

## Uncertain Supply Chain Management

homepage: [www.GrowingScience.com/uscm](http://www.GrowingScience.com/uscm)**The impact of balanced scorecard mediation in the relationship of perceived environmental uncertainty, business strategy, and organizational performance****Almothanna Abu-Allan<sup>a\*</sup>**<sup>a</sup>Amman Arab University, Jordan**A B S T R A C T***Article history:*

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This research adopts a contingency theory approach to explore the role of the Balanced Scorecard (BSC) as a performance management system. Contingencies, including perceived environmental uncertainty and business strategy, are examined to understand their impact on BSC implementation and organizational performance, with a specific focus on the mediating role of the BSC. Conducting a survey among Jordanian manufacturers, the research gathered 312 usable responses out of 400 questionnaires, achieving a response rate of 78%. Theoretically, this study's framework contributed to management accounting literature by analyzing the impact of perceived environmental uncertainty and business strategy on BSC implementation. The study's findings will help understand the factors that could influence Jordanian manufacturing companies' BSC implementation. This study will also help businesses understand why they need to use BSC to get the right information for making decisions and improve the performance of their organizations.

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**1. Introduction**

Perceived environmental uncertainty is how much decision-makers perceive changes in their external environment (Boyd & Fulk, 1996). Duncan (1972) argued that managers' decision-making is hampered by environmental uncertainty. Uncertainty in the environment is seen as an information deficiency in strategic decision-making (Duncan, 1972). Information assists decision-makers in making informed choices, and top management in developing plans and making effective strategic judgments (Laudon et al., 2013). Management Accounting Control System (MACS) gives top management the information they need to make decisions quickly in uncertain situations (Abu-Allan et al., 2021). The Performance Management System (PMS), a component of MACS, is concerned with problem-solving and business environment changes. It's crucial to utilize PMS in a volatile market (Kloviene, 2013). In today's business world, organizations face problems they've never seen before, especially in the marketplace and with new competitors, if they want to keep doing well and stay in business. Effective PMS implementation is important for a company's success and to deal with these problems (Bakar et al., 2014). The Balanced Scorecard (BSC) stands out as one of the most extensively employed PMS across diverse business sectors (Balanced Scorecard Institute, 2021). BSC is also an important tool that helps companies figure out where there is uncertainty in the environment, which is necessary for making strategies that improve organizational performance (Hall, 2011; K Hendricks et al., 2012; David Otley, 2016). Therefore, achieving optimal results with the BSC requires the strategic incorporation of contingent factors, including perceived environmental uncertainty and business strategy, into the implementation process (Otley, 2016). Jordan's manufacturing sector faces a downturn in performance attributable to the instability resulting from the Arab Spring events in the region (The Economic Policy Council, 2022). Managers of manufacturing companies revealed that a lack of reliable information impacts decision-making, strategy formulation, and company performance since it is difficult

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for manufacturing companies to foresee market demand, market volatility, and competition. Weak information could be the result of a poor Performance Management System (PMS). Instead of a performance management system, Jordanian manufacturing companies commonly adopt the BSC as a traditional performance measurement system, prioritizing financial metrics and presenting a standardized list of indicators. This study looks at the BSC as a system for managing performance from both a financial and a non-financial perspective.

Despite a growing emphasis on BSC implementation, there is limited empirical evidence that it improves organization performance, particularly in Jordan's manufacturing sector. BSC implementation improves organizational performance, according to many studies (Zahirul Hoque, 2014). Several authors have reported that BSC implementation isn't always relevant (Baumgartner, 2009; R. Chenhall & Langfield-Smith, 2007). This suggests the studies' results are inconclusive and need more study. Limited research exists on the impact of BSC implementation on environmental uncertainty, business strategy, and overall organizational performance.

## **2. Literature review and hypotheses development:**

### *2.1 Perceived Environmental Uncertainty and Organisational Performance*

In line with contingency theory, organizational structure is dynamically shaped by certain contingent factors, ultimately steering the organization towards optimal performance. Contingent factors improve organization performance (Otley, 1980). According to the contingency framework, manager perception of environmental uncertainty affects organizational performance (Abu-Allan et al., 2021; Al-Naser & Mohamed, 2017; O'Shannassy, 2007). Effective management of perceived environmental uncertainty enhances organizational performance in this context. There has been a lack of comprehensive empirical inquiry into the direct effects of perceived environmental uncertainty on organizational performance, despite the observed modest impacts in current literature, and emerging economies in developing nations like Jordan were not taken into account. Literature emphasizes the need for further research to identify the situation of industrial companies in Jordan in this feature of environmental uncertainty (Abu-Allan et al., 2021; Al-Mawali, 2015; Köseoglu et al., 2013; Latan et al., 2018; Purnama & Subroto, 2016). Jordan faces uncertainty due to surrounding instability. Empirical evidence is needed to explain the effect of perceived environmental uncertainty on Jordanian manufacturing companies' performance. This research looks at the connection between organizational performance and environmental uncertainty. In the context of Jordan, the present research posits a significant link between environmental uncertainty and business performance. It is hypothesized that variations in environmental uncertainty levels directly influence the overall performance of businesses in the Jordanian context.

### *2.2 Perceived Environmental Uncertainty and Business Strategy*

Environmental uncertainty affects business strategy (Hendricks et al., 2012; Jabnoun et al., 2003). Bastian & Muchlish (2012) say that organizational performance is improved when there is a match and fit between factors like how uncertain the environment is seen to be and the business strategy. Several studies show that prospector and defender strategies can be used in uncertain environments (e.g., Hendricks et al., 2012; Jusoh, 2010; Köseoglu et al., 2013; Miles & Snow, 1978). Strategic typologies perform differently in uncertain environments (Jabnoun et al., 2003). This view is consistent with past studies (e.g., Gordon & Narayanan, 1984; Hambrick, 1980) that argued managers should cope with uncertainty by recognizing threats, identifying opportunities, and implementing adaptive strategies. Successful companies align their strategic elements with the environment.

Contingency theory studies have found that perceived environmental uncertainty affects business strategy. Ronny (2016) found that most Indonesian advertising managers perceive environmental uncertainty. Indonesian advertising companies tend to use defender strategy to address environmental uncertainty. Köseoglu et al. (2013) studied the impact of business strategies in the Turkish hotels industry. Perceived environmental uncertainty affects business strategy. Bastian and Muchlish (2012) studied environmental uncertainty in Indonesian manufacturers. Environmental uncertainty affects business strategy. High-uncertainty companies adopt growth-oriented strategies to exploit key resources and gain competitive advantage. Cadez & Guilding (2007) found that environmental uncertainty positively affects business strategy.

The connection between environmental uncertainty and business strategy among Jordanian industries is little researched. Perceived environmental uncertainty among Jordanian manufacturing company managers has received little attention, despite being a critical issue in contingency theory. The focus of this study is to analyze how perceived environmental uncertainty shapes the business strategy landscape in Jordanian manufacturing companies.

In the context of Jordanian manufacturing companies, it is hypothesized that there exists a positive relationship between perceived environmental uncertainty and the adoption of business strategy. This study posits that as managers gain a clearer understanding of environmental uncertainty, they are more likely to adjust their business strategies accordingly, leading to a positive association between perceived environmental uncertainty and the chosen business strategy, whether it be prospector or defender.

### *2.3 Perceived Environmental Uncertainty and BSC Implementation*

Scholars argue that BSC implementation depends on top managers' scanning for uncertainty (Duncan, 1972; Thompson & Mathys, 2008). Contingency theory suggests that with high uncertainty, firms should adjust how they implement BSC to source information from a curtain and deal with uncertainties (Macintosh & Daft, 1987). As the Arab Spring makes the environment in Jordan more uncertain, decision-makers in manufacturing companies should look for more information to help them make good strategic decisions. Most previous studies on perceived environmental uncertainty and MACS hypothesized a combined construct (Al-Mawali, 2015; Bastian & Muchlish, 2012; Cadez & Guilding, 2008; Hendricks et al., 2012; Hoque, 2004; Jusoh, 2010). Any significant change in uncertainty (any dimension of PEU) will change MACS, according to contingency studies. This keeps decision makers in sync with relevant information, regardless of the environment.

This study aimed to better understand how environmental uncertainty affects balanced scorecard implementation. This study also claims that environmental factors can affect MACS implementation in an organization (Bergeron et al., 2001; Cinquini & Tenucci, 2010; Kattan et al., 2007; McManus, 2013). When there is a lot of uncertainty about the environment, the BSC would be used more to help managers make the best decisions to meet environmental needs.

Bastian and Muchlish (2012) research revealed a significant association between environmental uncertainty and the utilization of the Balanced Scorecard (BSC) in the manufacturing sector of Indonesia. Jusoh (2008) examined how 120 Malaysian firms' BSC was impacted by environmental uncertainty. She found that financial and internal processes were hurt by environmental uncertainty. Hendricks et al. (2012) found a connection between uncertainty about the environment and a balanced scorecard. They want more research to be done on how to use BSC when there is uncertainty. Due to the instability in neighboring countries, Rababah (2014) urged researchers in Jordan to delve into the effects of environmental uncertainty on the implementation of the Balanced Scorecard (BSC). This call to action was prompted by the regional instability in neighboring countries, emphasizing the need to understand how such uncertainty influences the adoption and success of the BSC in the Jordanian context.

Al-Mawali (2015) found that Jordanian listed companies with higher perceived environmental uncertainty use more strategic management accounting. Jordanian manufacturers face uncertainty. Thus, it's necessary to determine if manufacturing companies in Jordan can deal with environmental uncertainty through a BSC. This study will look at the relationship between how uncertain the environment is seen to be and how Jordanian manufacturers use BSC.

Numerous studies consistently demonstrate that the implementation of the BSC is significantly influenced by perceived environmental uncertainty. Moreover, these findings collectively suggest that organizations that effectively respond to uncertainty often experience enhancements in their BSC implementation processes (Bastian and Muchlish, 2012; Hendricks et al., 2012; Jusoh, 2008). However, the current study suggested that there exists a positive relationship between perceived environmental unpredictability and the implementation of the BSC. This implies that businesses utilizing the BSC are better equipped to respond more effectively to environmental unpredictability.

### *2.4 Business Strategy and Organisational Performance*

In accordance with contingency theory, organizational structure is contingent upon a range of factors, and its design is influenced by elements that directly impact organizational performance. Factors improve organizational performance (Otley, 1980). In this study, business strategy is a factor in organizational performance. According to contingency theory, organizational performance depends on strategy execution (Ittner et al., 2003; Yannick & Ricardo, 2016). According to contingency theory, optimal business strategies are not universal. The contingency theory suggests that an organization's strategies affect performance. Therefore, business strategy depends on the industry.

Business strategy affects company performance (Bastian & Muchlish, 2012; Hoque, 2004). According to Ronny (2016), business strategy is a set of actions managers take to improve their company's performance. It also helps the company remain competitive (Akgul et al., 2015). Companies need to figure out their business strategy and choose the right strategic typology to have a competitive edge and do better (Ajagbe et al., 2016).

The current study builds on the assertion that the adoption of an appropriate strategic typology (defender or prospector) by Jordanian manufacturing companies, aligned with their current environmental conditions, will lead to improved organizational performance. Drawing on previous empirical studies, the hypothesis posits a positive relationship between strategic typology and organizational performance in the context of Jordanian manufacturing.

### *2.5 Business Strategy and BSC Implementation*

Contingency theory states that MACS design and implementation must incorporate business strategies. Cadez and Guilding (2008) found that there is no universal MACS and system success depends on company strategy. MACS will change as company strategies change. Hoque (2004) argued that business strategy influences MACS choice. Effective MACS must be built on strategic companies' choices (Marginson, 2002). Previous studies have linked a company's strategy to BSC implementation. Managers use BSC to communicate strategy, plan and control, get feedback, and make better decisions that boost organization performance. Tanyi (2011) explains that BSC can help managers know where to focus to meet organizational goals. Several studies have examined the link between BSC and contingency-based business strategies (e.g., Chenhall, 2007; Mia & Clarke, 1999; Simons, 1987; Van de Ven & Drazin, 1985).

Previous management accounting research rooted in contingency examined the fit between PMS and strategy typology on organizational performance (e.g., Cinquini & Tenucci, 2010; Cadez & Guilding, 2007; Yannick & Ricardo, 2016). This literature stream indicates that the implementation of any set of strategic typologies within a company may depend on the combination of different PMS uses; different strategic typologies require certain PMS uses to support their achievement. Defender companies adopt a low-cost strategy and improve operations to reduce costs. Cost control, price reduction, capacity utilization, and production efficiency are emphasized (Jusoh, 2010). This focuses defenders on financial performance measures (Govindarajan & Fisher, 1990; Simons, 1987).

Prospector firms seek product-market innovations to differentiate. Miles and Snow (1978) found that prospectors in uncertain environments spend more on research and development expenditure. This makes prospectors favor non-financial performance measures and de-emphasize financial control systems. Due to instability in the Arab region, Jordanian manufacturing companies should seek more relevant information to help managers formulate strategies to fit the surrounding environment. This helps companies reach their performance goals. This research examines the relationship between business strategy and BSC in Jordan (Abu Allan et al., 2018).

The above discussion shows that the relationship between business strategy and BSC implementation needs more research. Many studies in Jordan and developing countries have focused on business strategy, while defender and prospector strategies have received less attention. In this study, manufacturing companies in Jordan that follow a prospector strategy use BSC to measure non-financial performance. Low-cost companies are more likely to use BSC by focusing on financial performance measurements (Miles et al., 1978). In alignment with the study's expectations, it is hypothesized that there exists a positive relationship between the chosen business strategy and the implementation of the BSC. This suggests that companies adopting a specific business strategy will demonstrate a more positive inclination towards the successful implementation of the BSC.

### *2.6 The BSC Implementation and Organisational Performance*

According to Chenhall (2003) contingency theory, MACS should help managers achieve the organization's goals. MACS implementation depends on the organization's strategy and environment. Sustained organizational performance depends on a high level of sophistication that provides managers with critical information about relevant aspects of the organization, which improves performance.

BSC affects decision-making and organizational performance (Ronny, 2016). Company performance is affected by BSC implementation (Azofra et al., 2003). Implementing BSC improves company performance (Sorooshian et al., 2016). In line with the insights provided by Anca & Rainer (2015), the implementation of the Balanced Scorecard (BSC) is posited to significantly influence organizational performance. The future trajectory of organizations is intricately tied to the metrics employed in measuring the four viewpoints of the BSC—namely, learning and growth, financial data, customer perspectives, and business processes.

A comprehensive contingency literature review investigates the effect of BSC implementation on the performance of an organization. Most studies link BSC implementation to organizational performance (e.g., Al-Naser & Mohamed, 2017; Anca & Rainer, 2015; Bastian & Muchlish, 2012; Hendricks et al., 2012; Ittner, Larcker, & Randall, 2003; Yannick & Ricardo, 2016). Thus, it's important to determine if BSC implementation improves company performance (Quesado et al., 2018). Building on the assumption that Jordanian manufacturing companies would benefit from BSC implementation, this study hypothesizes a positive relationship between the implementation of BSC and organizational performance. It is anticipated that the adoption and effective utilization of the BSC framework will lead to enhanced overall performance among Jordanian manufacturing companies.

### *2.7 BSC as a Mediator*

Contingency theory studies find weak and inconsistent links between contingents and organizational performance. It deserves further study. Contingency theory, while valuable in recognizing the influence of contingent factors on organizational structure, falls short in providing a clear explanation of the intricate relationship between these contingent factors and

organizational performance. A mediating variable could explain the relationship between contingents and organizational performance. This study, like others, uses BSC as a mediator (Al-Naser & Mohamed, 2017; Ruzita Jusoh, 2008; Soheilrad & Sofian, 2016; Widener, 2006). This study posits that the implementation of the BSC serves as a mediator, influencing the relationship between environmental uncertainty, business strategy, and organizational performance within Jordanian manufacturing companies. The contention is that BSC, by virtue of its implementation, plays a pivotal role in shaping and optimizing the interplay between these crucial factors.

### 3. Methodology

#### 3.1 Research instrument and sample

The research methodology employed in this study was quantitative. The variables of competitive intensity, market turbulence, and environmental volatility were each operationalized using six items (Köseoglu et al., 2013; Matanda & Freeman, 2009; Wu, 2010). This study used the prospector and defender strategies, which are the most common in uncertain environments. Miles and Snow (1978) and Köseoglu et al. (2013) used eight items to measure business strategy. The measurements for the Balanced Scorecard (BSC) in this study were adapted from Al-Sumairi (2009), encompassing three dimensions: organizational commitment (eight items), multi-perspectives of BSC (five items), and BSC implementation process (nine items). Additionally, the performance measurements utilized in the research were adopted from Koseoglu et al. (2013). The items consist of financial (eight) and non-financial items (six items). On a 7-point Likert scale, each item was evaluated (1 = strongly disagree, 7 = strongly agree).

All variables from previous studies are used in the current study. Modifying a research instrument necessitates a thorough re-examination of its reliability and validity. Any adjustments made to the instrument require a careful assessment to ensure the continued accuracy and precision of the data it intends to measure, according to Creswell & Creswell (2017). A pilot study was undertaken to scrutinize the psychometric properties, including reliability and validity, of all variable assessments. This was particularly important after adapting the variables to the study environment and objectives. The pilot research served as a crucial step to test and ensure the reliability and validity of the research tools. Reliability ranged from 0.720 to 0.944. All Cronbach alphas were  $> 0.60$  (Bagozzi, 1992; Hair et al., 2006). All measurements of the variables demonstrated high levels of reliability and validity, ensuring the robustness and accuracy of the data collected for the study.

As reported by the Chamber of Industry in 2018, there were a total of 1,915 manufacturing firms. Among these, 63 were listed, and the remaining 1,852 were not listed (Securities Depository Centre, 2018). The study opted to exclude small manufacturing companies due to their size and the prohibitive costs associated with implementing the Balanced Scorecard (BSC). This decision was made to focus the research on a subset of manufacturing firms where BSC implementation could be feasibly examined (Rababah, 2014).

Sekaran & Bougie (2016) use Slovin's formula to determine sample size, and Garson (2011) recommends 300. The study employed a questionnaire as the research instrument, which was distributed to a sample of 400 individuals, including CEOs, CFOs, and department managers. This sample was derived through stratified random sampling, with a deliberate focus on top management. The choice of targeting top management is rooted in their heightened awareness of strategic practices and company performance compared to other organizational roles (Mills & Smith, 2011). 335 questionnaires were retrieved; 312 were valid. Hypotheses were analyzed using PLS-SEM.

### 4. Results and discussion

This section is broken up into four subsections: section I investigates the AMOS-SEM measurement model, and section II describes the structural model's results. Section III will also go over the study's findings. Finally, in section IV, the mediation outcome will be highlighted.

#### 4.1 Measurement model

The measurement model reveals that the majority of items' factor loadings were within the suggested range of 0.5. (J. F Hair et al., 2010). In the current paper, all factor loadings were acceptable as their values are above the recommended values of 0.50. Moreover, although there are few values less than the recommended threshold value, this study is accepted. Hair et al. (1998) argues that when the sample size is large (more than 300), the factor loading between 0.30 and 0.40 is acceptable. Additionally, the values are  $\pm 0.3$  minimal,  $\pm 0.4$  more important, and  $\pm 0.5$  practically significant (Hair et al. 2010). Figure 1 illustrated the full measurement model.

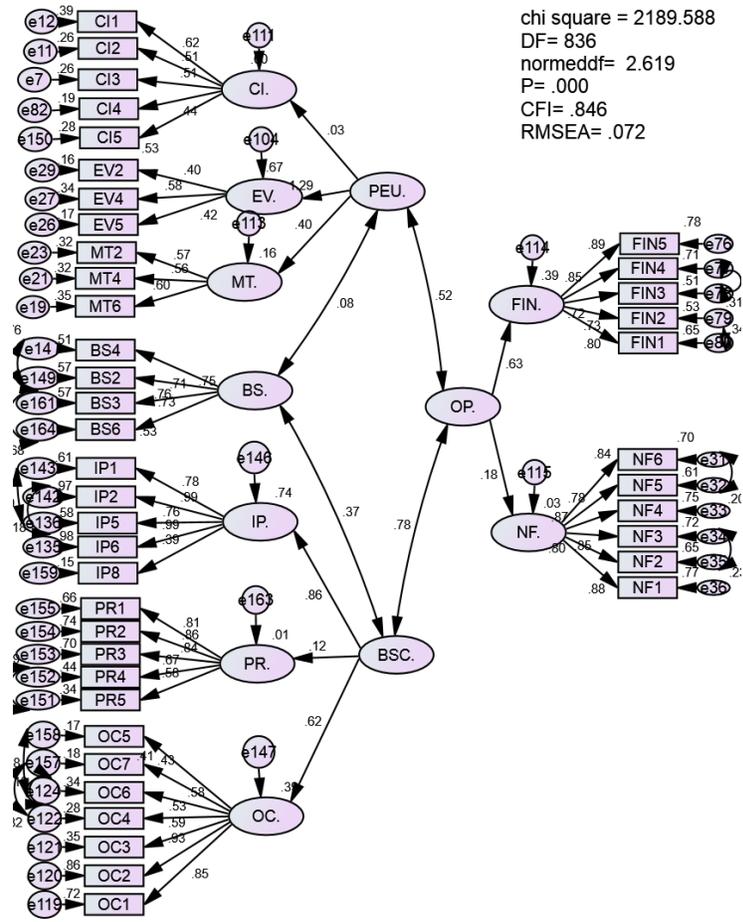


Fig. 1. Full Measurement Model

In the study, Cronbach's alpha and CR ranged from 0.630 to 0.936 in the study. All reliability and composite reliability values were above 0.60. The study's instrument was accurate and reliable. Table 2 shows Cronbach's alpha and CR for study constructs.

Table 2  
 Cronbach's Alpha and Composite Reliability for the Constructs

| Construct                                 | Dimension                 | Code | Number of items | Cronbach's alpha (N=312) |      | Composite Reliability |       |
|---|---------------------------|------|-----------------|--------------------------|------|-----------------------|-------|
| Perceived Environmental Uncertainty (PEU) | Competitive Intensity     | CI   | 5               | 0.645                    | 0.76 | 0.652                 | 0.65  |
|   | Environmental Volatility  | EV   | 3               | 0.630                    |      | 0.670                 |       |
| Business Strategy                         | Market Turbulence         | MT   | 3               | 0.672                    | 0.82 | 0.640                 | 0.826 |
|   | Business Strategy         | BS   | 4               | 0.775                    |      | 0.826                 |       |
| Balanced Scorecard (BSC)                  | Organisational Commitment | OC   | 7               | 0.844                    | 0.82 | 0.824                 | 0.85  |
|   | BSC Perspectives          | PR   | 5               | 0.877                    |      | 0.870                 |       |
|   | Implementation Process    | IP   | 5               | 0.908                    |      | 0.903                 |       |
| Organisational Performance                | Financial                 | FIN  | 5               | 0.911                    | 0.92 | 0.901                 | 0.92  |
|   | Non-Financial             | NF   | 6               | 0.936                    |      | 0.936                 |       |

Table 3  
 Discriminant and Convergent Validity of the Latent Factors

|      | AVE   | CR    | PR.          | CI.          | BS.          | MT.          | EV.          | NF.          | FIN.         | OC.          | IP.          |
|------|-------|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| PR.  | 0.578 | 0.870 | <b>0.760</b> |              |              |              |              |              |              |              |              |
| CI.  | 0.421 | 0.652 | -0.030       | <b>0.568</b> |              |              |              |              |              |              |              |
| BS.  | 0.615 | 0.826 | 0.158        | 0.018        | <b>0.785</b> |              |              |              |              |              |              |
| MT.  | 0.413 | 0.640 | 0.070        | -0.023       | 0.227        | <b>0.574</b> |              |              |              |              |              |
| EV.  | 0.403 | 0.670 | 0.237        | 0.070        | 0.272        | 0.522        | <b>0.558</b> |              |              |              |              |
| NF.  | 0.710 | 0.936 | 0.186        | 0.054        | 0.172        | 0.124        | 0.187        | <b>0.843</b> |              |              |              |
| FIN. | 0.647 | 0.901 | 0.044        | 0.008        | 0.265        | 0.232        | 0.555        | 0.121        | <b>0.804</b> |              |              |
| OC.  | 0.420 | 0.824 | 0.172        | 0.026        | 0.282        | 0.252        | 0.323        | 0.249        | 0.352        | <b>0.648</b> |              |
| IP.  | 0.668 | 0.903 | 0.075        | 0.144        | 0.393        | 0.364        | 0.296        | 0.150        | 0.550        | 0.563        | <b>0.817</b> |

AVE is used to assess convergent validity. According to Hair et al., each item's AVE should be 0.50 or higher (2014). In Table 3, All AVE values in this study surpass the recommended threshold of 0.50, indicating adequate convergent validity. For assessing discriminant validity, the criterion involves ensuring that both the AVE and latent variable correlations are lower than the square root of the AVE, a standard practice in validation procedures (Hair et al., 2014). Table 3 shows all AVE values are above 0.50. AVE square root is above latent variable correlation. This suggests the construct's discriminant validity.

4.2 Structural model for all variables

A structural model was used to examine variable relationships. The structural model lets researchers estimate relationships between independent and dependent variables. Fig. 2 shows all the variable structures.

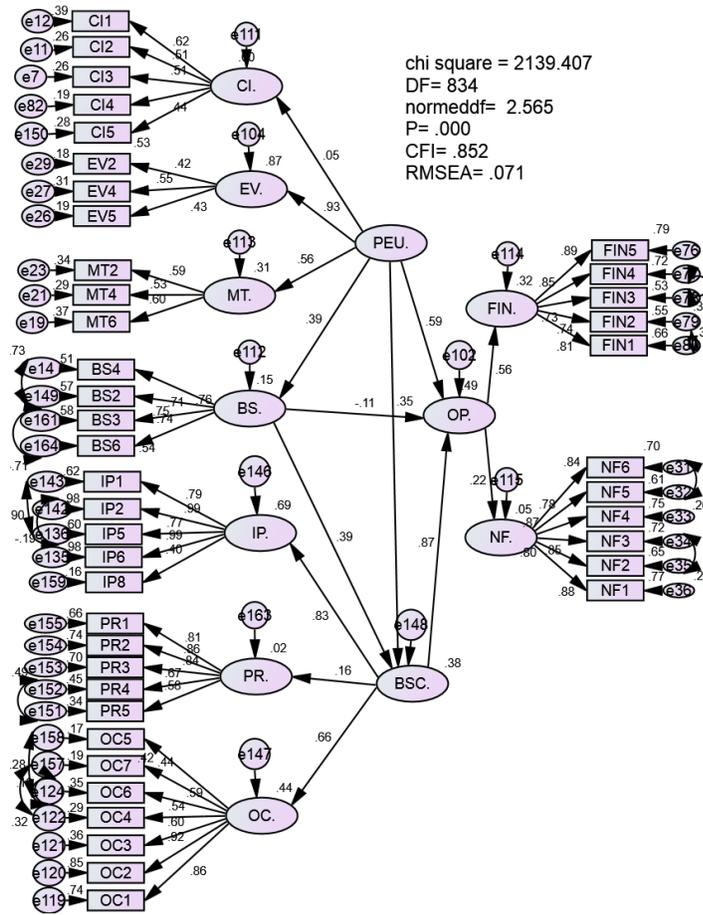


Fig. 2. Final Structural Model with Standardized Estimated

4.3 Direct relationship discussion

This section contains hypotheses-testing results. Perceived environmental uncertainty has a positive impact on business strategy, the implementation of BSC, and overall organizational performance, according to Table 4. According to the results, business strategy positively affects BSC implementation. Business strategy doesn't improve company performance. BSC also improves organizational performance.

Table 4 Hypotheses Testing Result of the structural Model

| Hypothesis | Exog. | → | Endo. | Estimated | C.R    | P-Value | Status  | Result        |
|------------|-------|---|-------|-----------|--------|---------|---------|---------------|
| H1         | PEU   | → | OP    | 0.591     | 2.76   | 0.006   | Sig.    | Supported     |
| H2         | PEU   | → | BS    | 0.387     | 3.343  | 0       | Sig.    | Supported     |
| H3         | PEU   | → | BSC   | 0.355     | 2.802  | 0.005   | Sig.    | Supported     |
| H4         | BS    | → | OP    | -0.109    | -0.886 | 0.375   | Non-Sig | Not supported |
| H5         | BS    | → | BSC   | 0.387     | 4.393  | 0       | Sig     | Supported     |
| H6         | BSC   | → | OP    | 0.872     | 4.796  | 0       | Sig     | Supported     |

Note: P < .05; Estimated = Standardized Coefficient (β); C.R = Critical Ratio.

#### 4.4 Sub- Hypotheses Testing

Table 5 shows that sub-hypothesis testing supports the hypothesis that environmental volatility positively affects organizational performance. The results also support the hypothesis that market turbulence improves organizational performance. Also, there's no link between competitive intensity and organizational performance.

**Table 5**  
Sub-Hypotheses Testing Result

| Hypothesis | Exog. | → | Endo. | Estimated | C.R   | P-Value | Status   | Result        |
|------------|-------|---|-------|-----------|-------|---------|----------|---------------|
| H1a        | EV    | → | OP    | 0.578     | 4.978 | 0       | Sig.     | Supported     |
| H1b        | CI    | → | OP    | 0.08      | 0.784 | 0.433   | Non sig. | Not supported |
| H1c        | MT    | → | OP    | 0.64      | 5.435 | 0       | Sig.     | Supported     |

Perceived environmental uncertainty positively affects organizational performance, according to the study. The influence of environmental uncertainties on organizational performance is pivotal, providing managers with valuable insights to make informed and optimal decisions. Recognizing and navigating the challenges posed by uncertainties in the external environment becomes a strategic imperative for effective managerial decision-making. Such decisions will help Jordanian manufacturers. The findings indicate that Jordanian manufacturers actively incorporate market turbulence and volatility considerations into their strategic decision-making processes, demonstrating a strategic orientation towards leveraging these environmental factors to improve overall company performance. Competitive knowledge improves organizational performance. In the end, this study found that the management of Jordanian manufacturing companies thinks that changes in the environment help their companies do better.

Previous research (e.g., Akgul et al., 2015; Zuriekat et al., 2011; Hoque & James, 2000; Naranjo-Gil, 2009; Kauhanen & Piekola, 2006; Bastian & Muchlish, 2012; Wong et al., 2011) has shown that uncertainty about the environment is good for organizational performance. According to the study, environmental uncertainty positively affects business strategy. This study found that Jordanian manufacturers can change their strategies to fit the country's business climate if they can better understand how uncertain the environment is. The results of this study are similar to those of other studies that found that business strategy is affected by how uncertain the environment is seen to be (e.g., Bamiatzi & Kirchmaier, 2014; Hendricks et al., 2012; Cadez & Guilding, 2007; Bastian & Muchlish, 2012; Hwang, 2005; Koseoglu et al., 2013; O'Shannassy, 2007).

This research also found a positive relationship between environmental uncertainty and BSC implementation. Environmental information is in high demand. The implementation of BSC is instrumental in supporting top managers, enabling them to make precise and informed decisions, particularly in environments characterized by uncertainty. When BSC is put into place, it leads to achievement indicators that help performance management systems respond better to uncertainty, which improves the performance of the company. According to past research (e.g.; Al-Naser & Mohamed, 2017; Cadez & Guilding, 2008; Hoque, 2004b; Jusoh, 2008; McManus, 2013; Taylor & Taylor, 2013 Al-Mawali, 2015), perceived environmental uncertainty has a positive effect on BSC implementation.

This study hypothesizes that business strategy improves organizational performance. The study results disproved this hypothesis. Business strategy does not directly affect organizational performance. This unexpected result shows that Jordanian manufacturers do not rely on business strategy for organizational performance. Previous studies (e.g. Abdel Al & McLellan, 2013; Gärtner & Schön, 2016; Z Hoque, 2004; Taylor & Taylor, 2013) found that business strategy positively affects organizational performance. This study found no significant relationship between business strategy, a contingent factor, and organizational performance among Jordanian manufacturers. This finding is consistent with Woodside et al., (1999), who found that strategic types (like defender and prospector) do not affect organizational performance. Strategic company types are linked to organizational performance through intervening variables. Through marketing competencies, Woodside et al. (1999) found a link between strategic types and organizational performance.

This study showed that business strategy influences BSC implementation. This is because Jordanian manufacturers viewed BSC as a strategic performance management system, a requirement for their business strategy in an uncertain environment. The implementation of BSC helps Jordanian manufacturing company managers understand their companies' growth. When BSC is used in manufacturing companies in Jordan, top managers get a better idea of how the current state of the company affects their long-term business strategy goals. This lets them make the changes they need and come up with a business strategy that will help the organization achieve its goals.

The results agree with previous studies, showing that business strategy affects BSC implementation (e.g. Lichen, Sujatha, & Susan, 2008; Cadez & Guilding, 2008; Cinquini & Tenucci, 2010; Hendricks et al., 2012; Tanyi, 2011). More importantly, this finding supports Otley's (2016) argument that business strategy is an important element to consider when designing and using BSC. This finding shows how business strategy affects the way BSC is used to improve the performance of manufacturing companies in Jordan.

According to this study, BSC implementation improves organizational performance. This is because Jordanian manufacturers saw BSC as essential to improving their organizational performance. This result showed that Jordanian manufacturing companies implementing BSC can provide financial and non-financial information to their top managers due to environmental uncertainty. Financial data is not comprehensive in such situations, while non-financial data is important and can help improve organizational performance. Future company trends depend on all four balanced scorecard indicators. This test backs up what has been found in the past (e.g., Al-Naser & Mohamed, 2017; Anca & Rainer, 2015; Hendricks et al., 2012; Ittner, Larcker, & Randall, 2003; Yannick & Ricardo, 2016; Bastian & Muchlish, 2012): that BSC implementation affects organizational performance.

#### 4.5 Evaluation of the Mediation Role Hypotheses

**Table 6**

The mediation role of BSC in the relationship between perceived environmental uncertainty and organisational performance

| Model            | Direct Effect | Indirect Effect (MED) | Total Effect | Significance of Indirect Effect | Mediation type    |
|------------------|---------------|-----------------------|--------------|---------------------------------|-------------------|
| PEU→BSE          | 0.355         | -                     | 0.355        | P=0.005 Significant             |                   |
| BSC→OP           | 0.872         | -                     | 0.872        | P=0.000 Significant             |                   |
| PEU→OP           | 0.591         | -                     | 0.591        | P=0.006 Significant             | Partial Mediation |
| PEU→OP (Via BSC) | 0.591         | 0.398*                | 0.989        | P=0.014 Significant             |                   |

\* For the indirect effect to be meaningful, it must be larger than 0.08 (Hair *et al.*, 2006).

This research posits the hypothesis that the BSC acts as a mediator in the relationship between perceived environmental uncertainty and organizational performance. The study suggests that the relationship between perceived environmental uncertainty and organizational performance is partially mediated by the implementation of the BSC. Furthermore, the findings indicate a positive impact, indicating that perceived environmental uncertainty positively influences both BSC implementation and organizational performance.

The study reveals compelling evidence indicating that perceived environmental uncertainty exerts both direct and indirect effects on organizational performance. This suggests a profound dependency of manufacturing companies in Jordan on the levels of perceived environmental uncertainty, where the impact extends beyond direct correlations to include indirect influences on overall organizational performance. Perceived environmental uncertainty and organizational performance is weak and unclear. BSC's role as a mediator in this study clarifies their relationship. The top management of manufacturing companies must realize that environmental uncertainty affects BSC implementation and that BSC implementation improves organizational performance.

This study agrees with many others, including (Al-Naser & Mohamed, 2017; Jusoh, 2008; Soheilrad & Sofian, 2016; Widener, 2006). Al-Naser & Mohamed (2017) found that BSC usage partially mediates competition intensity and financial performance. Soheilrad and Sofian (2016) found that the link between environmental uncertainty and organizational performance is mediated by strategic management accounting.

**Table 7**

The mediation role of BSC in the relationship between business strategy and organisational performance

| Model           | Direct Effect | Indirect Effect (MED) | Total Effect | Significance of Indirect Effect | Mediation type |
|-----------------|---------------|-----------------------|--------------|---------------------------------|----------------|
| BS→BSE          | 0.387         | -                     | 0.387        | P=0.000 Significant             |                |
| BSC→OP          | 0.872         | -                     | 0.872        | P=0.000 Significant             |                |
| BS→OP           | -0.109        | -                     | -0.109       | P=0.375 not Significant         |                |
| BS→OP (Via BSC) | -0.109        | 0.337*                | 0.228        | P=0.021 Significant             | Full Mediation |

\* The indirect effect that exceeds the value of 0.08 is considered a significant (Hair *et al.*, 2006).

According to the study, the implementation of BSC fully mediates business strategy and organizational performance. Business strategy affects BSC implementation, which affects organizational performance, according to the findings. This study involves a comprehensive examination of business strategy, the implementation of BSC, and their collective impact on organizational performance. Business strategy only indirectly affects organizational performance through BSC implementation. This indirect influence reveals its hidden importance (indirect path). This shows that Jordanian manufacturing companies rely on business strategy for organizational performance. The current study found that the BSC implementation plays a dynamic role in the relationship between business strategy and organizational performance. BSC explains the relationship between business strategy and organizational performance in Jordanian manufacturing. This study's findings agree with those of other BSC-mediated studies, such as (e.g., Aliyu et al., 2014; Cheng & Humphreys, 2016; Hendricks et al., 2012; Jusoh, 2008; Naser & Hamdan, 2013; Yu & Kamoche, 2011).

The utilization of contingency theory in the design of management accounting control systems substantiates Otley's (1980) argument. This approach underscores the idea that accounting control systems should be contingent upon various contextual factors to effectively align with organizational needs and objectives. He argued that the relationship between contingent variables such as environmental uncertainty and business strategy, and their impact on organizational performance, may exhibit weakness. This is attributed to their strong association with the design of management accounting control systems within organizations. The relationship between perceived environmental uncertainty and organizational performance is partially mediated by BSC. This suggests that, while the BSC contributes to mediating this relationship, there are other factors at play in influencing organizational performance in the context of perceived environmental uncertainty. In Jordanian manufacturing companies, the relationship between business strategy and organizational performance is fully mediated by the use of BSC.

This study sheds light on implementation of BSC as a performance management system. To successfully implement and benefit from BSC, consider contingent factors. The study contributes to this field's knowledge. This study delves into the intricate relationships between contingent factors and the implementation of BSC, aiming to uncover their influence on organizational performance. Additionally, the research explores the interplay among perceived environmental uncertainty, business strategy, BSC implementation, and organizational performance, contributing to a comprehensive understanding of the dynamics shaping strategic management practices in the studied context. Also evaluated was BSC's mediating role. Examining these relationships can help Jordanian managers design and use management accounting control system policies that improve organizational performance. This study's conceptual model is contingent.

This study had practical and theoretical implications. The study's conceptual model contributed to management accounting by examining the manufacturing contingency framework. This study provided managerial implications for Jordanian manufacturers to improve their perception of environmental uncertainty, business strategy formulation and execution, and BSC implementation. This study suggests that manufacturing company managers in Jordan should consider perceived environmental uncertainty, business strategy, and BSC implementation to improve organizational performance. This study's implications can help with BSC implementation. BSC should provide top managers of Jordanian manufacturing companies with valuable, relevant information. It's also a management and control tool for implementing their strategy.

The study helped understand Jordanian manufacturing companies' performance in implementing BSC, especially in uncertain environments. The study's findings and recommendations may help scholars conduct more empirical research on BSC implementation to explain contingent variables and related factors. Finally, a performance management system should remain important. Organizational environments are hard to predict, which makes it important for academics to study it often.

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