MN6	The company considers its risk when designing its monitoring activities.	0.84
MN7	The company monitors' its managers' and employees' ability to achieve set goals.	0.78
OP1	Internal controls assist companies in attaining stated objectives.	0.82
OP2	Operational objectives are easily attained when companies have effective internal controls.	0.74
OP4	Internal controls enhance the level of compliance in an organisation.	0.76
OP5	Internal control ensures that managers act in the best interest of the entire organisation.	0.82
OP6	Internal control reduces incidences involving the misuse of resources and funds affecting organisational performance.	0.88

Meanwhile, Cronbach's alpha test was applied in assessing internal control components and organisational performance internal consistency. Heo, Kim and Faith's (2015) suggested guideline considering an internal consistency of at least 0.70 as reliable was adopted as a standard guideline upon which the reliability of all 6 variables was assessed.

Data analysis approach

The study applied multivariate analysis in examining the impact of internal control components on organisational performance because of a lack of application of multivariate models in analysing related problems. This can be supported by observations showing that related studies have either resorted to single regression

analysis (Mahadeen et al., 2016) or systematic literature review (Henk, 2020). The regression model shown by expression 2 was used to determine the specific impact and significance of each internal control component (Allen, 2004). Amid such attempts, the study presumed that organisational performance is a function of control environment (CE), risk assessment (RA), control activities (CA), information and communication (IC), and monitoring (MON). this can be functionally restated as follows;

$$OP = F\{CE; RA; CA; IC; MON\} \dots\dots\dots (1).$$

A constant (α), estimated parameters (β_1 to β_5) and an error term (μ) were integrated into expression 1 to establish the following regression model;

$$OP = \alpha + \beta_1CE + \beta_2RA + \beta_3CA + \beta_4IC + \beta_5MON + \mu \dots\dots\dots (2).$$

RESULTS

The results of this study are based on examinations conducted on 70 managers, 60 assistants and 120 other employees of manufacturing companies in Erbil, Kurdistan. The collected findings were analysed using SPSS version 24. The established model summary results shown in Table 3 show that 78.1% of the changes in organisational performance are explained by CA; RA; CA; IC; MON. Hence, 21.9% of the changes in organisational performance are explained by other variables outside the model. The Durbin Watson value of 1.987 is close to 2 signifying that there are no serial correlation problems affecting the estimated model (Allen, 2004).

Table 3. Model summary results

R Square	Adjusted R Square	Durbin Watson
0.781	0.776	1.987

Independent variables: CA; RA; CA; IC; MON.

ANOVA F-statistic = 118.26; prob. 0.000

Analysis of Variance (ANOVA) test results were used in ascertaining the presence of outliers in the model. An ANOVA F-statistic of 118.26 that was significant at 1% was obtained signifying that the estimated model has no outliers (Allen, 2004). Furthermore, Cronbach’s alpha results presented in Table 4 shows that all the variables have alpha values of at least 0.70 signifying high internal consistency. As a result, the regression model was deemed valid and reliable in examining the impact of internal control components on organisational performance. Amid such observations, the study proceeded in interpreting the regression analysis results.

Table 4: *Reliability test results*

	Cronbach's Alpha if Item Deleted
Organisational performance	74.3%
Control environment	82.1%
Risk assessment	76.2%
Control activities	80.4%
Information & communication	77.0%
Monitoring	85.6%
<i>Overall model's Cronbach's alpha value = 82.3%; Number of items = 6</i>	

Preliminary findings revealed that the control environment component has a significant impact on organisational performance of 0.837. this suggests that an improvement in internal control by 1 unit causes an improvement in organisational performance by 0.837 units. This aligns with Chen et al.’s (2017) findings denoting that the control environment is vital for setting for companies and influences their employees’ control conscience essential for influencing organisational performance determinants. As a result, hypothesis 1 was accepted.

Interestingly, risk assessment, control activities and monitoring significantly influenced organisational performance by 0.160, 0.122 and 0.067. This can be supported by related studies as noted by Chan, Chen and Liu’s (2020) study findings showing that risk assessment deals not only with risks but also with fraudulent activities, threats and errors hindering a company from achieving its goals. Additionally, Vovchenko et al. (2017) outlined that control activities serve a vital

purpose of mitigating asset misappropriations and enhancing financial stability while other cited inefficiencies (Kim, Yeung & Zhou, 2013), irregularities and risks of errors (Chan, Chen & Liu, 2020) resulting in improved accounting quality, which are key factors in improving organisational performance. Therefore, hypotheses, 2, 3 and 5 were accepted. Nonetheless, the supposed effects of information and communication on organisational performance are insignificant (Coefficient = 0.011: prob. 0.771) suggesting that information and communication insignificantly contribute toward improving organisational performance and hence, hypothesis four was rejected. Such observations had not been tested in prior studies (Mahadeen et al., 2016; Simon, 2021).

Table 5: Regression analysis results

	Unstandardized		Standardized	t	Sig.
	Coefficients				
	B	Std. Error	Beta		
(Constant)	0.301	0.143		-2.106	0.036
Control environment	0.837	0.050	0.749	16.815	0.000
Risk assessment	0.160	0.050	0.116	3.216	0.002
Control activities	0.122	0.032	0.129	3.828	0.000
Information & communication	0.011	0.038	0.011	0.291	0.771
Monitoring	0.067	0.031	0.099	2.172	0.031

Dependent Variable: Organisational performance

The results of this study are similar to findings established in Chan, Chen and Liu’s (2020) study contending that each of the distinct internal control components has distinct effects. However, this study has successfully extended such individual effects on organisational performance. Besides, previous studies relied on different approaches limited in scopes such as single regression analysis (Mahadeen et al., 2016) and systematic literature review (Henk, 2020). Additionally, the risk assessment and control activities results established in this study are significant and

different from insignificant results established in previous studies (Mahadeen et al., 2016). Therefore, the results of the study have huge scientific, theoretical and practical implications for manufacturing companies.

CONCLUSIONS

The study was aimed at examining the impact of internal control components to enhance understanding of the specific internal control methods on organisational performance. The results of this study suggest that internal control as an integrated system and its five individual components contribute positively toward improving the performance of a company, but the extent of the impact differs from one internal control component to the other. That is, the study found out that the control environment, risk assessment control activities and monitoring aspects of internal contribute significantly contribute to improved performance as opposed to information and communications.

The present study advances the literature on internal control as corporate governance and performance-enhancing tool. Additionally, it also advances internal control's conceptual framework on organisational performance. Lastly, the results of this study advance construct and item development involving internal control components and organisational performance while testing relationships to uncover the significance of their implications in enhancing organisational performance. Analysis of the individual impact of internal control components following the COSO framework had been empirically sidelined. Hence, the study is the first of its kind to analyse the implications of each internal control on the performance of manufacturing companies in the widely neglected context of Kurdistan. On a higher note, this study contributes to the body of literature by analysing the institutional elements that influence the performance of specific manufacturing companies. It also corroborates the connection linking internal control as a corporate governance mechanism and organisational performance in real a Middle Eastern context. By and large, the results of our study provide a practical implication to firms seeking to boost By and large, the results of our study provide a practical implication to firms

striving to boost organisational performance with effective internal control. There are two managerial implications attached to this study. Firstly, the study infers that a sound and effective internal control fosters significant improvements in organisational performance. Consequently, companies should strive to ensure that they possess and display high-quality internal control methods and practices concerning their performance goals. Secondly, internal control as an integrated system plays an essential role in boosting organisational performance through each of its components and has a distinct effect on organisational performance. Hence, managers must closely examine the implications of each internal control component in attaining, fostering and boosting sound performance levels. The major limitation of this study is that it restricts its examination to manufacturing companies. Therefore, the findings cannot be generalised to other industries and countries located outside the Middle East region. Secondly, it uses qualitative measures to develop internal control constructs at a time when numerical measures exist. Therefore, future studies can explore the implications of using the COSO framework of internal control components on other industries located in various countries using numerical measures.

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چوارچیوهی COSO: تیوه‌گه‌رانی پیکهاته‌کانی کۆنترۆلی ناوخۆیی له‌سه‌ر

کۆمپانیاکانی دروستکردنی ئەدا.

توێژینه‌وه‌که ده‌رهاو‌پیشانی پیکهاته‌کانی کۆنترۆلی ناوخۆ له‌هه‌سه‌نگاندنی مه‌ترسیه‌کان به‌کاره‌ینانی چوارچیوهی کۆمپته‌ی سپۆنسه‌رکردنی رێکخراوه‌کان (COSO) له‌سه‌ر کۆمپانیاکانی به‌ره‌مه‌پێنان له‌شاری هه‌ولێر له‌کوردستان تاقی ده‌کاته‌وه‌ شیکردنه‌وه‌یه‌کی هه‌مه‌جۆر له‌سه‌ر 250 وه‌لام له‌مۆدیلکردنی کاریگه‌رییه‌ تاکه‌کانی پیکهاته‌کانی کۆنترۆلی ناوه‌کی (کۆنترۆلی ژینگه‌، هه‌سه‌نگاندنی مه‌ترسی، چالاکیه‌کانی کۆنترۆل، زانیاری و په‌یوه‌ندی، و چاودێری کردن) له‌سه‌ر هه‌سه‌نگاندنی مه‌ترسیه‌کان جیبه‌جی کرا. ئەنجامه‌کانی توێژینه‌وه‌که ده‌ریخست که ژینگه‌ی

كۆنترۆلى ناوخۆيى يەكخراو، ھەلسەنگاندنى مەترسىيەكان، چالاکىيەكانى كۆنترۆل و پىكھاتەكانى چاودىرى كارىگەرى ئەرئىنى گىرنگيان ھەيە لەسەر ئەداى رىكخراوھەكان بە بەراورد بە زانىارى و بەيوەندييەكان خويىندى ئىستا پەرە بە ئەدەب دەدات لەسەر كۆنترۆلى ناوخۆيى ھەك بەرپۆھەردى كۆمپانىا و نامراى باشترکردنى ئەدا. سەرەراى ئەوھش، ھەرھەچاچۆھى كۆنسىيىتى كۆنترۆلى ناوھكى لەسەر ئەداى رىكخراويى پيش دەكەويىت. لە كۆتايدا، ئەنجامەكانى ئەم لىكۆلىنەوھەيە پەرە بە پىكھاتەكان و پەرەسەندى بەندەكان دەدات كە پىكھينەرانى كۆنترۆلى ناوخۆيى و ئەداى رىكخراوھەكان دەگرئەتەوھە لە كاتى تاقىکردنەوھى بەيوەنديەكان بۆ ئاشكرادى گىرنگى دەرنەجامەكانيان لە بەرزکردنەوھى ئەداى رىكخراوھەكان.

إطار عمل: COSO انعكاسات مكونات الرقابة الداخلية على أداء شركات التصنيع

الملخص:

تبحث الدراسة في آثار مكونات الرقابة الداخلية على تقييم المخاطر باستخدام إطار عمل لجنة المنظمات الراعية (COSO) على شركات التصنيع في أربيل، كردستان. وطبق تحليل متعدد المتغيرات على 250 ردا في نمذجة الآثار الفردية لعناصر الرقابة الداخلية (بيئة الرقابة، وتقييم المخاطر، وأنشطة الرقابة، والمعلومات والاتصالات، والرصد) على تقييم المخاطر. وأشارت نتائج الدراسة إلى أن بيئة الرقابة الداخلية المتكاملة وتقييم المخاطر وأنشطة الرقابة وعناصر الرصد لها آثار إيجابية كبيرة على الأداء التنظيمي مقارنة بالمعلومات والاتصالات. وتقدم هذه الدراسة الأدبيات المتعلقة بالرقابة الداخلية بوصفها أداة لحوكمة الشركات وتعزيز أدائها. بالإضافة إلى ذلك، فإنه يعزز أيضا الإطار المفاهيمي للرقابة الداخلية على الأداء التنظيمي. وأخيرا، فإن نتائج هذه الدراسة تعزز البناء وتطوير العناصر التي تنطوي على مكونات الرقابة الداخلية والأداء التنظيمي مع اختبار العلاقات للكشف عن أهمية آثارها في تعزيز الأداء التنظيمي.