

# NATIONAL CULTURE AND MANAGEMENT CONTROL SYSTEMS USING LEVERS OF CONTROL FRAMEWORK: AN EMPIRICAL ANALYSIS

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**Abstract:** *In today borderless international economy, businesses across nations are increasing dramatically. Under such case, importing or exporting control mechanisms across culture without adjustment is packed with risk. Hence, the relationship between national culture and management control systems (MCS) is inseparable and complex. Therefore, cultural differences across countries are supposed to influence the preferences and differences in the philosophies and approach of MCS design. Based on the Hofstede (1980) cultural dimensions, (i.e. Collectivism, high uncertainty avoidance, and high power distance) and Simons (1995) levers of control framework (LOC) (beliefs, boundary, diagnostic, and interactive control), this study empirically examined the association between national culture and MCS. Using a survey of 79 top managers of the Palestinian listed firms, this study examines the influence of national culture on MCS design. The evidence suggests that collectivism and high uncertainty avoidance are the main cultural dimensions that influencing the philosophies of MCS design in the Arab countries, whereas high power distance has no effect on MCS. Finally, findings provide suggestions for potential directions of future cultural research in MCS.*

**Keywords:** *Management control system, levers of control, national culture, Palestine*

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## Introduction

The relationship between national culture and management control systems (hereafter called MCS) design represent an extension of contingency-based research from its organization basis into more sociological concern (Chenhall, 2003). This concern seems as a logical response due to increasing number of businesses across nations, as one of the results of globalization (Harrison & McKinnon, 1999; Harrison, McKinnon, Panchapakesan, & Leung, 1994; Merchant, Chow, & Wu, 1995; Suh, 2016). World movement toward international firms encourage managers to know whether control practices that are used in one country can be used

in another countries effectively (Chow, Shields, & Wu, 1999; Efferin & Hopper, 2007; Harrison & McKinnon, 1999; Van der Stede, 2002). Thus, Merchant et al. (1995) commented on this point that importing or exporting control mechanisms across culture without adjustment is packed with risk. In fact, the motivation to study the impact of national culture on MCS design was to answer the questions that whether and how the differences in national culture gives rise to differences in the philosophies and approach of MCS design (Chow, Shields, & Chan, 1991; Daley, Jiambalvo, Sundem, & Kondo, 1985; Harrison et al., 1994). Besides, Merchant (1982) argues that management control is the problem of human behaviour. In contrast, Hofstede, Hofstede, and Minkov (2010) argue that human behaviour is strongly associated with national culture. Hence, implementing this concept stresses the importance of national culture as the guide of human behaviour, which is the main challenge of MCS design (Daley et al., 1985; Van der Stede, 2002).

Based on that, this study is going to provide an empirical evidence on the relationship between national culture and MCS design. Specifically, the influence of collectivism culture, high uncertainty avoidance culture, and high power distance culture on Simons (1995) levers of control (hereafter called LOC) framework. The purpose behind examine these national culture dimensions is to get a more in-depth understanding of the role of national culture on the preferences and differences in the philosophies and approach of MCS design between the Anglo-American culture, that considered the source of exporting MCS to the other side of the world. In particular, to the Arab world that considered the opposite culture of Anglo-American culture. In fact, Arab countries have been neglected in the context of the cross-cultural research of MCS. Indeed, the missing part of this global MCS research is the Arab countries.

This paper is organized as follows. The next section of this paper discusses Simons' (1995) LOC framework followed by literature review and hypotheses development. The subsequent section focuses on research methodology, results and discussion, and, finally, the conclusion is in the last section.

### ***Simons' (1995) Levers of Control (LOC)***

The LOC framework emerged after Simons conducted more than one hundred case studies (Jamil & Mohamed, 2011). The LOC framework comprises four sequential control systems: 1) beliefs control; 2) boundary control; 3) diagnostic control; and 4) interactive control. The beliefs control system (the first system) is considered to be the fundamental base that the firms must start with to design the remaining three systems effectively. Simons (1995) described beliefs system as “the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization” (p. 34). A belief system is used to communicate the core values of an organization to inspire and motivate its members to search, initiate, create, explore, and expand their efforts to engage in useful and appropriate actions. On the other hand, this expansion of actions also correlates with the probability of engaging in high-risk activities, which raises the need to impose limits and restraints on activity searching behaviour.

These limits and constraints are termed the boundary control system, which works in an opposite manner to the beliefs control system. A boundary control system must be designed based on the beliefs control system, to set the most accurate limits and constraints to keep the positive energy of beliefs systems under control and that is the starting point of the sequential design of LOC framework. A boundary control system “delineates the acceptable domain of

strategic activity for organizational participants” (Simons, 1995, p. 39). The idea behind the boundary control system is to communicate clearly the actions and/or behaviours that the organizational members should avoid. Its purpose is to allow employees the freedom to search, initiate, and innovate within certain pre-defined areas.

In fact, both boundary and beliefs control systems are similar to each other because both systems are intended to motivate organization members to search and initiate new ways of survival and growth. However, a boundary system does so in a negative manner through its limits and constraints of behaviour, whereas a beliefs system does so in a positive manner through inspirational energy (Simons, 1995). Firms often communicate their beliefs through their mission or vision statement and their boundaries through a code of conduct.

After ensuring that both beliefs and boundary systems are well designed and fit the organizational context, the sequence of LOC framework is ready to move to the third system, which is responsible for measuring and communicating critical success factors that are embedded in the diagnostic system. The aim of the diagnostic control system is to motivate organization members to align their performance and behaviour with organizational objectives. It reports fundamental information that allows managers to focus their attention on monitoring critical success factors for the firm to attain its intended strategy. The diagnostic control system is considered to be the backbone of MCS, as it enables managers to benchmark organizational performance against targets. Both boundary and diagnostic control systems are similar in imposing constraints on employee behaviour (Simons, 2000). Diagnostic control is responsible for measuring critical success factors by allowing managers to manage results on an exception basis. This leads the MCS designer to start thinking about becoming forward looking by interactive use of MCS.

An interactive control system, as the last system in the LOC framework, allows this forward-looking as it is characterized by active and frequent dialogue among top managers (Widener, 2007). Interactive control enables top managers to engage personally in monitoring the outcome of any previous systems, to stimulate search and learning for new ways to strategically position itself in a dynamic and uncertain marketplace. Simons (1995) noted that an interactive control system is not a unique type of control system: “many types of control systems can be used interactively by senior managers” (p. 96). Choosing which control to be used interactively depends on the strategic uncertainty level, source, type, and its possible influence. Some strategic uncertainty requires beliefs system to be used interactively, while others use the boundary system interactively, whereas yet other uncertainties require a diagnostic system to be used interactively, especially with respect to the use of a performance measurement system (PMS) embedded in a diagnostic system.

The above overview of MCS design using LOC framework illustrates the logical sequence during the design process. That implies that MCS designers must start first with the beliefs system, following by the boundary system and then diagnostic control. Once those three control systems have been designed, top managers can choose which control system to be used interactively to personally monitor strategic uncertainty ( Simons, 1990). All the sequences of those systems are required during MCS design, but once completed all systems work together.

Overall, previous literature accepts that control systems cannot be separated to effectively implement control system and that means control systems are interdependent (Merchant & Otley, 2006; Otley, 1999; Widener, 2007). Thus, the framework of the levers of control as

shown earlier represent a holistic perspective of control system, starting from beliefs to the boundary and then diagnostic to determine which of those systems to be used interactively. Therefore, levers of control can afford an effective and complete control environment as it consists of different control systems that work together to provide efficient control practices.

## **Literature Review and Hypotheses Development**

Every nation in this world has its own special characteristics and features that distinguish it from another (Hofstede et al., 2010). Hofstede (1980) defines culture as the collective programming of the mind which distinguishes the member of one human group from another. However, as every nation in this world has its own national cultural characteristics that distinguish it from another, Hofstede (1980) who, from his survey of employee attitudes in the world-wide subsidiaries of IBM, disaggregated culture into four norm values (which he termed “dimensions” of culture): uncertainty avoidance (UA) power distance (PD), individualism (IDV), and masculinity (MAS). Later on, Hofstede & Bond, (1988) identified Confucian Dynamism (CD) as the fifth norm value of culture. More recently, in the 2000s, research by Bulgarian scholar Michael Minkov using data from the World Values Survey (Minkov, 2007) allowed a new calculation of the fifth, and the addition of a sixth dimension (Hofstede et al., 2010). The six dimensions are labelled Indulgence versus Restraint and have been added to Hofstede cultural dimensions (Hofstede, 2011). Nevertheless, Hofstede (1980) culture definition and dimensions is the most acceptable in MCS research (Chow et al., 1991; Harrison, 1992, 1993; Merchant et al., 1995; Ueno & Sekaran, 1992). Whereas, MCS definition can be derived from Simon (1995). He, defined MCS as “the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activity” (Simons, 1995, p. 5).

However, the possible influence of national culture differences on MCS design required a proper definition for MCS design instead of sufficiency of MCS definition per se. According to Shurafa and Mohamed (2016), MCS design is “the process of selecting and modifying control mechanisms that suit the organizational context, to ensure that information flow from those mechanisms will result in quick response and discipline to keep the organization on track of growth and success” (p,131). Because there is accumulating evidence that each nation has its particular culture, which influences their preferences for the reaction toward management control, its fundamental in the MCS design to study the influence of national culture on MCS design. Indeed, since the existence of Hofstede (1980) cultural dimensions, cross-cultural research of MCS emerges in the midst of 80s. Previous studies examined the relationship between Hofstede cultural dimensions and elements of control systems such as budget (Daley et al., 1985; Harrison, 1992), formal communication (Ueno & Sekaran, 1992), formality of control, appraisal system, team development and frequency of feedback (Vance et al., 1992) and structuring of activities and incentive system (Van der Stede, 2002) among others. For further comprehensive review of the previous studies refer to Harrison and McKinnon (1999). Previous literature shows inconsistent and mixed results at best. Few studies confirm the high impact of national culture on MCS design, whereas some were unable to detect a significant influence (Efferin & Hopper, 2007; Harrison & McKinnon, 1999; Merchant et al., 1995). In addition, previous researchers examined the impact of national culture on a subpart of control system and they omitted the holistic control approach such as levers of control and that is the aim of this study to full this research gap. However, discussing each of national culture dimension that will be used in this study (i.e. collectivism, high uncertainty avoidance, and, high power distance,) separately related to MCS design will illustrate the issue further in depth.

### **i. *Collectivism Culture and Levers of Control***

This section discusses the relationship between collectivism culture and each dimensions of levers of control – beliefs control system, boundary control system, diagnostic control system and interactive control system.

#### **a) *Collectivism and beliefs control system***

Collectivism culture refers to, “society in which people from birth onward are integrated into strong and cohesive in-groups, which throughout people’s lifetimes continue to protect them in exchange for unquestioning loyalty” (Hofstede & Hofstede, 2004, p. 76). Therefore, the relationship between employer and employee has a moral component, which implies that the employer should protect their employees in return for their loyalty and that will be reflected on the MCS in general and on beliefs system in particular. In this context, employees from collectivism culture are expected to be fully motivated in achieving the aim of this beliefs system by searching, creating, exploring and initiating through communication network that dominating collectivism culture, and as such, organization core value and mission statement will be successfully communicated. In different words, employees from collectivism culture are expected to show their loyalty in protecting and maintain their group success by fully participated in beliefs control system.

#### **b) *Collectivism and boundary control system***

People from collectivism culture are more concerned about their group success and they do not have the same level of self-interest that appears in individualism culture (Hofstede et al., 2010). As a result, boundary control system is supposed to be loose because people in the collectivism culture are already have the motivation to protect their organization as it represents their group umbrella. As the purpose of boundary control system is to set limits and constraints to protect organizational assets, behaviour, survival and growth (Simons, 2000), collectivism culture provides the fundamental role of the boundary system since people from such culture are already have the sense of protecting their organization from dysfunctional and/or deviant behaviour. In addition, individuals’ loyalty toward group success in the collectivism culture has the ability to assist in designing motivated boundary system instead of restricted boundary system.

#### **c) *Collectivism and diagnostic control system***

Diagnostic control is the backbone of MCS (Simons, 1995). It is concerned about setting plans and budgets as well as measures the performance to make comparison between actual and desired outcomes (Simons, 2013). Preparing those plans and budgets in collectivism culture are not limited to the top management since collectivism societies believe in in-group work and there is already communication network in this kind of culture (Hofstede et al., 2010), which will assist in setting those plans and budget after a proper communication between superiors and their subordinates. Add to this, the influence of collectivism culture on the internal consistency between organization members and departments may influence organizational culture to be more cooperative and that might result in setting efficient and relevant plans and budget due to high level of communication, cooperation and coordination as a natural influence of the collectivism culture.

#### **d) *Collectivism and interactive control system***

As collectivism culture is more concerned about group success (Hofstede et al., 2010), both the superiors and the subordinates are supposed to be more concerned about the source of group success that imply in achieving organization goals and objectives. This may result in better coordination and communication between superiors and their subordinates in the collectivism culture. Hence, interactive use of MCS in this scenario may become more efficient due to this coordination and communication, in fact, subordinates in this case are supposed to be more motivated to participate in the interactive use of MCS by providing the required information through the established communication channels. Simons (1995), comments on the importance of this cooperation and coordination to create an information network in order to monitor critical success factors. He states, “senior managers must encourage continuous search activity and create information network... Individual must share information with others” (p. 92). Thus, sharing of information through establishing communication networks could be more applicable to collectivism culture, as there already exists a communication networks and that will positively influence interactive control. Based on the above discussion the following hypothesis represents the expected relationship between collectivism culture and LOC.

**H1:** There is a significant association between collectivism culture and LOC.

#### **ii. *High Uncertainty Avoidance Culture and Levers of Control***

This section discusses the relationship between high uncertainty avoidance culture and each dimensions of levers of control – beliefs control system, boundary control system, diagnostic control system and interactive control system.

##### **a) *High uncertainty avoidance and beliefs control system***

Societies with high level of uncertainty avoidance are wary of their future. They believe that uncertainty is inherent in their life which represents a continuous source of threat that must be deal with (Hofstede et al., 2010). As a result, they adhere to strict laws, rules, security, safety and they believe that absolute truth is the way to confront uncertainty (Hofstede & Bond, 1988). Hofstede (1984), noted that strong uncertainty avoidance societies maintain rigid codes of beliefs and behaviour and are intolerant toward deviant persons and ideas. Under such case, top managers will try to fully use the essential role of beliefs system in encouraging organizational members to search, initiate, and develop new ideas to avoid future uncertainty. Searching, initiating, and developing new ideas is an ideal way to avoid future uncertainty especially in this rapid market change. Furthermore, as such culture adhere to strict laws, rules, security and safety as well as they are assertive and risk averse this may clearly communicate the predetermine area of searching and initiating. Moreover, as strong uncertainty avoidance society believe that absolute truth is the way to confront uncertainty (Hofstede et al., 2010), this may influence searching and initiating to be more systematic to avoid any future uncertainty.

##### **b) *High uncertainty avoidance and boundary control system***

Since societies of strong uncertainty avoidance culture are assertive and risk averse (Hofstede et al., 2010), such society tends to avoid uncertainty by formal control such as rules, procedures, code of conduct, laws, and desired versus undesired action. In fact, people from high uncertainty avoidance culture feel uncomfortable if there are no rules and procedures (Hofstede, 1984). Hence, autocratic style of management and control will be found in their organizations as well

as less participation with a preference for rule-based. Accordingly, boundary system is considered as the optimal solution for such societies, since boundary system provides the appropriate rules, procedures and code of conduct to control employees and organization behaviour (Simons, 2000). In this context, Hofstede (1984) noted that, “we can expect more formalization, standardization and ritualization in strong uncertainty avoidance countries” (p. 93). Thus, such societies try to feel more secure by creating a sense of control through high level of avoiding uncertainty by relying on formal rules and procedures that impeded in boundary control system.

**c) *High uncertainty avoidance and diagnostic control system***

Societies of strong uncertainty avoidance culture try to feel secure by avoiding risk and be more assertive (Hofstede et al., 2010). Hofstede and Hofstede (2004) noted that, societies of strong uncertainty avoidance feel threatened by ambiguous or unknown situations. Consequently, such societies will try to feel more secure by creating a sense of control through high level of avoiding uncertainty, which may influence the behaviour of the top management in the process of preparing diagnostic control components such as profit plans and budget to be as much as possible achievable with the aim of avoiding risk and any future uncertainty. Furthermore, managers in such culture will try to exclude any uncertain factor from those plans and budget to avoid any future problems regarding the achievements of those plans and budgets, since they are anxious about their future (Hofstede et al., 2010). This assumption is harmonic with Chow et al., (1999), whom conclude that people from high uncertainty avoidance culture prefer to exclude any factors that are beyond their control in evaluating their performance. As a result, diagnostic control under such kind of culture are supposed to be carefully designed and used to avoid uncertainty.

**d) *High uncertainty avoidance and interactive control system***

Strong uncertainty avoidance societies are wary about their future; indeed, the anxiety is inherent in themselves (Hofstede & Hofstede, 2001). Thus, such anxiety may influence the behaviour of top management regarding the use of interactive control. In this context, those managers will try to decrease anxiety by using MCS interactively to ensure that their future is more secure, since members of such culture feel threatened by ambiguous or unknown situations (Hofstede & Hofstede, 2004), which encourage them to personally deal with any potential source of uncertainty. This assumption, is consistent with previous sociological research that predict such behaviour (e.g. Hofstede,1980). Thus, Managers from strong uncertainty avoidance culture will try to feel more secure by creating a sense of control through using MCS interactively. Based on the above discussion, hypothesis H2, illustrates the expected association between high uncertainty avoidance culture and LOC.

**H2:** There is a significant association between high uncertainty avoidance culture and LOC.

**iii. *High Power Distance Culture and Levers of Control***

This section discusses the relationship between high power distance culture and each dimensions of levers of control – beliefs control system, boundary control system, diagnostic control system and interactive control system.

**a) *High power distance and beliefs control system***

Power distance represents "the extent to which less powerful members of institutions and organizations within a country accept that power is distributed unequally" (Hofstede et al., 2010, p. 61). Power distance was theoretically identified as the main cultural dimension that determines the appropriate relationship between the superior and subordinate, top management and middle management (Harrison, 1993; Hofstede, 1984). In this context, Simons (1995), commented on the importance of decreasing the distance between middle managers and top management with the purpose of inspiring middle managers to participate in beliefs control system to transform organizational beliefs into action and strategies. He stated; "*Middle managers are especially important in identifying and creating strategic initiatives, these managers will not become enthusiastic participants in the search for opportunity if they do not understand the beliefs of the organization and are not invited to participate in transforming those beliefs into action and strategies*" (p. 37).

**b) *High power distance and boundary control system***

As the boundary system is responsible to impose limits and constraints on organizational activities (Simons, 1995), top management in high power distance culture are expected to use boundary system with the intention of maintaining high distance between top and middle managers as well as to keep distance between organization managers and the rest of organization members due to the influence of high power distance characteristics, especially the propensity toward maintaining high distance between ruler and the ruled. Consequently, boundary systems under this kind of culture will be designed and used to maintain this distance between superiors and their subordinates, which will assist in setting the appropriate limits and constraints on opportunity seeking behaviour that was established and motivated by beliefs system. In doing so, the fundamental aim of the boundary system in providing the optimal control techniques through imposing constraints such as code of conduct, proscribed behaviour, rules and procedures, action to be avoided as well as limits that are established based on pre-defined business risk (Simons, 2000), will be completely established.

**c) *High power distance and diagnostic control system***

Diagnostic control is responsible to measure the actual performance of the company in comparison with the expected through setting plans, budget, and objectives (Simons, 2013). The possible influence of high power distance culture, in this case might result in setting those plans and budgets in the top management office with formal appropriate communication between top management and lower level management. In fact, exploiting boundary system in establishing and maintaining high distance between high and low organization members as was discussed earlier may assist in setting plans and budget in superior office after appropriate communication with their subordinates, because such distance will extend to influence the communication channels all over the organization and that may encourage low-level managers or their employees to participate or give their point view regarding those plans and/or budget, and that may result in setting relevant and achievable plans and/or budget.

**d) *High power distance and interactive control system***

Interactive control represent to which level top managers will engage personally in monitoring the outcome of any control systems, to stimulate search and learning in order to allowing new

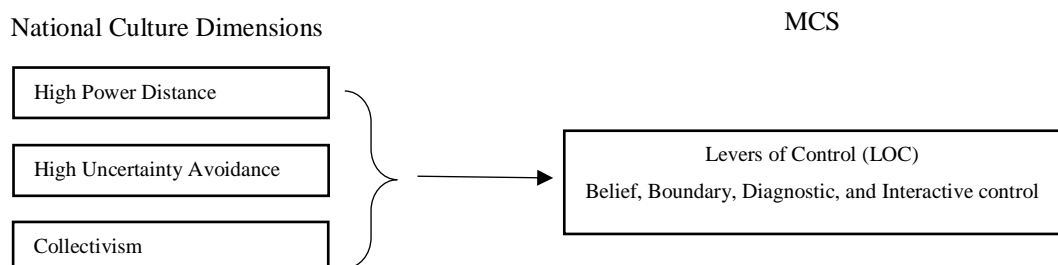


strategies to emerge (Simons, 1990). This in turn, required high level of communication and coordination between superior and their subordinates. By contrast, high power distance societies are described by formal distance between superior and subordinate (Harrison, 1993; Hofstede, 1984). This formal distance is expected to have its influence on the relationship between superiors and their subordinates, which will assist in improving the communication effectiveness between both of them to be more clear and direct to the point. Appropriate communication between top managers and lower-level managers is fundamental to the effectiveness of interactive use of any control system (Simons, 2013). Based on the above discussion, the following hypothesis (H3), present the expected association between high power distance culture and LOC.

**H3:** There is a significant association between high power distance culture and LOC framework.

### Theoretical Framework

Based on Simons (1995) LOC and Hofstede (1980) cultural dimensions the theoretical framework is illustrated in Figure1.



**Figure 1: Theoretical framework**

### Methodology

#### *Population and Sample*

The population of this study is the Palestine firms listed on the Palestinian Stock Exchange (here after called PSE). The PSE is in its infancy when compared with well-established stock markets of the world. The PSE was established in 1997 by the Palestinian National Authority after the Oslo accord in 1993 (Abushammala, 2014; Daraghma & Alsinawi, 2010). However, while most previous studies have explored the manufacturing industry (e.g., Abdel-Kader & Luther, 2008; Baines & Langfield-Smith, 2003; Chenhall & Morris, 1986; Hoque, 2004; Widener, 2007), this current study is multi-industry, which might contribute to previously unavailable multi-industry insights that would enhance knowledge.

In 2015, 49 firms were listed on the PSE (PSE, 2015). Most of these firms can be characterized as family-owned with family members holding the key management positions (Abdelkarim & Alawneh, 2009; Awad & Daraghma, 2009). An analysis of the current 49 listed firms sector shows that there are five predominant sectors on the PSE. They are: 1) banking, 2) insurance, 3) investment, 4) services and 5) industrial sectors (Abu-Libdeh & Harasheh, 2011; Alkhatib & Harasheh, 2014). The distribution of those listed firms is further illustrated in Table 4.1

**Table 1: The Distribution of Palestinian Listed Firms**

<b>Investment</b>	<b>Number of companies</b>	<b>Percentage</b>
Services	9	18.4 %
Banking and financial services	12	24.5 %
Insurance	9	18.4 %
Industrial	7	14.2 %
Investment	12	24.5 %
Total	49	100%

Palestinian listed firms have been noted for exhibiting an uneven performance. Some firms are able to generate profits while facing all the obstacles in the uncertain Palestinian environment, while some others have had capital losses for more than five years and continue to operate with the hope of generating profits in the future. Some face declining stock prices; meanwhile some work on recovery in an out-of-control environment.

The reasons to choose Palestinian listed firms as the population of this study were several. First, they have had financial performance problems as 30% of these companies have faced losses in the last five years and another 10% have continues losses without any chance to stop their losses or even to reach break-even point in the last five years, namely, from 2010-2014. Second, they cover the all available industries and geographical regions in Palestine. Third, they have publicly available financial data. This is an issue for as Dik (2011) stated that “business and economic information on companies is difficult to obtain in most Arab companies, only if they are listed in the stock exchange market or forced by governmental or regulatory institutions to submit their financial or business data” (p. 99). Finally, listed firms in general represent the formal procedure of management accounting and control practices, which implies that listed firms follow predetermined rules, procedures, and policies due to restrictions imposed on their behaviour through boards of directors and the stock market.

Sampling and the decision about which of the 49 Palestinian listed firms to include in the sample size is crucial for business research (Maxwell, 2005). To that end, and as the population of this study is small, Zikmund (2003) noted that, when the sample units in the population are limited, the researcher may select to study the whole population rather than taking a sample for the study. Nevertheless, the determinants factor for selecting from those 49 listed firms is that firm must have been operation for at least the past five years to ensure that the firm has the appropriate experience, especially with its external environment and its MCS. As per this condition, the all of 49 Palestinian listed firms comprises a valid sample and have been included in the sample for the purposes of this study.

### ***Data Collection***

Survey questionnaire with a cover letter was personally distributed to the top-managers of the Palestinian listed firms. In this study, the top-managers are as respondents since they are knowledgeable about the firm’s MCS. A total of 98 questionnaires were distributed to the CEOs and CFOs of the 49 Palestinian listed on the Palestine Stock Exchange (PSE). A total of 82 questionnaires were ultimately collected from 41 companies while the remaining 8 companies either did not respond or refused to participate. Three of the total respondents (82) failed to complete the questionnaires, citing reasons such as staffing constraints, contravening company rules, and a huge amount of missing data. According to Hair, Black, Babin, and Anderson (2010), it is better to exclude the respondent if the missing value greater than 50%.

Consequently, a total of 79 completed questionnaires, which represented a response rate of 80.6% was used to perform data analysis. For the purpose of testing response bias, the t-test was conducted for early and late response as suggested by (Armstrong & Overton, 1977). No statistically significant differences were found in the mean score on the MCS, organizational learning, and firm's performance between the early and late respondents.

### ***Variables Measurement***

This study is based on LOC framework, which is dependent upon the extent to which firms emphasize the use of beliefs, boundary, diagnostic and interactive control system. Each of beliefs and boundary systems was measured by using items adopted from Widener (2007). Respondents were asked to choose their preference from a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), to indicate the emphasis place on each of belief and boundary systems in their control system. The diagnostic and interactive use of MCS was measured by using items adopted from Henri (2006). Participated managers were asked to select their preference from a five point Likert ranging from 1 (Never) to 5 (Always), to indicate the emphasis they place on diagnostic and interactive system in controlling their organization. National culture dimensions have been measured using 12 items adapted from Values Survey Module 1994 (VSM 94) of Hofstede and Hofstede (2001). These 12 indicators were used to determine the impact of high power distance, high uncertainty avoidance and collectivism culture on MCS design. The respondents were asked to indicate their response on a five point Likert scale (1= strongly disagree to 5 = strongly agree).

### **Data Analysis and Findings**

This study used a Partial Least Square (PLS-SEM), precisely, SmartPLS version 2 to analyse the data. Table 2 provides outer convergent validity for all items with respect to its variables. All factor loading of the research measurements exceed the cut-off 0.70. Similar, reliability test of this study was confirmed as all value of composite reliability exceed the recommended cut-off 0.70 (Hair, Black, Babin, & Anderson, 2010), and range between 0.881 to 0.941 as presented in Table 2. In addition, the recommended standard value of average variance extracted (AVE) was found to be greater than 0.50 as suggested by Fornell and Bookstein (1982), in order to ensure that the latent variable has the ability to explain more than half of the variance of its indicator on average.

**Table 2: Outer model, Convergent Validity and Composite Reliability**

<b>Construct</b>	<b>Items</b>	<b>Loading</b>	<b>CR</b>	<b>AVE</b>
<b>Beliefs</b>	Mission statement communicates values	0.878	0.921	0.744
	Top managers communicate values	0.849		
	Workforce is aware of values	0.877		
	Mission statement inspires our workforce	0.846		
<b>Boundary</b>	Defines appropriate behavior	0.890	0.893	0.676
	Informs about off-limits behavior	0.770		
	Communicate risks to be avoided	0.804		
	Workforce aware of code of conduct	0.819		
<b>Diagnostic</b>	Track progress towards goals	0.893	0.911	0.719
	Monitor results	0.826		
	Compare outcomes to expectations	0.816		
	Review key measures	0.854		
<b>Interactive</b>	Enable discussion in meeting of superiors, subordinates and peers.	0.756	0.941	0.694
	Enable continual challenge and debate of underlying data, assumption, and action plan.	0.859		
	provide common view of the organization.	0.831		
	Tie the organization together.	0.860		
	Enable organization to focus on critical success factors.	0.843		
	Develop a common vocabulary in the organization	0.843		
	Enable the organization to focus on common issues	0.835		
	Enable discussion in meeting of superiors, subordinates and peers.	0.756		
Enable continual challenge and debate of underlying data, assumption, and action plan.	0.859			
<b>Power distance</b>	Subordinates are frequently afraid to express disagreement with superiors.	0.783	0.863	0.678
	There are considerable distance between top managers and middle managers.	0.862		
	There are considerable distance between middle managers and organization members.	0.824		
<b>Collectivism</b>	Our company prefers to communicate its results with its members.	0.799	0.828	0.617
	Organization managers prefer to work individually rather than to work in-group.	0.732		
	Our company prefer group decision making.	0.823		
<b>Uncertainty Avoidance</b>	A company or organization's rules should not be broken.	0.750	0.869	0.626
	Our company has specific rules, procedures, and work laws.	0.898		
	Our company extremely implement its rules, procedures, and work laws.	0.729		
	The company allows its members to search for new ideas and opportunities.	0.776		

Latent variable correlation which examining the correlations between the measures of potentially overlapping constructs appear in Table 3. The table clearly shows that the values of all square root of AVE (Bold values) exceed the correlation with other constructs (elements in the rows and columns), which manifest the discriminant validity of this study.

**Table 3: Latent Variable Correlations**

	(BS)	(BOS)	(COLL)	(DS)	(IS)	(PD)	(UA)
Belief System (BS)	<b>0.863</b>						
Boundary System (BOS)	0.765	<b>0.875</b>					
Collectivism (COLL)	0.694	0.665	<b>0.816</b>				
Diagnostic System (DS)	0.639	0.555	0.588	<b>0.767</b>			
Interactive System (IS)	0.612	0.633	0.543	0.759	<b>0.883</b>		
Power Distance (PD)	0.297	0.405	0.399	0.256	0.279	<b>0.822</b>	
Uncertainty Avoidance (UA)	0.644	0.650	0.621	0.646	0.602	0.257	<b>0.791</b>

As this study proof its measurements validity and reliability, then, the bootstrapping approach is used to test research hypotheses. Path coefficient of the research hypotheses illustrated in Table 4. Research hypotheses (H1 & H2) that predict positive and significant association between each of collectivism and high uncertainty avoidance with LOC framework, was highly supported at p-value ( $P < 0.01$ ). By contrast, H3 that concern about the association between high power distance and LOC framework (H1), was rejected as the p-value is greater than 0.05. Table 4 illustrates the results.

**Table 4: Path Coefficient of the Research Hypotheses**

Hypotheses	Relationship	Std. Beta	T- value	P-value	Result
H1	Collectivism $\rightarrow$ LOC	0.362	4.61	0.000	Supported**
H2	High uncertainty avoidance $\rightarrow$ LOC	0.408	5.55	0.000	Supported**
H3	High power distance $\rightarrow$ LOC	-0.037	0.59	0.278	Not supported

Significant at  $P^{**} = < 0.01$

## Discussion and Conclusion

This paper sought to examine the influence of national culture on MCS, in particular on levers of control framework (LOC). It was hypothesized in first hypothesis (H1) that, collectivism culture is positively associated with LOC framework. The path coefficient of this relationship was supported at ( $\beta = 0.362$ ,  $t = 4.61$ ,  $p < 0.000$ ). This finding is theoretically consistent with previous contingent-based research such as (Harrison & McKinnon, 1999; Van der Stede, 2002; Bond et al., 1982; Ueno & Sekaran, 1992; Harrison, 1993; Leung & Bond, 1984), who confirm positive significant association between collectivism culture and MCS design. The theoretical base of this association is that the more the society have high rank on collectivism culture scale the more the preference to design MCS will be different from individualism society. For example, there is a tendency in cross-cultural research on MCS to assume that collectivist societies prefer groups over the individual (Harrison & McKinnon, 1999). Hence, as Arab society is ranked with high level of collectivism, work is carried out in the name of group. Accordingly, performance evaluation in some Arab companies is measured according to group scores of achievements, which reflect the importance of the collectivism culture in the context of the Arab MCS. This result gives supports to the claim of Hofstede et al., (2010), who noted that people of collectivism culture from birth onwards are integrated into strong and cohesive in-groups.

Furthermore, the current result is in line with a variety of previous contingent-based research that predict organizational behaviour as well as employees' behaviour under collectivism culture, such as: decision making process (Harrison et al., 1994), incentive schemes (Chow et al., 1994; Chow et al., 1991; Merchant et al., 1995) and participation (Chow, Kato, & Merchant, 1996; Harrison, 1992). Those preferences are driven by collectivism culture (Harrison and McKinnon, 1999). As a result, information exchange in the collective cultures disseminates easily and very fast. Hence, in regard to the decision-making, information can be exchanged between top managers quickly through informal talking, and then a final decision is made. Consistently with Alattar et al. (2009), Arab companies such as Palestinian companies rely to a great extent on oral communication. This finding support the theoretical description of the cultural dimensions of Arab World.

In the second hypothesis (H2), it was hypothesized that, there is a positive association between high uncertainty avoidance culture and LOC framework. The path coefficient was also accepted at ( $\beta = 0.408$ ,  $t = 5.55$ ,  $p < 0.000$ ). This accepted association between high uncertainty avoidance culture and MCS is harmonize with previous research grounded in contingency theory, who confirm positive significant influence of the uncertainty avoidance culture on the preferences of MCS design (Chow et al., 1999; Harrison & McKinnon, 1999; Harrison, 1993; Ueno & Wu, 1993; Van der Stede, 2002; Leung & Bond, 1984). The theoretical background of this association is built upon the characteristics of high uncertainty avoidance culture. Sociologists such as Hofstede et al., (2010), described high uncertainty avoidance societies that they adhere to strict laws, rules, security, safety, autocratic style of management and control with a preference for rule-based as they believe that absolute truth is the only way to confront uncertainty (Hofstede & Bond, 1988). This means Palestinian manager avoid uncertainty by designing restricted MCS due to the influence of their culture, which become the best way to harmonize their personality characteristics. Thus, managers of high uncertainty avoidance culture try to feel more secure by relying on strict laws, rules, security, procedures and safety. In addition to that, since Palestinian environment is dominated by high level of the environmental uncertainty (Shurafa & Mohamed, 2016), designing autocratic style of MCS might be the way to avoid uncertainty in such society.

Finally, hypothesis (H3), that concern about the association between high power distance culture and LOC framework, was rejected at ( $\beta = -0.037$ ,  $t = 0.59$ ,  $p < 0.28$ ). This result is not surprising since it is in line with the findings of Merchant et al., (1995), who cannot find significant association between national culture dimensions and MCS. However, power distance was theoretically identified as the main cultural dimension that determines the appropriate relationship between the superior and subordinate, as well as within the entire organization hierarchy (Harrison, 1993; Hofstede, 1984; Hofstede & Hofstede, 2010). In this context, the empirical result of the current study should be read in the context of the previous studies. Harrison et al. (1994), reported that, Asian countries as high power distance societies, the emphasis is associated with group decision making as a result of high power distance influence. In the context of the Palestinian companies, group decision making was determined by the influence of the collectivism culture that dominating Palestine, rather than the effect of the high power distance culture. Therefore, in the Palestinian companies the appropriate relationship between the superior and subordinate, as well as within the entire organization hierarchy, was determined by the influence of the collectivism culture instead of high power distance culture.

However, national culture is an important antecedent factor of MCS design, since there is accumulated evidence that each nation has its special national characteristics, which reflected in its philosophies and approach of MCS design (Chow et al., 1991; Daley et al., 1985; Harrison et al., 1994). In conclusion, we recommended for future research to repeat this study in different Arab countries to find whether all of the 22 Arab countries share the same preferences in the philosophy and approach of MCS design or there are clear differences between them. In addition, its useful to replicate this study outside the Arab countries. In particular, in any country that share the same culture characteristics with Arab world based on Hofstede cultural scale to examine whether same culture will lead to same philosophy and approach of MCS design or there are clear differences even in the countries that share same culture characteristics.

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