

## **The Mediating Role of Balanced Scorecard between Perceived Environmental Uncertainty and Firm Performance: (Iraqi Case)**

**Khalis Al-Naser**

University of Mosul, Iraq  
alnaser7171@yahoo.com

**Rapiah Mohamed**

Universiti Utara Malaysia, Malaysia  
rapiah@uum.edu.my

### **Abstract**

The purpose of this study is to empirically examine perceived environmental uncertainty (PEU) such as intensity of competition affect firm performance through usage of strategic cost management techniques such as balanced scorecard (BSC). In doing this the study employed a questionnaire survey through which 304 usable responses were analysed using PLS SEM. The findings reveal that PEU (e.g. intensity of competition) positively relates to performance. The result shows a positive relationship between PEU (e.g. intensity of competition) and BSC. The mediating role of BSC is confirmed among the PEU (e.g. intensity of competition) and firm performance. Theoretical and practical implications were drawn.

**Key Words:** Strategic cost management, BSC, Intensity of competition, Iraq.

## **INTRODUCTION**

Strategic cost management techniques aims at providing valid and reliable information for enhancing the process of decision making, planning, and performance evaluation (Merchant and Otley, 2006). In spite of being studied extensively in the context of developed economy, strategic cost management techniques particularly BSC in relation to the developing economy needs to be investigated. As an important body of the developing economy, Arab world consists of 22 countries spread over a large geographical area offering significant opportunities for many foreign investments. However, previous researchers paid little attention to this issue, particularly in relation to the Arab countries (Al-Naser and Mohamed, 2016; Shurafa and Mohamed, 2016). Recently, scholars and experts have concerned with traditional measures of performance that focus only on financial metrics like return on investment or net earnings (Atkinson et al. 1997; Ittner et al. 1997; Kaplan and Norton 1996; Shields 1997). In management accounting research, the BSC approach to management (Kaplan and Norton 1992, 1996) has become important as a way of incorporating financial and nonfinancial measures of performance (for reviews, see Atkinson et al. 1997; Shields 1997). According to BSC, the organizational performance is viewed from four dimensions: financial (or shareholders), customers, internal business processes, and learning and growth. Atkinson et al. (1997. 93-94) propose that BSC could provide planners with a way of expressing and testing a sophisticated cause-and-effect model in the organization providing a basis for managers to manage the motives of desired outcomes.

Consequently, researchers need to examine the impact PEU (e.g. intensity of competition) on strategic cost management techniques (e.g. BSC) and firm performance. However, there are few studies directed towards strategic uncertainty originated from external pressures that influence the firm performance (Kattan, Pike, and Tayles, 2007). Therefore, researchers have to consider various negative side effects in order to provide a proper solution to cope with such dangerous uncertainties (Al-Naser and Mohamed, 2016; Shurafa and Mohamed, 2016).

Where firm performance has become one of the most concerns for the owners, managers and accountants of different types of enterprises across nations (Acer and Acer, 2014; Jusoh, 2008; Pimentel and Major, 2014). Nickell (1995) argued that the thrust behind the development of any powerful country is the effective performance of its industries and firms. Indeed, many organizations have globally adopted the approach of working continuously to get better result by adopting different types of techniques which cut across financial and non-financial measures (Al-Mawali, 2015; Guidara and Khoufi, 2014). Importantly, when the top executive members are able to set the firm's priorities concerning the set of activities and strategies to be adopted across the organization, the capacity of their organization in sustaining its performance will be determined in the long run (Neely, Mills, Platts, Gregory, and Richards, 1994). Recently, this position has been corroborated by Guidara and Khoufi (2014) who argued that it is essential for firm performance measures to be redirected towards long term

perspectives. For instance, firms should start to focus their attention on how to maintain an effective performance measurement system (PMS), as this is essential for their continued existence (Chow and Van der Stede, 2006).

Within the Iraqi context, manufacturing sector has a crucial role in Iraqi's GDP. Over time, it has been placed in the second rank to support the national economy (Central Bank of Iraq Annual Report, 2013). However, recent evidences have shown that the Iraqi manufacturing sectors are under serious challenges and pressures since 1990, which has made the sector to be regarded as weak when compared with other service sectors like banking (Bureihi, 2011; CBIAR, 2013). This weakness is perhaps attributed to their failure to make use of appropriate PMS.

Based on the above, the second part of this study is structured as follows: the first section discusses literature review, conceptual framework and development of hypotheses; and the second section presents data collection and analysis as well as conclusion and recommends for future research.

## **LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

### **Firm Performance**

A very important question for all the researchers and practitioners is to identify the reason behind success and failure of organizations. Performance is the most crucial issue for all organizations (Bakar and Mahmood, 2014; Caruana et al., 2010). For the management, it is very important to know what factors significantly influence the performance of organizations. This identification will help them to take necessary procedures that are required to succeed (Guidara and Khoufi, 2014). It should be kept in mind that defining, theorising, and calculating the performance of an organization is not an easy task due to the lack of agreement among researchers on how to define and measure the firm performance (Abu-Jarad et al., 2010; Santos et al., 2009). The disagreement upon the definition of firm performance is a contentious issue among researchers in the field of firm (Barney, 1997). However, the core issue is linked with the appropriateness of different approaches regarding the concept utilization and measurement of performance of an organization (Abu-Jarad, Yusof and Nikbin, 2010).

Consequently, the contingency theory supports that the design and use of performance measurement depends upon organisational and environmental contexts (Hansen, Mowen, Senkow and Pollanen, 2004). Furthermore, organisational performance can be increased by configuring a better correlation between BSC and the contextual variables such as external environment, structure, technology, culture, and so on (Fisher, 1998; Sila, 2007). As proposed by a number of scholars, contingency theory posits that organisational performance is contingent on the 'fit' between an organisation's environment and use of performance measures in performance evaluation (for a review, in accounting, see Otley, 1980; Chapman, 1997). Thus, PEU is a concept that is associated with contingency theories (Donaldson, 2001; Miles and Snow, 1978).

Hoque (2005) stated that non-financial performance measures are more likely to positively affect performance in situations of higher environmental uncertainty. This is because non-financial measures are likely to facilitate firm decisions and actions that support strategies based on the needs of stakeholders, internal and external customers, regulatory bodies, managers, and employees (Atkinson et al, 1997; Hoque and James, 2000). As well, Kaplan and Norton (1996, 2001) suggested that non-financial performance measures help managers to assess changes in their business environments, determine and evaluate progress towards the organization's goals, and afford firm achievement of performance. Similarly, Hoque and James (2000) used contingency theory to explore how firm performance can be affected by different uses of BSC in different settings. They found that BSC is a main contributor to firm performance.

Importantly, this study investigates the relationship between the adoption of management accounting system such as BSC and performance of firm. Previous studies have regarded BSC as an important segment of firm management control systems that reinforces the environment where the firm operates and consequently assist the firm towards achieving its objective (Otley, 1980). This is also in line with the contingency theory that affirms that PEU influences management accounting practices (Abdel-Kader and Luther, 2008). In this view, this study builds on the premise of the contingency theory taken into consideration other previous studies (Guidara and Khoufi 2014; Hoque and James 2000; Jusoh 2008) to investigating the relationship between the stated variables; and this shall be subsequently presented in figure 1. In actual fact, previous studies have indicated that contingency is best suited to understand the mediating role of BSC between relationships of PEU and firm performance.

## **Balanced Scorecard (BSC)**

In the past, prior to adoption of BSC, traditional financial information was the most reliable tool for measuring firm's performance (Cardot, 1980). However in recent times, BSC has become valuable and most applied tool among the top developments in the field of Management accounting. In fact, several researchers and academicians have empirically recognized the need and importance of BSC towards enhancing the performance of an organization (Norreklit, Norreklit, Mitchell, and Bjomenak, 2012; Hoque, 2014). This may not be in anyway far from the reality that the traditional financial information had been considered insufficient for actualizing a desired evaluation of firm performance; due to incomplete and sometimes over-aggregation in information supplied to managers (Hopwood, 1972; Yaich, 2004; Bryer, 2006). On the contrary, the importance of BSC implications can be judged by the arguments given in favor of BSC by Towers Perrin Consulting organization (Hoque and James, 2000; Hoque et al., 2001; Widener, 2006).

Generally, it is accepted that companies which implement formal PMS balanced in terms of financial and non-financial indicators will stand ahead of their competitors (Kartalis, Velentzas and Broni, 2013). BSC by its name shows the balanced

considerations that are given to the long and short term financial and non-financial objectives of the organization. And based on the composition of BSC, its implication is that firms employing it must consider both long term and short term financial and non-financial objectives. A number of studies in the field of management accounting and others have established relationship between the BSC and firm performance (Guidara and Khoufi, 2014; Jusoh, 2008).

BSC covers four different perspectives, including: innovation and learning; business; customer; and last but not the least the financial perspective (Kaplan and Norton, 1992). These perspectives are used as the holistic performance measures helping the organization to stay on course. Given the importance of BSC, there is a serious need for extensive research especially in the field of accounting but experience has shown that empirical support in this perspective is very limited thereby indicating an ongoing research (Jusoh, 2008).

**Financial perspective:** The first perspective, known as financial perspective, is basically the traditional and most common perspective for measuring success of organizations. Financial perspective involves profitability, revenue enhancement, growth in sales, and revenue per customer per visit (Farooq and Hussain, 2011). Despite the fact that BSC enforces the need to inculcate several measures for determining success, yet financial measures are given top priority for the achievement of success (Niven, 2002; Farooq and Hussain, 2011).

**Customer Perspective:** Choosing measures from the perspective of customers, BSC adoption is dependent on the type of customers and their desires in response to the value that the organisation is providing to them (Niven, 2002; Farooq and Hussain, 2011). The basic purpose is to focus on the target customers of the organizations, because it helps the organizations to develop the strategies in accordance with the desires to satisfy the customers' needs (Farooq and Hussain, 2011). Relatively, if the customers' satisfaction is impliedly affected negatively, the firm's income will definitely drop; and on the other hand the firm's returns will increase when customers are satisfied with the firm's products/services (Guidara and Khoufi, 2014).

**Internal Business Process Perspective:** The Internal perspective of BSC helps the manufacturers to identify the procedures that should be adopted by them to gain success (Farooq and Hussain, 2011). Elements like order processing, manufacturing, delivery, and product development are those where the organizations must concentrate (Niven, 2002; Farooq and Hussain, 2011). The main focus of this perspective is to satisfy the customer, because organizations need to focus on customers to gain competitive edge over their competitors (Farooq and Hussain, 2011). And this is usually done by exploring inter-firms performance indicators to assess various intra-business units within the organization towards determining how effective and efficient they are utilization of available scarce resources for competitive advantage to create 'next generation' goods/services (Guidara and Khoufi, 2014). Thus, we can say that the Internal Business Process Perspective plays crucial roles towards alignment of the

Financial Perspective and Customer Perspective to secure a highly commendable performance of organizations.

**Learning and Growth Perspective:** The perspective of learning and growth is considered as the backbone of successful implementation of BSC, as it helps the employees to learn new skills and information systems (Kaplan and Norton, 1996b). If employees are satisfied with their jobs, their productivity is demonstrated to increase, thus, affecting the perspective of customers, perspective of internal procedures, and ultimately financial measures of an organization (Appelbaum, Deguire, and Lay, 2005).

### **Perceived Environmental Uncertainty (PUE)**

The macro-context factors refer to the external factors existing outside organizations. Macy and Arunachalam (1995) defined the external environment as the external phenomena that have either potential or actual influence on the organization. Fisher (1995) opined that the external environments of business wherein firms operate could be static or dynamic, certain or uncertain, simple or complex, turbulent or stable. It is argued that studies on the external environment mainly represent the uncertainty level (Macy and Arunachalam, 1995; Fisher, 1995). This reveals the necessity of more sophisticated information on management accounting when organizations operate in a more uncertain business environment (Mia and Clarke, 1999; Mia and Patiar, 2001). Accordingly, the external factors encouraging change in management accounting include increasing competition, the consumer and the market situation.

PEU is one of the external factors that affect firm performance (Jusoh, 2008). Consistent with literature, intensity of competition represents a significant dimension of PEU (Khandwalla, 1972). In fact, this indicates that the contemporary organizations face dramatic and sudden fluctuations in their environment. Hence, traditional managerial orientations become inadequate when the environment becomes very dynamic, challenging and complex (Hwang, 2005). In such environmental possibilities, organizations encounter a number of challenges including loss of their position in the market, decline in profitability or, at worst, the business failure (Hwang, 2005). As for Chenhall (2007), the external environment is the most hostile and turbulent environment. This, in turn, causes a higher level of reliance over formal controls and focuses on traditional budgets (Chenhall, 2007).

However, a stable environment is the opposite of a turbulent environment. In the stable environment, the organizations usually attempt to consider the calculated risks during the uncertainty phase. While decision making takes into account the competitive, economic, political, technological, and global environment; therefore, such complexities must be paid high level of attention by the top management (Wang and Chan, 1995). Irregular and unfamiliar trends are the major consequences of a high instable environment encountered by the top management (Govindarajan, 1984; Duncan, 1972). High level dynamism refers to continuous change in the processes of environmental factors (Khandwalla, 1972). The top management must take the decisions in a low

visibility which means that decisions are taken with unclear and abstruse information (Miliken, 1987).

## **Intensity of Competition, BSC and Firm Performance**

Many researchers highlighted the need to conduct a research on intensity of competition (e.g. Hwang, 2005; Huang, Tayles and Luther, 2010). From his own view, Khandwalla (1972) noted that competition exists, especially in the area of the quality of distribution and selling of goods/services, human resource competency, rivalry in the quest for raw materials and diverse goods, services and price. Thus, organizations compete for raw material, distribution channels, quality, product diversity, price, and selling (Khandwalla, 1977). In response to increasing competition in the cotemporary business environment, all organizations are vigorously working in order to gain competitive advantage with the objective of becoming strategic in their functions (Kalagnanam and Lindsey, 1998). In consistency with such argument, Yasai-Ardekani and Haug (1997) highlighted that environment forecasting is compulsory in a highly competitive environment. Consequently, information about environmental analysis is compulsory in order to compete favourably in the market (Khandwalla, 1977). In such situations, the rapidity of decision making is crucial to align organization with the environment (Yasai-Ardekani and Haug, 1997).

In this view, one possible determinant of quick decision making may be the use of multiple performance measures. Libby and Waterhouse (1996) suggested that organizations working in a highly competitive environment should be capable of modifying their control systems. Thus, it becomes compulsory for every organization to take the issue of firm performance seriously to survive the keenly competitive environment (Guidara and Khoufi, 2014). According to Neely (1999), increasing competition in businesses had a significant impact on PMS. The current focus of organizations is to differentiate their operations from their competitors for provision of quality services. This can be done by adopting innovative capabilities, customization, and instant responsiveness (Johnson and Kaplan, 1997). In addition, organisations are shaping their PMS in order to meet the challenging and competitive business world (Libby and Waterhouse, 1996). Adding to that, it is suggested that organization with an aim of gaining market leadership should provide customers with value for money (Khandwalla, 1972). This ensures combined and synchronized efforts of organizations for sophisticated control systems to be effective.

Accordingly, Khandwalla (1972) and Feurer and Chaharbaghi (1995) rationalized that every organization control system is associated with competitive intensiveness. Based on this theoretical framework, Hoque and James (2000) suggested that organizations with a strong market position require internal communication; therefore, placing a greater stress on the design and use of PMS. Thus, it is clear that organizations need to cater for a diversified range of market forces for gaining competitive edge. Organizations need such PMS that tracks financial and non-financial performance measures. Invariably, many studies argued that intensity of competition has significant

influence on firm performance, especially with intense competition, privatization, modern manufacturing facilities, and deregulation of economies which therefore require effective management accounting system (Bromwich, 1990). Due to the changing environment, the need for management accounting is increasing day by day (Bromwich, 1990; Mia and Clarke, 1999). Khandwalla's (1972) has considered only price, product, and marketing channels as determinants of firm profitability. Price, product, and marketing channels are not the only factors that trigger the competition, but competitors, technology, and regulations also have significant impacts. These factors actually have simultaneous influence and should be studied collectively for understanding competition (Porter, 1979). Subjective evidences also support the nature of competition (Mia and Clarke, 1999).

In this section, discussions on Intensity of Competition, BSC and Firm Performance would be in-exhaustive if competition relating to management accounting is not given adequate attention. To this thrust, competition remains the major indicator for designing and implementing new management accounting system (see Amat et al, 1994; Fadaly, 2008). For this reason, Hoque et al (2001) opined that in modern days of information and communication technology, intense competition resulted from high computer usage as a means to assessing the performance firms, and this is because nowadays computer usage is regarded as a prominent aid for manufacturing operations. However, this is not to refute those different types of competition (e.g. prices, advertising, branding, marketing, etc.) that now influence management accounting and control systems in manufacturing firms. Invariably, Otley (1980) had previously suggested that intensity of competition among firms determined the level of sophistication of the accounting and control system; and that had made managers to seek for information in order to align and make them plan towards the highly increasing market competition (Chong et al, 2005).

In support of Otley (1980), Johnson and Kaplan (1987) reiterated the incapability of traditional cost accounting systems to provide the required and adequate information for manufacturing operations of firms. Similarly, Miller (1992) decried the quick pace of intensity of competition; when he observed that recent cost accounting systems are inadequate for supplying firms with sufficient financial information required by management. Alas, sufficient management information would go a long way to cater for international competitive pressures (Burns and Scapens, 2000).

In furtherance to the foregoing, Hussain and Hoque (2002) and Hoque (2005) at various conducted empirical studies that showed a will to recognize and apply management accounting practices and control systems in firms in order to enjoy competitive advantage. In essence, Hussain and Hoque (2002) concluded that performance measurement systems greatly depend on the factors of competition. To conclude this, Hoque (2005) maintained that competition has become very crucial, and this has resulted in the use of specific practices like nonfinancial performance measures to gauge the performances of firms in modern time. Based on these findings, the following hypotheses are proposed:

**H1:** There is a significantly relationship between intensity of competition and firm performance.

**H2:** There is a significantly relationship between intensity of competition and Balance Scorecard adoption.

**H3:** There is a significantly relationship between Balance Scorecard adoption and firm performance.

## **The mediating effect of Balanced Scorecard between Perceived Environmental Uncertainty and Firm Performance**

Mia and Clarke (1999) argued that managers who use the information provided by the management accounting system help organizations to implement benchmarking and monitoring information. So, organizations that use multiple measures usually face higher PEU as compared to those that use traditional measures of performance. This is because financial information is not broad, but focused mainly on financial aspects while ignoring many other important factors that can support the success of organizations (Otley, 2001).

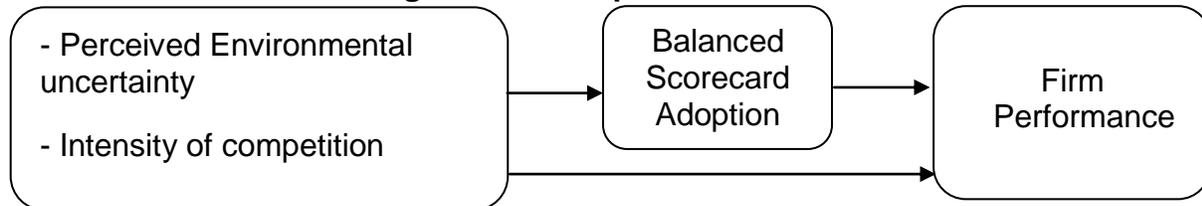
In response to this argument, the use of multiple performance measures provided by the BSC approach can play a significant role in providing internal and external broad-based information. Hence, BSC “translates an organization’s mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system” (Kaplan and Norton, 1996). Similarly, BSC integrates financial and non-financial measures into four perspectives: financial, customer, internal business process, and innovation and learning.

Importantly, studies by Chong and Chong (1997), Mia and Clarke (1999), and Widener (2006) had examined the role of using BSC measures as a mediating variable. These studies provided evidence that in part, there could be a relationship between PEU and performance, and this could have indirect effect on the extent to which an organization uses multiple performance measures to evaluate its performance through BSC measures. Consequently, there are certain studies highlighted the relationship between changing environment of business and changes in performance measurement systems. Examples of this are organizations in America that were facing higher competitions use multiple measures for analyzing performance (Gordon, and Narayanan 1984). Also, a study on manufacturing organizations suggested that multiple performance measures are used for evaluating performance of businesses that face high level of PEU like competition. In highly competitive environment, British industrial organizations use multiple performance measures covering all dimensions of firm performance (Abdel-Maksoud, Dugdale and Luther, 2005). BSC adoption in Korea is considered as the result of heterogeneity and dynamism in the environment (Sohn, You, Lee and Lee, 2003). Likewise, in New Zealand industrial units, managers use BSC to control dynamic environment for attaining sustainability (Hoque et al., 2001). Based on these arguments, the following hypotheses are hereby formulated:

**H4:** BSC mediates the relationship between intensity of competition and firm performance

## CONCEPTUAL FRAMEWORK

**Figure 1. Conceptual Framework**



The framework of this study as conceptualized above (figure 1) indicates a relationship between PEU and firm performance. This relationship has been empirically tested by previous studies (Browel, 1987; Hoque, 2004; Jusoh, 2008). However, the results of these studies are inconsistent. While a number of these studies found significant positive relationship between PEU such as intensity of competition and firm performance (Al-Mawali, 2015; Hoque, 2004; 2005), others found insignificant or negative relationship (Elbana and Alhawari, 2012; Jusoh, 2010; Khandwalla, 1972). In order to resolve the inconsistencies, this study has introduced BSC as a mediator in line with Baron and Kenny (1986). BSC has been widely researched (e.g. Chong, 1997, Jusoh, 2008; Mia and Clarke, 1999), but, according to the researchers' knowledge, no study has used it as a mediator between PEU and financial performance, especially in the Iraqi context. Using BSC as a mediator will holistically improve the relationship between PEU and financial performance since most previous studies adopted the narrow and traditional approach of measuring firm performance (Guidara and Khoufi, 2014).

## METHODOLOGY

Quantitative research design is employed in the current study. Data were collected using a questionnaire survey administered to managers of Iraq manufacturers randomly selected from the Federation of Iraq Manufacturing Directory. 604 questionnaires were distributed and a total of 303 useable questionnaires were received representing a response rate of 50.2 %.

### Measurement of variables

Measurement of variables adopted from earlier studies. Some of the items were slightly reworded to reflect the context of current study. Firm performance was measured by a self-rating scale using 10 indicators taken from Mia and Clarke (1999), Govindarajan (1984) and Salaheldin (2009). BSC measured using an instrument developed by Kaplan and Norton (1996). The instrument contains 20 items measuring four dimensions: financial, customer, internal business process, and learning and growth. Finally, in this study PEU variables are intensity of competition. Six items to measurement intensity of

competition were adapted from Hoque and Hopper (1997); Lee and Yang (2011); Hoque et al. (2001).

## Data Analysis

PLS path modeling was applied for the data analysis in this study. PLS was chosen due to its enhanced ability to process complicated models and does not require distributional assumptions of the sample (Chin, 1998). A two-step analytical approach is applied as suggested by Chin (2010): first, the assessment of the measurement model for reliability and validity and then of the structural model (Ringle, Wende and Will, 2005). Data were analyzed using Smart PLS 2.0.

## Results

### Measurement model (Outer model)

Before analyzing the structural model the measurement model was examined to assess the reliability and validity of the variables. Composite reliabilities are used to assess the reliability of the measures. As shown in table1, the composite reliabilities values of all constructs are above recommended threshold of 0.70 as suggested by Nunnally (1978). Convergent validity and discriminant validity were used to assess validity of constructs. To assess convergent validity, construct's average variance extracted (AVE) and factor loadings are used. Table1 showed that, all the constructs have an average variance extracted (AVE) value greater than 0.50 which confirms the convergent validity of constructs (Fornell and Larcker, 1981).

**Table 1. Quality Criteria of the Constructs**

Construct	Item	Factor loading	AVE	CR
Costumer perspective	Market share	0.715	0.586	0.894
	On-time delivery	0.813		
	Number of customer complaint	0.873		
	Survey of customer satisfaction	0.752		
	Customer response time	0.751		
	Percent shipments returned due to poor quality	0.673		
Financial perspective	Operating income	0.87	0.756	0.925
	Sales growth	0.903		
	Cash flows	0.879		
	Sales Revenue	0.826		
Intensity of Competition	Price	0.833	0.786	0.957
	New product development	0.899		
	Marketing or distribution channels	0.864		
	Market (revenue) share	0.903		

	Competitors' actions	0.902		
	Number of competitors in the market	0.917		
Internal process perspective	Manufacturing lead time /cycle time	0.840		
	Rate of material scrap loss	0.813		
	Labor efficiency variance	0.836	0.708	0.924
	Material efficiency variance	0.889		
	Ratio of good output to total output	0.829		
Learning and growth perspective	Number of new patents	0.780		
	Number of new product launches	0.813		
	Time to market new products	0.701	0.661	0.906
	Employee satisfaction	0.881		
	Employee training	0.877		
Firm Performance	Costs of production	0.865		
	Sales growth rate	0.886		
	Operating profits	0.906		
	Cash flow	0.905		
	Return on investment	0.863	0.643	0.946
	Waste costs	0.840		
	Revenue growth rate	0.852		
	Net profits	0.608		
	Return on assets	0.608		
	Ratio of profit	0.585		

To assess discriminant validity, the square root of the AVE of each construct was compared with the correlation between of that construct and the other constructs. As shown in Table 2, the square root of the AVEs exceeds the highest correlation between that construct and the other constructs, providing support of discriminant validity (Chin 1998; Fornell and Larcker, 1981).

**Table 2. Correlations of Constructs and discriminant validity assessment**

Construct	CP	FP	IC	IPP	L&G	OP
Costumer perspective(CP)	<b>0.875</b>					
Financial perspective(FP)	0.447	<b>0.932</b>				
Intensity of Competition (IC)	0.278	0.280	<b>0.941</b>			
Internal Process Perspective (IPP)	0.461	0.446	0.388	<b>0.917</b>		
Learning and growth perspective (L&G)	0.325	0.428	0.190	0.289	<b>0.902</b>	
Firm Performance (OP)	0.380	0.422	0.607	0.432	0.351	<b>0.895</b>

\*Square root of the AVE on the diagonal.

## The Structural Model

The next step is the assessment structural model. First, the predictive power of the model is assessed using coefficient of determination (R<sup>2</sup>) for endogenous constructs. The model's R<sup>2</sup> value is the main criteria by which model fit is assessed in PLS analysis (Chin 1998). The R<sup>2</sup> of endogenous constructs are 0.491 for firm performance, and 0.184 for BSC. The R<sup>2</sup> values are greater than the acceptable threshold of 0.10 (Falk and Miller, 1992).

The predictive relevance of the model is assessed using Stone-Geisser's Q<sup>2</sup> cross validated redundancy index (Geisser, 1975; Stone, 1974). Cross validated redundancy Q<sup>2</sup> for endogenous constructs is computed using blindfolding procedure. The Cross validated redundancies for endogenous constructs are 0.310 for firm performance and 0.10 for BSC. The values are greater than zero which suggests the predictive relevance of the model (Henseler, Ringle and Sinkovics, 2009).

## Hypothesis testing

In order to test the hypotheses, we examined the significance of the path coefficient estimates for the three paths in the model. Bootstrap technique is used to assess the significance of hypothesized relationships in the path model. 1000 resamples were used to perform the bootstrap (Chin 1998).

**Table 3. The structural estimates**

Relationship	Path Coefficients (β)	T- value	P-value	Decision
H1: Intensity of competition -> BSC	0.429	8.394	0.00	Supported
H2: <b>Intensity of competition</b> -> Firm Performance	0.430	7.809	0.00	Supported
H3: BSC -> Firm Performance	0.380	7.588	0.00	Supported

As shown in Table3, H1 is supported. Intensity of competition has a significant and positive effect on BSC ( $\beta=0.429$ ,  $t=8.394$ ,  $p<0.001$ ). H2 is also supported. Intensity of competition has a significant and positive effect on firm Performance ( $\beta=0.43$ ,  $t=7.809$ ,  $p<0.001$ ), making H2 to supported. BSC has a significant and positive effect on firm performance ( $\beta=0.38$ ,  $t=7.588$ ,  $p<0.001$ ). Thus, H3 is supported. Figure 1 in the next age presents the model of the current study.

To test the mediating role of BSC, Baron and Kenny (1986) approach was applied. To assess the mediation effect of BSC, the criteria for mediation analysis were examined. Mediation is established when the predictor variable (Intensity of Competition) first, has a significant influence on the mediator (BSC); second, the mediator (BSC) has a significant influence on the dependent variable (Firm Performance) and finally, the

predictor (Intensity of Competition) has a significant influence on the dependent variable (Firm Performance) in the absence of the mediators' influence (Barron and Kenney, 1986).

As shown in Table 3, the predictor variable (Intensity of Competition) has a significant influence on the mediator (BSC); second, the mediator (BSC) has a significant influence on the dependent variable (Firm Performance) and finally, the predictor (Intensity of Competition) has a significant influence on the dependent variable (Firm Performance) in the absence of the mediators' influence (Barron and Kenney, 1986). When we control for the mediation the direct effect of the predictors reduced and still significant, therefore BSC partially mediates the effect of intensity of competition on firm performance (Barron and Kenney, 1986).

The significance of the indirect effects was assessed using the Sobel test (Sobel 1982). The results of the Sobel test confirmed that BSC significantly mediate the relationship between Intensity of competition and firm performance ( $t=5.64$ ,  $p<.001$ ). Therefore, H4 are supported.

## **Discussion and conclusion**

The purpose of this study is to empirically examine intensity of competition affect BSC usage and firm performance and the effect of intensity of competition is mediated by BSC usage. The study found a positive and significant effect of PEU factors and BSC usage. Intensity of competition has a positive and significant influence on BSC implementation. This suggests that the higher the level of intensity of competition, the higher the BSC usage is. The results are consistent with the findings of previous studies that relate PEU factors to the usage of BSC measures (e.g. Mia, 1993; Jusoh, 2008; Guidara and Khoufi, 2014).

Intensity of competition is significantly related to firm performance. This result is consistent with previous studies that suggest that there is a positive relationship between the intensity of competition and firm performance (e.g. Mia and Clarke, 1999). There is a positive and significant relation between the use of BSC and firm performance, suggesting that the greater use of BSC measures is related to improved firm performance. This result is consistent with many studies that supported this positive relation (Jusoh, 2008; Guidara and Khoufi, 2014).

Finally, the use of BSC has a mediating role between PEU factors and firm performance. These findings confirmed that BSC usage not only improves firm performance but also mediates the impact intensity of competition on firm performance. The result is consistent with the findings of previous studies such as (Jusoh, 2008; Guidara and Khoufi, 2014). This suggests that the higher the intensity of competition, the greater use of BSC which in turn improves business performance. The study contributed to the evolving literature on BSC usage by highlighting the role of intensity of competition on usage of BSC which received little attention in previous studies in Arab country's particularly Iraq. The findings provide valuable information to managers

regarding the importance of using of BSC in organizations that works in environments characterized by high intensity of competition (such as those work in Iraq).

This study has some limitations which should be taken into consideration while interpreting its finds. The instruments adapted to measure BSC exclude some important measures since BSC is even relatively new among contemporary researchers. In view of this, it is recommended that other important measures within the realm of four dimensions of the BSC should be identified and applied by the future researchers. This study concentrates only on manufacturing companies in Iraq as the country has been experiencing war in the last few decades. It is therefore recommended that future researchers should consider sectors like service industry in order to improve on our findings. It is equally important that future researchers should consider the impact of variables such as total quality management (TQM) and corporate culture on the firm performance. Importantly, future researchers may consider environment from the perspective of Scott (1987) who argued that the external environment of an organization comprises socio-political, international, and economic elements, as well as technology, customers, and suppliers. Treating the environment in this direction will allow organization to holistically understand the ways those elements operate and how they can adjust their management accounting system to suit the objectives of their organizations in order to improve performance.

## **Acknowledgements**

The author would like to thank Ministry of Higher Education and Scientific Research of Iraq and my supervisor Dr. Rapih Mohamed for her guidelines and efforts. A special thanks also to the anonymous reviewers and the journal editor.

## **References**

- Abdel-Kader, M., & Luther, R. (2008). The impact of firm characteristics on management accounting practices: A UK-based empirical analysis. *The British Accounting Review*, 40 (1), 2-27.
- Abdel-Maksoud, A., Dugdale, D., & Luther, R. (2005). Non-financial performance measurement in manufacturing companies. *The British Accounting Review*, 37, 261-297.
- Abu-Jarad, I. Y., Yusof, N., & Nikbin, D. (2010). A review paper on organizational culture and organizational performance. *International Journal of Business and Social Science*, 1(3), 26-46.
- Acar, A. Z., & Acar, P. (2014). Organizational culture types and their effects on organizational performance in Turkish hospitals. *Emerging Markets Journal*, 3(3), 18-31.

- Alawattage, C., Hopper, T., & Wickramasinghe, D. (2007). Introduction to management accounting in less developed countries. *Journal of Accounting & Organizational Change*, 3(3), 183-191.
- Al Sawalqa, F., Holloway, D., & Alam, M. (2011). Balanced Scorecard implementation in Jordan: An initial analysis. *International Journal of Electronic Business Management*, 9(3), 196.
- Amat, J., Carmona, S and Roberts, H (1994) "Context and change in management accounting systems: a Spanish case study" *Management Accounting Research*, Vol. 5, pp. 107-122.
- Anderson, P., & Tushman, M. L. (2001). Organizational environments and industry exit: The effects of uncertainty, munificence and complexity. *Industrial & Corporate Change*, 10, 675–711.
- Atkinson, A., Balakrishnan, R., Booth, P., Jeans, M., Cote, T., Grout, T., Mali, H., Roberts, E., Ulan, & Wu. A. (1997). *New directions in management accounting*.
- Barney, J. B. (1997). *Gaining and sustaining competitive advantage*. Addison–Wesley Publishing Company: Reading, MA.
- Boyne, G. A., & Meier, K. J. (2009). Environmental turbulence, organizational stability, and public service performance. *Administration & Society*, 40(8), 799-824.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
- Bureihi, F. (2011). Iraqi economy ... opportunities and challenges. *Baghdad College of Economic Sciences University Journal*, 27, 21-56.
- Burns, J and Scapens, R. W (2000) "Conceptualizing management accounting change: An institutional framework" *Management Accounting Research*, 11 (1), pp. 3-25.
- Central Bank of Iraq, Annual Report, (2013). Statistics & Research Department. Retrieved from <http://www.cbi.iq>
- Chapman, C. (1997). Reflections on a contingent view of accounting. *Accounting, Organizations and Society*, 22(2), 189-205.
- Chong, V., & Chong, K. (1997). Strategic choices, environmental uncertainty and SBU performance: A note on the intervening role of management accounting systems. *Accounting and Business Research*, 27(4), 268-276.

- Chow, C., & Van der Stede, W. (2006). The use and usefulness of nonfinancial performance measures. *Management Accounting Quarterly*, 7(3), 1-8.
- Donaldson, L. (2001). *The contingency theory of organizations*. Thousand Oaks, CA: Sage.
- Elijido-Ten, E. (2010). Public disclosure of strategic performance measurement system: An Australian investigation. *International Handbook of Academic Research and Teaching*, 38.
- Fadaly, D (2008) "Contingent Framework for Management Accounting Practices in Egyptian Pharmaceutical Organizations", De Montfort University, Leicester, UK.
- Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*: University of Akron Press.
- Feurer, R., & Chaharbaghi. K. (1995). Performance measurement in strategic change. *Benchmarking for Quality Management and Technology*, 2(2), 64-83.
- Fisher, J. (1998). Contingency theory, management control systems and firm outcomes: Past results and future directions. *Behavioral Research in Accounting*, 10, 47-64.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of marketing research*, 382-388.
- Geisser, S. (1975). The predictive sample reuse method with applications. *Journal of the American Statistical Association*, 70(350), 320-328.
- Gordon, L., & Narayanan, V. (1984). management accounting systems, perceived environmental uncertainty and organization structure: An empirical investigation. *Accounting, Organizations and Society*, 9(1), 33-47.
- Govindarajan V (1984). Appropriateness of accounting data in performance evaluation: An empirical examination of environmental uncertainty as an intervening variable. *Acc. Org. Soc.*, 9(2): 125-135.
- Guidara, R., & Walid, K. (2014). Balanced scorecard and performance in a competitive environment. *International Journal of Accounting and Economics Studies* 2(1), 40-45.
- Hansen, D. R., Mowen, M. M., Senkow, D. W., & Pollanen, R. M. (2004). Chapter 17 - Strategic performance evaluation and management. *Management Accounting, Canadian 6th Edition*, Nelson Thompson.

- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in international marketing*, 20(1), 277-319.
- Hoque, Z. (2005). Linking environmental uncertainty to non-financial performance measures and performance: A research note. *The British Accounting Review*, 37(4), 471-481.
- Hoque, Z., & James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organizational performance. *Journal of Management Accounting Research*, 12, 1-17.
- Hoque, Z., Mia, L., & Alam, M. (2001). Market competition, computer-aided manufacturing and use of multiple performance measures: An empirical study. *British Accounting Review*, 33(1), 23-45.
- Huang, C., Tayles, M., & Luther, R. (2010). Contingency factors influencing the availability of internal intellectual capital information. *Journal of Financial Reporting and Accounting*, 8(1), 4-21.
- Hussain, M and Hoque, Z (2002) "Understanding Non-financial Performance Measurement in Japanese Banks: a New Institutional Sociology Perspective" *Accounting, Auditing and Accountability Journal*, Vol. 15, No. 1, pp. 162-183.
- Hwang, E. J. (2005). Strategic management and financial performance in South Korean apparel retail stores. Unpublished PhD Thesis, Virginia Polytechnic Institute and State University, US.
- Johnson, H. T and Kaplan, R. S (1987) "Relevance Lost: the Rise and fall of Management Accounting" Harvard Business School Press, Boston Mass.
- Jusoh, R. (2008). Environmental uncertainty, performance, and the mediating role of balanced scorecard measures use: Evidence from Malaysia. *International Review of Business Research Papers*, 4(2), 116-135.
- Jusoh, R., Ibrahim, D. and Zainuddin, Y.,(2008), "The performance consequence of multiple performance measures usage: Evidence from the Malaysian manufacturers, *International Journal of Productivity and Performance Management*, Vol. 57, No. 2, pp. 119-136.
- Kalagnanam, S. S., & Lindsay, R. M. (1998). The use of organic models of control in JIT firms: Generalizing Woodward's findings to modern manufacturing practices. *Accounting, Organizations & Society*, 24(1), 1-30.

- Kaplan, R. S., & Norton D. P. (1996). *The balanced scorecard: Translating strategy into action*. Boston: Harvard Business School Press.
- Kaplan, R. S., & Norton, D. P. (1992). *The balanced scorecard-measures that drive performance*. *Harvard Business Review*, 70(1), 71-79.
- Kaplan, R. S., & Norton, D. P. (2001). *Transforming the balanced scorecard from performance measurement to strategic management: Part 1*. *Accounting Horizons*, 15(1), 87-104.
- Kattan, F., Pike, R., & Tayles, M. (2007). *Reliance of management accounting under environmental uncertainty: The case of Palestine*. *Journal of Accounting and Organisational Change*, 3 (3), 229-247.
- Al-Naser, K and R. Mohamed, 2016. *The Mediating Role of Balance Scorecard between Contingent Factors and Firm Performance: A Proposed Framework*. *Aust. J. Basic & Appl. Sci.*, 10(15): 231-241.
- Khandwalla, P. N. ( 1972). *The design of organization*. New York.
- Khandwalla, P. N. (1977). *The Design of Organizations*, New York: Harcourt Brace Jovanovich.
- Libby, T., & Waterhouse, J. (1996). *Predicting change in management accounting systems*. *Journal of Management Accounting Research*, 8, 137-150.
- Lin, X., & Germain, R. (2003). *Organizational structure, context, customer orientation, and performance: lessons from Chinese state-owned enterprises*. *Strategic management journal*, 24(11), 1131-1151.
- Malleret, V., De La Villarmois, O., & Levant, Y. (2015). *Revisiting 30 years of SMA literature: What can we say, think and do?* HEC Paris Research Paper No.ACC-1081.
- Mia, L. (1993). *The role of MAS information in organisations: an empirical study*. *The British Accounting Review*, 25(3), 269-285.
- Mia, L., & Clarke, B. (1999). *Market competition, management accounting systems and business unit performance*. *Management Accounting Research*, 10(2), 137-158.
- Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). *Organizational strategy, structure, and process*. *Academy of management review*, 3(3), 546-562.
- Miller, J. A (1992) "Designing and implementing a new cost management system" *Journal of Cost Management*, Winter, pp. 41-53.

- Neely, A. D. (1999). The performance measurement revolution: Why now and where next. *International Journal of Operations and Production Management* 19(2), 205-228.
- Nickell, S. (1995). The performance of companies-the relationship between the external environment, management strategies and corporate performance. Oxford UK & Cambridge USA Blackwell.
- Niven, P. R. (2006). *Balanced scorecard step-by-step: Maximizing performance and maintaining results*. New York: John Wiley & Sons.
- Otley, D. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society*, 5(4), 413-428.
- Nunnally, J. C., (1978). *Psychometric Theory* (2 ed.): Maidenhead: McGraw-Hill Book Company.
- Otley, D. (2001). Management control and performance management: Whence and whither? *The British Accounting Review*, 35, 309-326.
- Pimentel, L., & Major, M. J. (2014). Quality management and a balanced scorecard as supporting frameworks for a new management model and organisational change. *Total Quality Management & Business Excellence*, 25(7-8), 763-775.
- Ringle, CM, Wende, S., Will, S. 2005. *SmartPLS 2.0 (M3) Beta*, Hamburg, <http://www.smartpls.de>.
- Sandström, J., & Toivanen, J. (2002). The problem of managing product development engineers: Can the balanced scorecard be an answer? *International Journal of Production Economics*, 78(1), 79-90.
- Scott, W. R. (1987). The adolescence of institutional theory. *Administrative science quarterly*, 493-511.
- Shields, M. D. (1997). Research in management accounting by North Americans in the 1990s. *Journal of Management Accounting Research*, 9, 3.
- Shurafa, R and R. Mohamed, 2016. Management Control System under the Pressure of Strategic Uncertainty: The Case of the Arab World. *Aust. J. Basic & Appl. Sci.*, 10(7): 130-134.
- Sila, I. (2007). Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study. *Journal of Operations Management*, 25(1), 83-109.

- Sim, K. L., & Koh, H. C. (2001). Balanced scorecard: A rising trend in strategic performance measurement. *Measuring Business Excellence*, 5 (2), 18-26.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology*, 13(1982), 290-312.
- Sohn, M. H., You, T., Lee, S. L., & Lee, H. (2003). Corporate strategies, environmental forces, and performance measures: A weighting decision support system using the K-nearest neighbour technique. *Expert Systems with Applications*, 25(3), 279-292.
- Stone, M. (1974). Cross-validators choice and assessment of statistical predictions. *Journal of the Royal Statistical Society. Series B (Methodological)*, 111-147.
- Widener, S. (2006). Associations between strategic resource importance and performance measure use: The impact on firm performance. *Management Accounting Research*, 17(4), 433-457.
- Yasai-Ardekani, M., & Haug, R. (1997). Contextual determinants of strategic planning processes. *Journal of Management Studies*, 34, 729-767.
- Zimmerman, J. L. (2000) "Accounting for Decision Making and Control", 3rd edition, USA, Irwin McGraw-Hill.