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Effects of Management Control Systems and Strategy on Performance of Minority-Owned Businesses

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This is to certify that the doctoral dissertation by

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

This study addressed the perceived relationships among management control systems, business strategy, and organizational performance in U.S. minority-owned manufacturing businesses. Hofer's contingency theory provided a framework for the study, which included a quantitative, survey-based correlational design. Research questions focused on the relationship between financial- and nonfinancial-based management control systems as well as low-cost leadership and differentiation strategies, and how these practices impacted organizational performance. A random sample of 1,000 participants was selected from a population of 2,583 minority-owned manufacturing businesses in the United States. Results of the principal component analysis, Pearson's zero order correlation coefficient, and multiple regression analysis indicated that financial- and nonfinancial-based management control systems and differentiation strategies were significantly positively related to organizational performance. Low-cost leadership strategy was positively related to organizational performance but was not statistically significant. This study could promote positive social change by providing organizational finance managers with information regarding the appropriate mix of financial and nonfinancial management control system strategies necessary to achieve desired organizational performance.

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Dedication

This study is dedicated to the Lord Jesus Christ, who gave me the grace to complete the doctoral education that culminated in this dissertation. I am also thankful to Jesus Christ for the unconditional support of my family, whom I designate as my cheerleaders. Finally, this work is dedicated to the memory of Godfrey and Martina Obinozie.

Acknowledgments

The completion of doctoral education that climaxed in this dissertation involved a great deal of intellectual, moral, and material support. It would have been impossible to attain such a height without the help, advice, and encouragement of others. It is in recognition of such assistance that I acknowledge the unconditional support of my family.

My debt of gratitude goes to my mentor and dissertation committee chair, Dr. Jeffrey Prinster, for his mentorship, support, and intellectual guidance during the completion of this dissertation. My profound thanks go to Dr. Mohammad Sharifzadeh for readily accepting to serve on the dissertation committee as the methodologist. I also thank Dr. Judith Forbes for reviewing my work and providing useful comments. I am indebted to all of you, especially for your suggestions, criticisms, and vigilant detection of errors.

Perhaps nothing better indicates the interest in the topic than the number of colleagues at Walden University and friends on whose experience I drew in making improvements at each stage of the dissertation. To all of you too many to mention, I say thank you for the intellectual support.

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Chapter 1: Introduction to the Study

It is well established that management control systems (MCS) are used in business organizations across the globe. In his seminal work, Simons (1995b) explained that management control relates to "the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities" (p. 5). These procedures include, but are not limited to, all managerial activities that enable managers to design and implement organizational strategies (Merchant & van der Stede, 2007). These activities encompass all the mechanisms (strategic planning; budgeting; unit-level resource allocations; performance measurement, evaluation, and reward; transfer pricing) managers employ to ensure that the behaviors and decisions of their subordinates are consistent with organizational objectives and strategies (Anthony & Govindarajan, 2007; Merchant & van der Stede, 2007).

The important role MCS plays in organizations has evolved. It began as a formal feedback and control systems mechanism supporting the organization, organizational learning, and innovation. From the academic perspective, MCS has always been identified as an important tool for the management of organizations. However, one notable fact is that the use of MCS among organizations is limited (Otley, 2003) and is most often restricted to the use of traditional techniques such as budgetary control mechanisms. Use of MCS as a traditional accounting tool is rampant among organizations in developing countries. For example, this practice is common among Sri Lankan organizations (Fonseka, Manawaduge, & Senaratne, 2005). Growing research evidence has emerged suggesting that inappropriate use of MCS can result in

dysfunctional behavior among employees, thereby negatively influencing organizational performance (Fonseka et al. 2005). The most common occurrences of dysfunctional behavior include manipulation of actual data either to improve performance or to avoid unpleasant outcomes caused by reporting the actual data. One control mechanism that fuels such behavior is the budgetary control system, which, while appearing outwardly rational, has the potential to cause dysfunctional behavior. Furthermore, reward systems used to improve employee performance sometimes compound these tendencies. Therefore, it is vital to identify how MCS contributes to improving organizational performance and profitability.

Beyond these caveats, however, Simons (1995a, 1995b) argued that MCS is critical in helping top managers formulate strategies, specify the operational actions required to implement those strategies, spell out mutual expectations, specify priorities for operational improvements, and set targets that direct current and subsequent performance levels. This way, MCS enables managers to accomplish key strategic objectives. First, MCS helps managers to make the right decisions by aligning their objectives with the objectives of the organization they serve as well as to keep track of managers' performance so that they can take corrective actions in real time where necessary. Second, MCS enables managers to provide strategic direction to the innovative efforts of their organizations through efficient resource utilization (Arachchilage & Smith, 2013). Finally, MCS can motivate the managers themselves. For example, at the beginning of each year, managers can negotiate their objectives and the resources necessary for their achievement with their superiors. At the end of the year, the

performance of every manager can then be compared with the results they attained. Confirming this point, van der Stede (2000) found that organizations typically link managers' material rewards to their bonuses and how well their unit achieved budgeted performance results. Thus, managers' capability to meet budgetary objectives is certainly one of the critical factors in their performance evaluation. Beyond the material reward, however, there is also an intrinsic aspect to the reward package. That is, managers whose units achieve their budgeted goals may more likely perceive themselves as managerial high performers, which is a source of psychological reward in the form of self-esteem (Merchant & Manzoni, 1989).

It is equally important to understand that there may be a negative aspect to MCS (Libby & Lindsay, 2010). Instead of motivating managers and encouraging them to contribute to the achievement of company objectives, MCS may instead induce unethical behaviors that may include, but not be limited to, the creation of budgetary slack (Libby & Lindsay, 2010; Merchant, 1990) and data manipulation (Merchant, 1990).

Background of the Study

The background to this study is traced to Johnson and Kaplan's (1987) seminal publication, *Relevance Lost: The Rise and Fall of Management Accounting*. Scholars concur that this book represented a paradigm shift in management accounting (Lee, J., Elbashir, Mahama, & Sutton, 2013; Lee, M. T., Fin, & Widener, 2013). Briefly, prior to Johnson and Kaplan's work, the traditional management accounting procedures were static in their focus on the managerial role in planning, decision-making, and control in the face of a changing business environment. Johnson and Kaplan argued that the

traditional focus was often "too late, too aggregated and too distorted to be relevant to planning, decision making and control" (p. 1).

Consequently, Johnson and Kaplan (1987) asserted that, in order for management accounting to be applicable to management controls in organizational settings, management accounting processes must dynamically align themselves with environmental changes in business rather than be a victim of these changes. In response, management accounting scholars began to capitalize on the advancement opportunities offered by new information technology and computers in the development of new MCS innovations. This included, but was not limited to, activity-based cost management (ABC/M), activity-based budgeting (ABB), and management control systems (MCS). The third item is the focus of this study.

There has been growing evidence in the research literature related to MCS research (Acquaah, 2013; Chenhall, 2003; Henri & Journeault, 2010; Lee & Yang, 2011; Schaltegger & Burritt, 2000; Simons, 1987, 1990, 2000; Tsamenyi, Sahadev, & Qiao, 2011). These studies have contributed to scholarly knowledge of MCS theory as well as to managerial practice on management accounting control (MAC) and MCS. However, even though advances have been made in these areas, critical research gaps still exist (Acquaah, 2013; Chenhall, 2003). Evidence of these critical research voids has been underscored in at least two separate international conferences on MAC and MCS (Management Control Association, 2004, 2010). Specifically, at the 8th International Management Control Research Conference (Management Control Association, 2010) at

the University of Greenwich, London, calls were made for further scholarly research focusing on the following:

1. conceptual and empirical frameworks for management control,
2. changes in organizational control systems, and
3. managerial and organizational performance.

Another research conference was held on the Changing Roles of Management Accounting as a Control System on April 7-9, 2005, at the University of Antwerp, Belgium (Management Control Association, 2004. At this conference, specific calls were made for more research on management accounting issues broadly related to controls, specifically on the following topics:

1. change(s) in control (the role of financial and nonfinancial control systems in change management),
2. methodological papers on controls,
3. challenges and future developments in management accounting controls, and
4. strategy and management accounting controls.

The areas pinpointed above represent research gaps to be filled. Other researchers on MCS have specifically identified research gaps in strategy and MAC (Tsamenyi et al. 2011), and this is where I expected to make a contribution.

In addition to research calls at conferences, there have also been compelling scholarly calls for research on the same voids related to MCS. For example, even though Malmi and Brown (2008) made a compelling argument that no scholarly agreement exists on the conceptual and operational definitions of MCS in the extant literature, scholarly

research efforts have not adequately addressed this issue. Malmi and Brown concluded that "some authors have outlined very broad conceptions of what could be considered MCS" (p. 289). Lamenting this void several years earlier, Chenhall (2003) was also concerned that the limited conceptual and empirical research on MCS had been a roadblock against desirable scholarly progress on the strategic implementation of MCS by managers. These research voids on MCS have academic as well as managerial significance (Chenhall, 2003).

However, Tsamenyi et al. (2011) investigated the linkages between these three key variables in management accounting, but with three important exceptions as they relate to this current study. First, Tsamenyi et al.'s study was not designed to examine the linkages between these three variables in minority-owned businesses. Instead, Tsamenyi et al. gathered data from a population of respondents "chosen from the yellow pages of the telephone directory of Urumuchi in Xinjiang, China" (p. 197). This source of data clearly indicates that the Tsamenyi et al.'s study was not by design positioned in minority-owned businesses. Second, Tsamenyi et al. conducted their research in China, while my study was conducted in the United States. To the degree that China and the United States differ in their business environments, one would expect different outcomes from the same study conducted in two different countries. Third, in contrast to the research of Tsamenyi et al. the current study targeted specifically manufacturing business organizations designated as minority-owned. This way, inter-industry confounding effects were mitigated. Even though I aim not to critique the Tsamenyi et al. study, I attempted to improve upon their study. Specifically, Tsamenyi et al. failed to control for

the effects of inter-industry confounders in their sample from many industries; I controlled for these relationships, and consequently the outcomes of the two studies were different. By controlling for inter-industry confounders, I filled a meaningful research gap and built upon the research done by Tsamenyi et al.

I used a dimension reduction statistical technique (exploratory factor analysis) to uncover the conceptual and the empirical domains of the MCS construct. Bridging this research gap was important because the empirical domain of the MCS construct was unknown to scholars (Chenhall, 2003; Malmi & Brown, 2008). Unfortunately, this neglect persisted in spite of the calls made for more research in this important area to enhance understanding of the domain of MCS to benefit managers. Moreover, this issue was made even more problematic by the diversity of conceptual definitions of MCS (Malmi & Brown, 2008; Mundy, 2010). By investigating the empirical domain of the MCS construct, I made another managerial and academic contribution to the MCS construct and research, thereby helping to bridge the research gap.

I responded to calls for research to fill some of the gaps on MCS because the importance of MCS for both corporate managers and management accounting researchers had been well established (Bisbe & Malagueno 2012; Fisher, 1995, 1998; Tsamenyi et al. 2011), and particularly because MCS is a source of sustainable competitive advantage for firms that adopt it (Acquaah, 2013; Chenhall, 2003; Lee & Yang, 2011; Simons, 1990, 2000). Moreover, I accomplished this research objective by positioning my study within minority-owned business organizations, which was an under-researched business population (Acquaah, 2013), and made a significant contribution to employment and

economic development, as recently affirmed by American Express Open's (2013) "The State of Women-Owned Businesses, 2013." Insights from the results of this study can sharpen scholarly knowledge of the strategic role of MCS for minority-owned business firms as well as inform managers of minority-owned manufacturing business organizations on the strategic benefits of MCS and business strategy linkages (Acquaah, 2013).

Statement of the Problem

The problem addressed in this study is to understand the perceived relationships among management control systems, business strategy, and organizational performance in minority-owned manufacturing businesses. I conducted an empirical study positioned within the broad categories of management accounting control (MAC) and management control systems (MCS), which are closely related areas (Jansen, 2011), but I narrowly focused on MCS in light of current empirical research on MCS (Acquaah, 2013; Cheng, Luckett, & Mahama, 2007; Franco-Santos, Lucianetti, & Bourne, 2012; Hall, 2008; Tsamenyi et al. 2011). Because of the close relationship between MAC and MCS (Jansen, 2011), empirical studies in these areas are now being positioned as follows:

1. Strategic performance measurement systems (SPMS) focuses on the effects of SPMS on organizational performance mediated by sound strategy implementation (Bisbe & Malagueno, 2012; Crabtree & DeBusk, 2008; De Geuser, Mooraj, & Oyon, 2009).

2. Contemporary performance measurement (CPM) investigates hypothesized importance of financial and nonfinancial performance measures on organizational strategy and performance (Cheng et al. 2007; Franco-Santos et al. 2012; Hall, 2008).

3. Environmental management accounting (EMA), of which eco-control is a subset, focuses on allowing managers to apply financial and strategic control mechanisms to environmental management, thereby positively impacting organizational performance indirectly through the impact on the environment (Henri & Journeault, 2010; Schaltegger & Burritt, 2000).

4. The contingent relationship among MCS, organizational business strategy, and performance (Tsamenyi et al. 2011).

Stated in simple terms, I sought to understand through empirical investigation the relationship among management control systems, business strategy, and organizational performance, with the theoretical expectation that organizational performance would be contingent on two things: MCS and business strategy.

Previous researchers in the field had contributed to both scholarly knowledge and managerial practice on MAC and MCS. However, critical research gaps still remained, as indicated in at least two separate international conferences on MAC and MCS (Management Control Association, 2005, 2010), as noted above. In these international conferences, calls were made for further research on MAC, of which MCS is a subset (Jansen, 2011). Empirical investigation of the relationship among business-level strategy, MCS, and performance for minority-owned business organizations was an overlooked yet critical research gap. I conducted a literature search to identify peer-reviewed studies that addressed minority-owned business organizations and focused on the relationship among the three variables: MCS, business strategy, and organizational performance. I found no previous or current study that addressed the relationship among the three key variables.

Purpose of the Study

The purpose of this quantitative, survey-based correlational study was to use the conceptual framework of contingency theory to empirically investigate the relationships among three key variables:

1. management control systems (MCS),
2. business strategy, and
3. organizational performance.

As depicted in Figure 1, MCS and business strategy are the independent variables, while organizational performance is the dependent variable. This study posed the following question: What amount of variance in the dependent variable (organizational performance) can be explained by the two independent variables (MCS and business strategy)? The independent variables can explain the variance in the dependent variable only if the independent variables are positively related to the dependent variable. The answer to this question is the burden of this quantitative research, as many researchers would agree (Creswell, 2003, 2014; Tsamenyi et al. 2011).

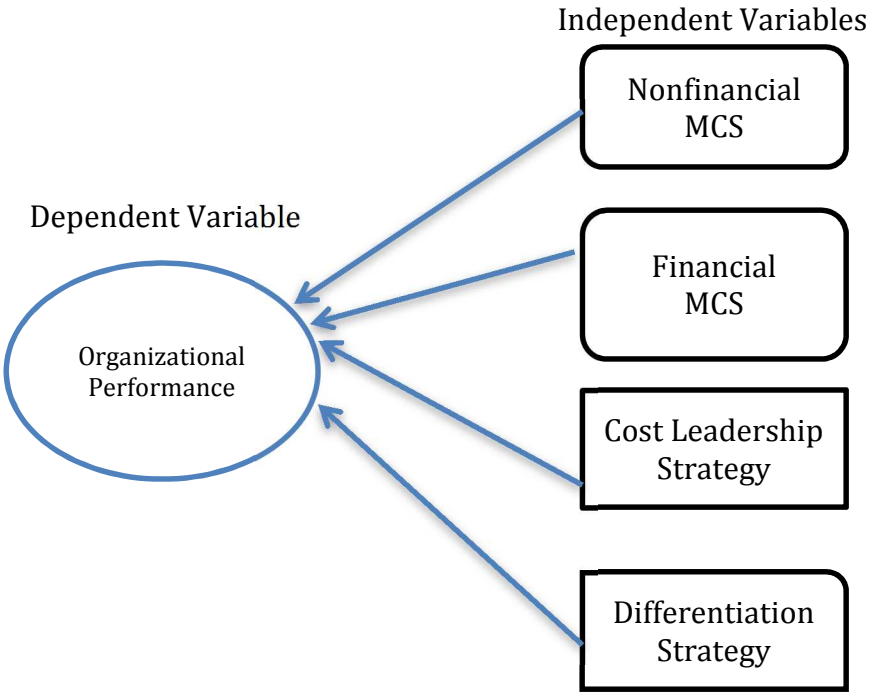

Figure 1. Theoretical model suggesting the relationships of the independent variables and the dependent variable.

Management accounting researchers have conducted research aimed at sharpening their understanding of the contingent relationship between MCS and business strategy as they affect organizational performance (Chenhall, 2003). For example, Tsamenyi et al. (2011) examined a sample of Chinese enterprises. However, an empirical investigation of a sample of minority-owned businesses is an important, yet neglected research void. Hence, it was the primary objective of this dissertation research to empirically investigate the contingent relationship among MCS, business strategy, and organizational performance on a sample of minority-owned manufacturing businesses in the United States of America. Tsamenyi et al. (2011) concluded that it is well established that organizational business strategy has "become an important contingency variable in the

study of how MCS can be used to improve organizational performance" (p. 194) in China and elsewhere. Based on this inferred positive relationship among MCS, business strategy, and organizational performance, it remained to be seen whether the expected positive relationship among these variables in the case of a sample of minority-owned manufacturing businesses in the United States could be empirically established. This was the burden of this dissertation research.

Research Questions and Hypotheses

In this study, efforts were made to empirically investigate the hypothesized positive relationship of management control systems (MCS) and business strategy on organizational performance within the conceptual framework of contingency theory (Fisher, 1995; Hofer, 1975; Kald, Nisson, & Rappt, 2000). Four research questions were investigated. Before these research questions and the hypotheses associated with them can be stated, operationalization of the variables in the study must be clearly described. This is because it is well established that the manner in which variables are measured (operationalized) is a critical determinant of the type of statistical technique(s) to be used in testing the hypotheses of the study to answer the research questions posed, especially the operationalization of the dependent variable of the study (Babbie, 2010; Creswell, 2003, 2014; Manheim, Rich, Willnat, & Brians, 2011; Singh, 2007).

Specifically, for the purpose of this research, simple linear regression and multiple linear regressions were used. As a result, a fundamental statistical requirement arose: the dependent variable (organizational performance) needed to be operationalized as a metric or continuous variable. This requirement was underscored because, in this

research, all the variables were operationalized by use of a Likert-type scale, including the dependent variable of organizational performance. Alternatively, the question can be rephrased as follows: Do data collected using a Likert-type scale satisfy the requirements of continuous metric data? In the statistical methodology literature, this question remains controversial. Even though this issue is described in full in Chapter 3, a brief description of the method that was used to transform the Likert-type data on the dependent variable (organizational performance) into continuous metric data is presented by use of Figure 2. Previous peer-reviewed research studies in the management discipline have included the same method (Martin-Tapia, Aragon-Correa, & Guthrie, 2009; Oladapo & Onyeaso, 2013).

	(1) 0-20% Significantly below Average	(2) 21-40% Less Significantly below average	(3) 41-60% Average	(4) 61-80% Slightly above Average	(5) 81-100% Significantly above Average
(1) ROI					
(2) Profitability					
(3) Cash flow from operation					
(4) Cost control					
(5) New Product Development					
(6) Sales turnover					
(7) Market share					
(8) Market Development					
(9) Human Resource Management					

Figure 2. Martin-Tapia, Aragon-Correa, & Guthrie (2009) Likert scale modification. *Compare the following aspects of your company's performance to that of your biggest competitor and express the extent to which they are similar on the scale provided against each aspect.*

As presented in Figure 2, the 5-point Likert scale items were anchored as follows: 1 represented 0-20% for significantly below average, 2 represented 21-40% for below average, 3 represented 41-60% for average, 4 represented 61-80% for above average, and

5 represented 81-100% for significantly above average. Even though the physical Likert scale did not possess interval properties, the percentages captured had interval properties. Researchers conducting empirical studies in management have begun to follow Martin-Tapia et al. (2009) using this form of modified Likert scales. For example, Oladapo and Onyeaso (2013) used this modified Likert scale to gather data to investigate organizational innovation as a predictor of high performance work systems in the framework of hierarchical multiple regression analysis. Following Martin-Tapia et al. (2009) and Oladapo and Onyeaso (2013), I used this modified Likert scale to gather data on the dependent variable (organizational performance) in the framework of a modification of the instruments adopted from Tsamenyi et al. (2011).

Research Question 1 and Hypothesis 1

RQ1: Is financial MCS positively related to organizational performance?

H_0: Financial MCS is not positively related to organizational performance.

H_1: Financial MCS is positively related to organizational performance.

The independent variable was financial management control systems (FMCS), and the dependent variable was organizational performance. Because this study was survey based with structured questionnaires, both the dependent variable (organizational performance) and the independent variable (FMCS) were operationalized by use of instruments adopted from Tsamenyi et al. (2011), as detailed in Appendix A. As can be seen in Appendix A3, FMCS was operationalized as a 24-item five-point Likert-type scale. As such, the potential for multicollinearity was high. Thus, in response to this problem, Hypothesis 1 was tested in two steps as follows.

Step 1: principal component analysis (PCA). The raw data on MCS were subjected to a principal component analysis (PCA) for two reasons. The first reason is that MCS was operationalized by use of Likert scale items. The raw data from these Likert items caused multicollinearity in the multiple regression analysis (conducted in step 2) to test the hypothesis shown in Equation 1 below. To mitigate the undesirable effects of multicollinearity in the raw data, the PCA yielded new uncorrelated variables called "factor scores," which were free from multicollinearity. Then, these factor scores were used instead of the raw data in the multiple regression analysis conducted in Step 2. Scholars have established that factor scores are free from the confounding effects of multicollinearity (Eyduran, Topal, & Sonmez, 2010; Sakar, Keskin, & Unver, 2011). This way, a robust test of Hypothesis 1 was conducted.

The second reason for the PCA is that it is now well established in the MCS literature that the number of empirical dimensions (components) underlying the MCS construct is unknown to scholars (Malmi & Brown, 2008), as well as the conceptual and the empirical boundaries of the MCS construct (Fisher, 1998). Malmi and Brown (2008) concluded that "a number of definitions and descriptions of MCS exist; some of which contain overlaps, while others are quite different from each other" (p. 288). This statement represents a call for research that will make a contribution to scholarly understanding of the conceptual and empirical dimensions of the MCS construct. In response, I made a contribution to scholarship in this area by using a principal component analysis (PCA) statistical technique to uncover the number of empirical dimensions underlying the MCS construct in the sample. This initial approach was exploratory and

was to be followed by confirmatory factor analysis by subsequent researchers in the area. Finally, the primary research objective of this study was not an empirical investigation of the dimensions (components) of MCS. For this reason, only FMCS data were used to investigate the number of components underlying the MCS construct.

Step 2: multiple regression analysis. Hypothesis 1 was tested by use of the framework of Equation 1, as follows:

$$OP = \beta_0 + \beta_1 FS_1 + \beta_2 FS_2 + \ldots + \varepsilon \qquad (1)$$

Where:

OP = organizational performance (the dependent variable)

β_0 = constant term

FS = factor scores

β_1 = coefficient on FS_1

β_2 = coefficient on FS_2

ε = error term

In the framework of Equation 1, the assumption was made that the PCA described above could yield any number of factors (also called components). Because no one knows a priori the number of factors that will result from a PCA, the triple dot in Equation 1 allowed the possibility that the number of factor scores might be more than two. (This study yielded four factors, which are described in Chapter 4). In terms of Equation 1, following Field (2005) "analysis can be carried out on the factor scores rather than the original data" (p. 636).

Hypothesis 1 was tested by a focus of attention on the algebraic signs on *f*-statistic automatically outputted in the SPSS ANOVA table for Equation 1. If the *f*-statistic was positively greater than 2.00, the "sig" (significance) column of the ANOVA table would indicate that the null hypothesis was not supported, thereby indicating that the alternative hypothesis was supported.

Research Question 2 and Hypothesis 2

RQ2: Is nonfinancial MCS positively related to organizational performance?

H_0: Nonfinancial MCS is not positively related to organizational performance.

H_1: Nonfinancial MCS is positively related to organizational performance.

The independent variable was nonfinancial management control systems (NFMCS), and the dependent variable was organizational performance. Because this study was survey based with structured questionnaires, both the dependent variable (organizational performance) and the independent variable (NFMCS) were operationalized by use of instruments adopted from Tsamenyi et al. (2011), as detailed in Appendix A.

As can be seen in Appendix A2, NFMCS was operationalized as an 8-item 5-point Likert-type scale. Because 8-item 5-point scales are relatively small, the potential for multicollinearity was not high. However, if the level of multicollinearity did turn out to be high, solutions were available in the statistical methodology literature. These included, but were not limited to the following:

1. use of PCA described above,

2. mean-centering strategy (may involve a constant value being subtracted from each data point without changing the essential result of the analysis), and
3. various forms of data transformation (natural log transformation).

Hypothesis 2 was tested conditionally on the preceding discussion on how the dependent variable (organizational performance) was operationalized and transformed. The test was conducted in the framework of simple regression equation as in Equation 2:

$$OP = \alpha + \beta\, NFMCS + \varepsilon \qquad (2)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of NFMCS is zero

β = coefficient on NFMCS (slope of the regression line saying how much OP changes for each unit change in NFMCS)

NFMCS = independent variable explaining (predicting) OP

ε = error term (the error in predicting the value of OP conditional on the values of NFMCS)

Finally, in the framework of Equation 2, the null hypothesis was not supported if the value of β (the coefficient on NFMCS) was positive and statistically significant, which would be revealed by *a t* statistic (*t* ratio) that was positively and substantially greater than 2.00. If the null hypothesis was not supported, the alternative hypothesis would then be supported. Because the statistical analysis for this study was conducted in SPSS, tables were produced containing this information.

There were alternative statistical techniques that may have been used to test Hypothesis 2, namely by computing a bivariate zero-order Pearson correlation coefficient between organizational performance and NFMCS. Simple regression analysis and bivariate zero-order Pearson correlation coefficient are equivalent but not identical.

Research Question 3 and Hypothesis 3

Keeping in mind that I followed Tsamenyi et al.'s (2011) and Porter's (1980) generic strategy of differentiation strategy and low-cost strategy, these two strategy types were tested separately as stated in Hypotheses 3 and 4. To do so, the business strategy constructs were first operationalized by use of a 9-item 5-point scale. Second, a median split was performed so that those organizations that would score 3 or more values on the business strategy scale were grouped as organizations pursuing the differentiation strategy, while those organizations that scored less than 3 on the business strategy scale were grouped together as organizations pursuing the low-cost (or cost leadership) strategy. An excerpt culled from Tsamenyi et al. (2011) indicates how Tsamenyi et al. operationalized differentiation strategy and low-cost leadership strategy. In the first part, the entire sample was split into two groups: the group consisting of firms that follow a differentiation strategy, and the group consisting of firms that follow a cost leadership strategy. The respondent firms in the study were split on the basis of the average score calculated across the nine strategy items for each firm. Firms with a strategy value of less than 3 (the median value) were considered as firms following a cost leadership strategy, and firms that had an average strategy value of 3 or more were considered as following a differentiation strategy. A total of 83 (39%) sample elements belonged to the cost

leadership group, while the remaining firms were found to be following the differentiation strategy (Tsamenyi et al. 2011, p. 198). With the preceding explanation in mind, research question 3 (RQ3) is stated as follows:

RQ3: Is differentiation strategy positively related to organizational performance?

H_0: Differentiation strategy is not positively related to organizational performance.

H_1: Differentiation strategy is positively related to organizational performance.

Statistical test of Hypothesis 3 was conducted in the framework of simple regression equation as presented in Equation 3:

$$OP = \alpha + \beta\, DS + \varepsilon \qquad (3)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of DS is zero

β = coefficient on DS (the slope of the regression line saying how much OP changes for each unit change in DS)

DS = independent variable explaining (predicting) OP

ε = error term (the error in predicting the value of OP conditional on the values of DS)

In the framework of Equation 3, the null hypothesis would not be supported if the value of β (the coefficient on DS) was positive and statistically significant as revealed by a *t* statistic that was positive and substantially greater than 2.00. Otherwise, the alternative hypothesis would then be supported. As stated earlier for Hypothesis 2, the

statistical analysis for this study was conducted in SPSS, so tables were produced containing this information.

There was an alternative way to test Hypothesis 3. Hypothesis 3 could have been tested by computing a bivariate zero-order Pearson correlation coefficient between organizational performance (OP) and differentiation strategy. Simple regression analysis and bivariate zero-order Pearson correlation coefficient are equivalent but not identical, with minor differences not necessary to describe here.

Similar to RQ2, if the level of multicollinearity turned out to be high, solutions were available in the statistical methodology literature as described above. These included but were not limited to the following:

1. the use of PCA discussed above
2. mean-centering strategy, which may involve a constant value being subtracted from each data point without changing the essential result of the analysis
3. various forms of data transformation (natural log transformation).

Research Question 4 and Hypothesis 4

RQ4: Is low-cost leadership strategy positively related to organizational performance?

H_0: Low-cost leadership strategy is not positively related to organizational performance.

H_1: Low-cost leadership strategy is positively related to organizational performance.

Hypothesis 4 was statistically tested using the framework of Equation 4, stated as follows.

$$OP = \alpha + \beta\ CSLC + \varepsilon \qquad (4)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of CSLC is zero

CSLC = competitive strategy of low cost (low cost leadership strategy), which is the independent variable explaining (predicting) OP

β = coefficient on CSLC (the slope of the regression line saying how much OP changes for each unit change in CSLC)

ε = error term (the error in predicting the value of OP conditional on the values of CSLC)

In the framework of Equation 4, the null hypothesis was not supported if the value of β (the coefficient on CSLC) was positive and statistically significant as revealed by a *t* statistic (*t* ratio) that was positive and substantially greater than 2.00. If the null hypothesis was not supported, the alternative hypothesis would then be supported. As the statistical analysis for this study was conducted in SPSS, tables were produced containing this information. An alternative statistical test for Hypothesis 4 was to compute a bivariate zero-order Pearson correlation coefficient between organizational performance and CSLC. As indicated above, simple regression analysis and bivariate zero-order Pearson correlation coefficient are equivalent but not identical, with minor differences.

It is important to underscore the following trends in the statistical methodology literature on the controversial debates pertaining to whether Likert-type dependent variable operationalization is indeed a continuous metric or not. In this study, I addressed the potential confounding effects of multicollinearity and tested the hypotheses robustly. The extant management literature includes peer-reviewed empirical studies in which researchers used Likert-type scales to gather data allowing them to operationalize both the dependent and independent variables without any attempt to mitigate the potential effects of multicollinearity in the data or ensure that the dependent variable was metric (Mia & Winata, 2014). While Likert-type scales are technically ordinal, some researchers still treat them as continuous variables and then impose normal theory statistics on them to test their hypotheses. Indeed, some statistical methodologists (Johnson & Creech, 1983; Zumbo & Zimmerman, 1993) have argued that when the number of points on a Likert-type scale is five or more (as in this study), it may be appropriate to treat the operationalization of the dependent variable as continuous metric and then evoke the normal theory to test hypotheses. However, for the purpose of this study, it was better to err on the side of caution by implementing a transformation of Likert-type operationalization of the dependent variable (Martin-Tapia et al. 2009; Oladapo & Onyeaso, 2013) as described above.

The final alternative approach to test the hypotheses was by entering all of the independent variables at once, as shown in the framework of equation 5 below.

Step 3: Enter all independent variables in one multiple regression analysis. In the framework of Equation 5 shown below, Hypotheses 1, 2, 3, and 4 were tested as

follows: If β_1 was positive, with the associated *t* statistic being substantially large to be statistically significant, then the null of Hypothesis 1 would not be supported and the alternative hypothesis would be supported. Likewise, if β_2 was positive with the associated *t* statistic being substantially large to be statistically significant, then the null of Hypothesis 2 would not be supported and the alternative hypothesis would be supported. Following the same reasoning, if β_3 was positive with the associated *t* statistic being substantially large to be statistically significant, then the null of Hypothesis 3 would not be supported and the alternative hypothesis would be supported. Finally, if β_4 was positive with the associated *t* statistic being substantially large to be statistically significant, then the null of Hypothesis 4 would not be supported and the alternative hypothesis would be supported. Equation 5 is as follows:

$$OP = \beta_0 + \beta_1 (FS_1 + \beta_2 FS_2 + ...) + \beta_2 NFMCS + \beta_3 DS + \beta_4 CSLC + \varepsilon \quad (5)$$

Where:

OP = organizational performance (the dependent variable)

β_0 = constant term

β_1 = coefficient on linear combination of all the factor scores

β_2 = coefficient on NFMCS

β_3 = coefficient on DS

β_4 = coefficient on CSLC

FS = factor scores

ε = error term

It was evident that interaction effects may have existed in the framework of Equation 5. Interaction effects were not tested. Instead, a test of interaction effects was suggested for further research because it was beyond the objective of this study.

Theoretical and Conceptual Framework

The theoretical framework for this study was contingency theory as expounded and popularized by Hofer (1975). Hofer declared that "any theory of business (corporate) strategy must be a contingency theory" (p. 786). Hofer added that contingency theories have implications for improving enterprise productivity through the strategic choices undertaken by the businesses. Kald et al. (2000) asserted that, with respect to studies premised on some components of management control systems (MCS) and firm strategy, "contingency theory serves as the theoretical foundation, and studies based on questionnaires are the most common method of research" (p. 197). In explaining the contingency theory, Fisher (1995) stated that its central tenet is that "there is no universally appropriate control system that applies in all circumstances" (p. 24). Thus, the adoption of any specific strategic orientation will promote the performance of any particular firm's strategic objective if that firm's strategy is supported by a specific (as opposed to universal) MCS type (Kald et al. 2000), and that is the central tenet of contingency theory. The applicability of MCS types in this study rested entirely on the contingency theory as opposed to the universalist theory, as contrasted by Fisher (1995).

Theoretical Foundation

The relevance of contingency theory to this study has been established in previous studies that addressed the hypothesized positive linkages between MCS and business strategy on organizational performance (Chenhall, 2003; Kald et al. 2000; Tsamenyi et al. 2011). For example, Kald et al. (2000) argued that "studies based on contingency theory constitute one major branch of the research area of strategy and management control" (p. 201).

It has been well established that a set of behavioral theories is nested in contingency theory (Fiedler, 1964). Therefore, contingency theory is a theory of theories, where those sets of behavioral theories postulate that contingency theories relate to a class of behavioral theories asserting that there is no one best way of organizing and leading (Fiedler, 1964; Ganescu, 2012; Hofer & Schendel, 1978). Instead, an organization's leadership style that is effective in some situations may not be successful in others, and this notion has become the epicenter of contingency theory (Fiedler, 1964; Hofer & Schendel, 1978; Longenecker & Pringle, 1978). In other words, the optimal organizational leadership and management styles are contingent (i.e., dependent) upon various internal and external constraints. Viewing contingency theory from this key thesis, critics Longenecker and Pringle (1978) rebutted that

> A recent contender for the position of the integrating concept that will hold everything together is contingency theory. Although it bears different names, the terms 'contingency' and 'situation' convey its general thrust…The most recent effort in this direction is 'A General Contingency Theory of Management,'

> formulated by Luthans and Stewart (14). This conceptualization indicates 'that a particular level or state of system performance . . . is a dependent variable which is functionally determined by the interaction of independent situational, management and performance criteria variables.' (p. 680)

Eventually, Longenecker and Pringle propounded the four pillars on which contingency theory hinges. First, there is no universal or one best way to manage. Second, the design of an organization and its subsystems must fit with the environment. Third, effective organizations not only possess a proper fit with the environment, but also must have a sound fit between the organization and its subsystems. Fourth, the needs of an organization will be best achieved only when the organization is properly designed and the management style synchronizes with the tasks undertaken by the organization as well as the nature of the work group within the organization.

Figure 3 presents the proposed contingency model linking business strategy and MCS to organizational performance. Specifically, Figure 3 draws heavily from a synthesis of the extant literature on contingency models focusing on MCS and strategy in management accounting discipline (Burkert, Davila, Mehta, & Oyon, 2014; Chenhall, 2003).

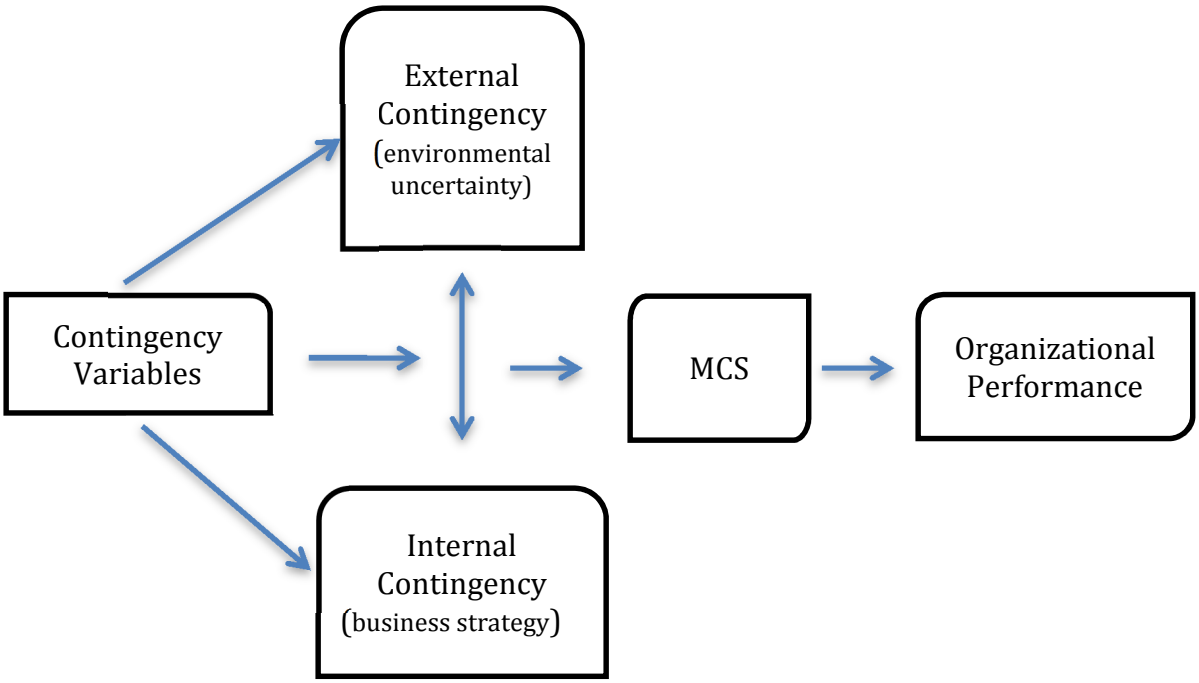

Figure 3. Contingency model linking strategy and MCS to organizational performance.

According to Figure 3, contingent variables that may impact organizational performance can be grouped into two categories: external and internal variables. Researchers have confirmed the validity of this dual grouping (Burkert et al. 2014; Chenhall, 2003; Ganescu, 2012). Empirical research premised on the contingency theory has focused on one central issue: the best fit of the organization to its environment, conditional on the contingent variables confronting the organization (Burkert et al. 2014; Chenhall, 2003). Burkert et al. (2014) concluded that empirical research usually focuses on statistical models to investigate various "forms of contingency fit" (p. 8). Specifically, a typical statistical model specifies organizational performance as the outcome variable and the contingency variables as the predictor (i.e., independent) variables (Chenhall,

2003; Tsamenyi et al. 2011). Thus, following Tsamenyi et al. (2011), the conceptual model of the contingency theory depicted in Figure 3 was recasted into a linear regression model whereby MCS and strategy were the predictors of organizational performance. As shown in Figure 3, MCS and strategy were the contingent variables on which organizational performance was the response variable of interest (Burkert et al. 2014; Chenhall & Chapman, 2006; Tsamenyi et al. 2011).

As Burkert et al. (2014) demonstrated, the relationship of MCS on the response variable (organizational performance) can be mediated or moderated by contingency variables. That is, contingency variables can be mediator or moderator variables. Burkert et al. ushered in previously unknown functional relationships between organizational performance and contingent variables (MCS and strategy) subject to moderation by another variable (e.g., environmental uncertainty).

Nature of the Study

A quantitative, nonexperimental, predictive research design was used to test the hypotheses, as indicate above. Johnson and Christensen (2000) argued that when the independent variables in a study are subject to researcher manipulation, a nonexperimental research design appears appropriate. In addition, Creswell (2003) argued that "additional strengths of a survey approach include the ability of a survey to measure the opinions of a sample group that can then be generalized across the population from data collected in a relatively rapid manner" (pp. 153-154). This statement appears to support the research design for this study, in which data were gathered from the participants via survey questionnaires. In this way, this quantitative

research method allowed for the understanding of the nature and direction of relationships among MCS (one independent variable), organizational strategy (another independent variable), and organizational performance (dependent variable). Contingency theory was the conceptual platform for the interpretation of the outcome of the analyses with respect to minority-owned manufacturing business organizations. Data gathered from these minority-owned manufacturing business organizations were analyzed with the aid of the analytical framework described in equations 1-5 presented above.

Definition of Terms

Minority-owned manufacturing business organizations: The U.S. Small Business Administration (2014) defines a minority-owned business organization as "an American term which is defined as a business which is at least 51% owned, operated and controlled on a daily basis by one or more (in combination) American citizens of specified ethnic minority classifications" (para. 1). These ethnic classifications include the following:

(1) African American,

(2) Asian American (includes West Asian Americans [India, etc.] and East Asian Americans [Japan, Korea, etc.]),

(3) Hispanic American (includes persons with origins from Latin America, South America, Portugal, and Spain), and

(4) Native American including Aleuts.

Management control systems (MCS): MCS has been defined by Armesh and Kord (2010) as "a system which gathers and uses information to evaluate the performance of

different organizational resources like human, physical, financial and also the organization as a whole considering the organizational strategies" (p. 193).

Principal component analysis (PCA): According to Field (2005), "principal component analysis is a multivariate technique for identifying the linear components of a set of variables" (p. 792). As used in this study, the set of variables included nonfinancial forms of management control systems (NFMCS).

Multicollinearity: According to Field (2005), multicollinearity is "a situation in which two or more variables are very closely linearly related" (p. 790). If a set of variables is collinear, it means that individual respondents' responses on those variables lack variation, which thwarts any efforts of statistical analyses.

Assumptions

In this study, the following assumptions were made:

Singularity of Matrices: This study rested on one critical assumption on the nature of the survey data elicited from the respondents, namely the nonsingularity of matrices of data. I assumed that all statistical analyses prompted by the research objectives led to the tests of the hypotheses, conditional on obtaining fine-grained data from the respondents, including nonsingularity of matrices derived from the data sets.

Respondents' Honesty: I assumed that the information elicited from the respondents was truly and honestly accurate as the authentic representation of the events in their business organization in response to the specific questions posed on the survey questionnaire. While the questionnaire specifically asked the respondents for their

unbiased, honest opinions on the items, I assumed that the respondents would behave as I requested.

Statistical Integrity: I used well-established statistical procedures and techniques to ascertain the validity and reliability of the information the respondents provided. However, there was no absolute guarantee beyond statistical evidence that the information (data) elicited from the respondents was error free (intentional or unintentional).

Scope and Delimitations

The research problem of this study is understanding the perceived relationships among management control systems, business strategy, and organizational performance? Even though previous researchers made contributions on this research gap, empirical investigation of the relationships among management control systems (MCS), business-level strategy, and performance for minority-owned business organizations has been overlooked. However, boundaries existed from the decisions made in the design of the study. Among these deliberate decisions was the choice of problems pertaining to MCS. Likewise, the decision to position the study within the population of minority-owned manufacturing businesses was a boundary. Finally, the decision to use quantitative methodology rather than a mixed-methods approach (among alternatives) was defensible, but constituted a boundary nevertheless.

Limitations

As with any questionnaire-based cross-sectional research design, this correlational study had limitations because of research issues beyond my control. A typical example of

such uncontrollable limitations in a correlational study relates to the sample drawn from a specific population rather than other equally likely populations. Specifically, I targeted organizational key informants such as finance managers or senior accountants, whereas vice presidents (or even presidents) of the business organization could have provided the same or even superior data on the issues of interest. Consequently, data elicited to answer the research questions appeared to be dependent on who was targeted. This statement does not in any way degrade the credibility of this study, as it strictly followed previous studies in this important area (Chenhall, 2003; Tsamenyi et al. 2011). However, the research questions answered, as well as the hypotheses tested, were dependent on the population that was sampled within the business organization. Future researchers should sample a different population within the same business organizations to overcome this potential limitation.

Furthermore, one of the limitations inherent in this research design related to the fact that correlation is not causation. That is, the study cannot demonstrate that causality flows from MCS and business strategy to organizational performance. Even if such a demonstration could be made, there would still be the problem of endogeneity or reversed causality, requiring that lagged values of organizational performance be entered as one of the right-hand-side variables in a longitudinal research design to mitigate the confounding effects of potential reverse causality. These limitations could be addressed in future studies.

Significance of the Study

This study was designed to address gaps in societal needs and wants. Social change was needed to fill those gaps. Specifically, if the outcome of this research indicated that management control systems (MCS) and business strategy jointly or individually had positive relationships on organizational performance, business managers would then be better served in prudently allocating their scarce resources. Consequently, organizational performance would be enhanced, which would in turn translate into better economy that would fill the gap in societal needs and wants.

Significance to Theory

The findings of this study had implications with respect to theory building in MCS in particular and the management accounting discipline in general. Because the outcome of this research supported and extended previous research (Tsamenyi et al. 2011) that addressed the hypothesized positive correlation of business strategy and MCS to organizational performance, the study made a contribution to theory building on MCS. More specifically, the study enhanced scientific inquiry in the area of MCS. Furthermore, the study assisted in refuting alternative explanations, as when scholars were postulating that MCS and business strategy were negatively related to organizational performance, or that the link was nonexistent. Finally, the study assisted in setting the agenda for future research in this area, as subsequent research objectives can build on the findings of this study in terms of theory building.

Significance to Practice

The outcome of this research held practical business practice implications for

managers and policy-makers. First, even though earlier researchers investigated the hypothesized positive linkage among MCS, business strategy, and organizational performance, a thorough review of literature indicated that no researchers empirically investigated whether MCS and business strategy were jointly or singly positively related to organizational performance within the population of minority-owned manufacturing businesses. Minority-owned business organizations are a major contributor to the U.S. economy (Acquaah, 2013; United States Census Bureau, 2010). Consequently, by filling this research void, I would provide managers operating in this sector of the U.S. economy with enriched knowledge that MCS and business strategy are positively related to organizational performance. Armed with knowledge, managers and policymakers would be better served to deploy their scarce corporate resources to acquire superior and sustainable MCS and business strategy to boost their organizational performance. Although Tsamenyi et al. (2011) investigated the same research questions, they positioned their inquiry in the Chinese economy, and they described the managerial significance of their study to the Chinese economy. One of the key contributions of this study was its significance to practice to the U.S. economy in general and minority-owned manufacturing business organizations in particular.

Significance to Social Change

The mission statement of Walden University hinges on delivering social change to the stakeholders in society. Research and learning activities at the university are driven by the objective of continuous improvement in the pursuit of best practices as well as delivering those best practices to all stakeholders. The objective of this study was

ensuring that the findings would make a positive contribution to social change, thereby benefitting the societal stakeholders. Specifically, as business managers and policymakers glean information from the outcomes of this research, they will be empowered to allocate scarce resources optimally in the production of goods and services to benefit their organizations and society.

Summary and Transition

Simons (1995b) explained that management control relates to "the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities" (p. 5). It is well established that management control systems (MCS) are being designed and adopted by business organizations across the globe (Chenhall, 2003; Tsamenyi et al. 2011). Chapter 2 presents a literature review separated into several themes to provide an in-depth analysis of relevant studies.

Chapter 2: Literature Review

Overview

The purpose of this quantitative, nonexperimental research study was to use the conceptual framework of contingency theory to empirically investigate the relationships among three key variables:

1. management control systems (MCS),
2. business strategy, and
3. organizational performance.

As depicted in Figure 1, MCS and business strategy were the independent variables, while organizational performance was the dependent variable. The study addressed the following question: What amount of variance in the dependent variable (organizational performance) can be explained by the two independent variables (MCS and business strategy)?

This review includes the following key sections: the concept of MCS, the root causes of the need for MCS, the concept of contingency theory, the strategy concept in general, nonquantitative research on MCS, quantitative research on MCS, quantitative research underpinned by contingency theory, and the importance of minority-owned business organizations.

Literature Search Strategy

I performed article searches from the Walden University Library's electronic databases: Academic Search Complete, EBSCOhost, Multidisciplinary Databases, Business Source Complete, Science Direct, LexisNexis, and ProQuest. I also used

Google Scholar search to search for relevant articles. The keywords used in the search were *management control systems*, *management accounting control*, *accounting control systems*, *minority-owned businesses*, *contingency theory*, *research on management control systems*, *empirical research on management control systems*, *review management control systems*, *meta-analysis on management control systems*, *organizational strategy*, and *performance*. Major keywords were combined in the search to narrow results. In all, 71 peer-reviewed journal articles relating to MCS, accounting control systems, contingency theory, organizational strategy, and performance were selected for review. In addition, 2 conference papers, 19 books, and one Internet source were selected to deepen understanding of the key concepts of MCS, contingency theory, strategy, and performance. The selected peer-reviewed journal articles were mostly published from 2010 to 2014. However, a few of the articles were older than this 5-year timeline. In selecting peer-reviewed journal articles beyond the 5-year period, the intent was to ensure coverage and deepening of knowledge of the major concepts, themes, and subthemes of the dissertation topic. Following the article search, the review of literature was centered on major themes of MCS, business-level strategy, minority-owned businesses, and firm performance.

Theoretical Foundation

Contingency Theory

As the theoretical platform of this study, contingency theory is a theory of theories. In the literature, scholars have discussed the notion that a set of behavioral theories is nested in contingency theory (Fiedler, 1964). For this reason, contingency

theory is seen as a theory of theories. That said, a common denominator underlying all strands of contingency theory is the proposition that organizational performance is dependent (i.e., contingent) upon the fit between an organization and several factors, some of which are technology, structure, people, strategy, and organizational culture (Ganescu, 2012; Hofer & Schendel, 1978).

Because these contingent factors are numerous, there is no best way of organizing and leading an organization (Fiedler, 1964; Ganescu, 2012; Hofer & Schendel, 1978). An organization's leadership style that is effective in some situations may not be successful in others, and this notion has become the epicenter of contingency theory (Fiedler, 1964; Hofer & Schendel, 1978; Longenecker & Pringle, 1978). The optimal organizational leadership and management styles are contingent upon various internal and external constraints imposed by these aforementioned contingent factors. However, not all scholars submit to this notion; critics such as Longenecker and Pringle (1978) exist.

Contingency theory is a conditional theory, and I researched certain conditions of successful organizational performance. The central tenet of contingency theory is that organizational performance hinges on the alignment with internal and external contingent factors. Equation 6 represents this notion of conditionality in mathematical shorthand:

$$\text{Organizational Performance} = f(\text{MCS \& Strategy}) \qquad (6)$$

In this equation, f is the functional form of the statistical distribution that relates organizational performance to management control systems (MCS) and business strategy; hence, f means "depends on" or "contingent on." Equation 6 is the linchpin that ties the research to the contingency theory platform, as has been demonstrated in the works of

statistical mathematicians in strategic management (Hofer, 1975; Hofer & Schendel, 1978). The information in Equation 6 is the same as in a typical multiple regression equation. To buttress this analysis, I present a brief synthesis of empirical research on MCS underpinned by contingency theory.

Contingency Models in Empirical Tests

With specific attention to MCS quantitative research underpinned by contingency theory, the literature appears to suggest that there are two strands. The first strand relates to researchers who test the hypotheses premised on assumed possible contextual factors and their relationships to MCS (the criterion variable). This type of research is typically aimed at providing input to subsequent empirical studies (Acquaah, 2013). In contrast, there is another strand of research in which the empirical objective is typically an investigation of an appropriate match between organizational design with respect to MCS and the contextual factors under focus. Notably, however, most of these empirical studies are based on questionnaire surveys, with detailed explanations existing in the literature (Drury, 2004).

The epicenter of difficulties associated with empirical research on contingency theory is that researchers enlist the help of multivariate analysis framework, resulting in different types of variables assumed to interact with each other. Even though multivariate interaction of different variables is desirable in general, in the case of contingency models variables have different relationships in different contexts (Easterby-Smith, Thorpe, & Jackson, 2008). In addition, in different contexts, the characteristics of any form of performance management systems (PMS) as subcomponents of MCS will likely have

different impacts on organizational performance. Specifically, a major problem in empirically testing a model of PMS is that PMS is only one component of management control. Thus, the relationships of PMS have to be isolated from other organizational controls. Chenhall (2003) argued that the likelihood of model under-specification increases because there are several controls influencing the behavior of employees, yet attention is narrowly focused on only part of the control system. Additionally, there are numbers of possible factors (covariates) involved in the definition and operationalization of abstract variables. This measurement problem does not occur only in the case of contingent factors; it also arises in the measurement of the criterion variable: organizational performance. Beyond these issues, there is a potential of drawing wrong conclusions from observed correlations because they might be statistical confounders rather than substantive model outcomes (Chenhall, 2003; Drury, 2004).

The measurement of organizational performance is a herculean task across various fields of the management discipline. Related to this problem, there are now what may be labeled “selection studies” (Chenhall, 2003, p. 155) that are conducted to examine the relationship between contextual factors and the control system of companies and to evade addressing the question of whether a certain combination leads to better performance. With sound reasons, critics proclaim that studies should include performance as the dependent variable because rational managers will not employ control systems that do not enhance organizational performance, implying that insights about the adoption of control systems in practice do provide strategic assistance to managers in terms of their organizational performance (Chenhall, 2003; Drury, 2004). As Chenhall

(2003) noted, such studies use simple correlations or linear regression without taking into account the relationship between various contextual factors. Chenhall's review added the following recommendations for researchers: Interaction models should use situational factors as moderating variables in order to see how they relate to the relationship between control system elements and performance. Additionally, moderating variables should be combined with intervening models in order to separate direct and indirect relationships on the outcome by specifying causal paths between different variables.

Literature Review

As a starting point for the literature review, one may ask the following: Are there scholarly definitions of the construct dubbed "management control systems" in the current literature? I explore the answer to this question and review the current quantitative and nonquantitative research on management control systems.

The Concept of Management Control Systems

Determining what management control systems (MCS) actually means appears to be an appropriate starting point for a review of the literature on the MCS construct (Libby, R., Libby, P., & Short, 2003). This way, scholars are armed with the knowledge of what other scholars' definitions of the MCS construct are, and they thereby gain a deeper understanding of the construct. A plethora of definitions of MCS exists as a construct embedded in the managerial accounting discipline. Libby et al. (2003) define MCS as a system that provides the information needed by business owners and senior managers in making decisions pertaining to new investments, leasing, purchasing, advertisement and promotion expenses, and other activities. Anthony (1965) defined MCS as the processes

that allow managers to secure resources and then deploy them effectively and efficiently in the accomplishment of the organization's objectives. Similarly, Simons (1995a) defined MCS as the means by which managers successfully implement strategies by using formal information-based routines that allow them to utilize managerial procedures to maintain or alter patterns in organizational activities. However, Simons (1995b) also argued that the most important fact is not the identification of the types of controls firms use but rather how they are used, thereby referring to his *levers of control* framework in which he distinguishes between the diagnostic and the interactive use of controls. In the same vein, Thoren and Brown (2004) cautioned that the difference between diagnostic and interactive control systems is not their technical design features but rather the ways managers use these systems. The ways corporate managers use MCS may in fact be the key factors underlying the differential variations in organizational performance across companies that design and implement MCS. To address this empirical question, Lee et al. (2013) investigated the association between organizational culture and the implementation and use of MCS. Lee et al. concluded that the missing linchpin was differences in organizational culture across firms.

With these scholarly opinions on the definitions of MCS in mind, I shift attention to another conceptual issue scantly discussed in the management control literature: How does the need for MCS arise in organizations? This question may be reframed as follows: What structural events occur in organizations to necessitate the design and use of MCS? This critical question is inescapable if one wants to understand the root causes of management control design and use in the organization.

Root Causes of the Need for Management Control Systems

Management control systems (MCS) are designed and used as strategic variables in response to two systemic disequilibria or misfits (Simons, 1995a, 1995b). The first disequilibrium or misfit is internal to the organization because it arises when organizational employees pursue their own self-interest to the detriment of organizational interests (Cuguero-Escofet & Rosanas, 2013). Once this divergence of interests occurs, management enlists tangible and intangible tools to bring employees' interests in alignment with organizational interests (Bisbe & Malagueno, 2012; Chenhall, 2003). The collection of tools or mechanisms employed by management for this specific purpose is called management control systems (Merchant & van der Stede, 2007; Simons, 1995b). Absent the disequilibrium or misfit between employees' interests and organizational interests, the strategic need and use of MCS would be nonexistent internally in the organization. The theoretical situation in which there would be a fit (congruence) between employee goals and organizational goals is portrayed in Figure 4.

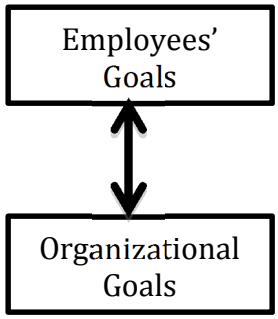

Figure 4. Congruence of employees' goals and organizational goals.

As depicted in Figure 4, if and when there is symmetry (equilibrium) between employees' goals and organizational goals, the need for internal MCS vanishes. This

point is further underscored by the double-headed arrow in Figure 4, which indicates a situation where there is internal congruence between employees' goals and the organizational goal. That is, there is isomorphic congruence between employees' goals and organizational goals; as employees pursue their own goals, they are simultaneously pursuing the goals of the organization. Again, once this is the case, the design and use of internal MCS is unnecessary (Gottschalg & Zollo, 2007).

Conversely, consider two other scenarios. In one scenario, as depicted in Figure 5, employees' goals negatively affect organizational goals. This would be the case where employees pursue their own goals to the detriment of organizational goals. Thus, Figure 5 captured this conceptual illustration by using a one-directional arrow emanating from employees' goals and pointing against organizational goals. An example of this case is when some employees use organizational time to accomplish their own ends. Clearly, this internal incongruence (disequilibrium) would call for strategic design and use of MCS.

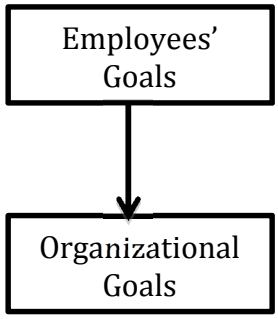

Figure 5. Incongruence of employees' goals against organizational goals.

The third scenario arises when an organization's goals negatively affect its employees' goals. This could be the case when an organization uses its employees as they would use any other factors of production with disregard to human dignity. This scenario

is easy to comprehend as the media ranks the best and the worst organizations to work for, such as FORTUNE's 100 best companies to work for. Figure 6 illustrates this scenario. Consequently, this internal incongruence (disequilibrium) would call for strategic design and use of MCS.

Figure 6. Incongruence of organizational goals against employees' goals.

With regards to the external environmental circumstances that are conceptualized to trigger misfit between the organization and its environment, the analysis follow the same reasoning as in the case of the internal causes of the design and use of MCS, except that the emphasis focuses on the external environment.

Beginning with the landmark work of Bain (1959), the Industrial Organization (IO) Economics has hinged on the theory and research on concept of fit (or lack thereof) between the organization and its environment. Hence, the external causes of the need for the design and use of MCS hinged on one thing: misfit between the organization and its environment (Chenhall, 2003; Merchant & van der Stede, 2007). This point is stressed in the literature (Porter, 1980) and has consistently provided the root of the conceptual platform for empirical research investigating how organizational performance is contingent on environmental variables (Gottschalg & Zollo, 2007; Tucker, Thorne, &

Gurd, 2009), as well as how this notion relates to the current study (Tsamenyi et al. 2011). Hence, the preceding conceptual analysis is highlighted in Figure 7.

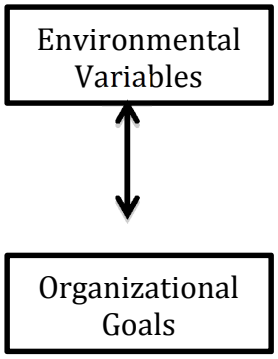

Figure 7. Congruence of environmental variables and organizational goals.

In Figure 7, the double-headed arrow portrays a situation where there is external congruence between the organizational environment and the organizational goals. Figure 7 presents an isomorphic congruence between organizational environment (customers as organizational stakeholders) and organizational goals. For example, Figure 7 could portray a scenario where the organization is pursuing sound corporate citizenship strategy by satisfying societal needs while simultaneously pursuing its goal of profit maximization and growth. Once this alignment is attained, the organization would be at equilibrium with its environment (as the double-headed arrow suggests) such that the need for the design and use of MCS to address external strategic misfit will be non-existent (Davila, Foster, & Li, 2009; Gottschalg & Zollo, 2007).

On the other hand, two other scenarios exist. In one scenario, as depicted in Figure 8, environmental variables negatively affect organizational goals. This would be the case where, for example, customers are demanding a non-existent level of service quality that the organization is currently incapable of offering. Thus, Figure 8 captures

this conceptual idea by using a single one-directional arrow emanating from environmental variables and pointing against organizational goals and objectives. This externally induced incongruence (disequilibrium) would call for strategic design and use of MCS because there is the need to bring the system back to equilibrium.

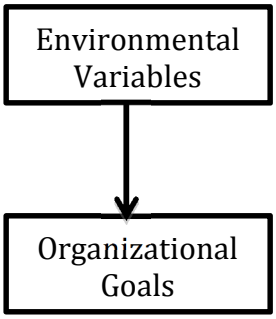

Figure 8. Incongruence of environmental variables and organizational goals.

A third scenario that arises is portrayed in Figure 9, where organizational goals are in discord with environmental variables. In this scenario, organizational goals are negatively affecting environmental variables, and the need for MCS becomes apparent.

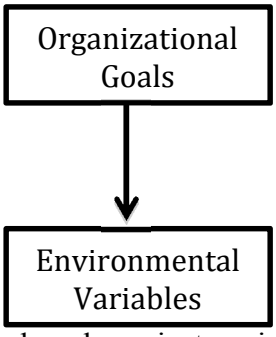

Figure 9. Incongruence of organizational goals against environmental variables.

An example of this discord is the scenario when an organization pursues its strategic goals and objectives in disregard to environmental ecosystems. While industrial development brought prosperity and wealth to the world, it also brought calamities that

included ozone depletion, global warming, and uncontrollable toxic waste (Shrivastava, 1995). Consequently, to mitigate the effects of these calamities, the concept of Environmental Management Accounting was introduced as a special area within MCS (Henri & Journeault, 2010). Henri and Journeault reasoned that "as a specific application of management control systems (MCS), eco-control has attracted growing attention in recent years as a means of driving an environmental strategy through the firm" (p. 63). Eco-control is a control system within the umbrella of MCS in that it enable organizations to monitor, measure, and control their environmental performance (Henri & Journeault, 2010; Shrivastava, 1995).

In summary, the root causes of the need for the design and deployment of MCS is shown in Figures 4, 5, 6, 7, 8, and 9. The diagrams indicate that organizational variables (internal and external) are the root causes of the design and use of MCS in management accounting theory and research (Chenhall, 2003; Gottschalg & Zollo, 2007). Consequently, the element of environmental variables triggered a call for a broader conceptual focus on management accounting beyond the traditional roles. This broader focus began with Johnson and Kaplan's (1987) landmark book entitled *Relevance lost: The rise and fall of management accounting*. It is seen as a watershed event on which the trajectory of management accounting scholarship can be traced to what it is today (Lee, M. T. et al. 2013).

Because this study is premised on quantitative research of MCS, a review of quantitative (empirical) research on MCS is now presented.

Quantitative Research on Management Control Systems

Compared with the level of importance management accounting and strategic management researchers attach to MCS, quantitative (empirical) research on MCS is not increasing in line with scholarly expectations (Chenhall, 2003). A discussion of the reasons for the slow pace of empirical research in MCS is beyond the scope of this study. However, a review of recent peer-reviewed empirical research papers is important.

Tillema (2005) used the conceptual platform of contingency theory to explore the extent the concept of scope as a dimension of MCS in accounting could contribute to scholars' knowledge and understanding of contingency factors. This study found evidence suggesting that the use of average scope accounting instruments needs a stable environment and variations in the operating activities. Tillema also found that broad scope accounting instruments require operating activities and a stable environment. Additionally, the study found evidence suggesting that both average and broad scope instruments need institutional environments where financial objectives and financial consequences are clearly articulated.

Janke, Mahlendorf, and Weber (2014) used a cross-lagged panel design to examine the reciprocal relationship between MCS use and environmental perceptions of top managers during the period of the 2008-2010 economic crises. The authors also investigated whether the perception of negative external crisis affects the interactive use of MCS on the organizational level, as well as the exploration of whether an interactive use of MCS during an economic crisis relates to the perception of negative external crisis effects. The results of their research suggest that the more top managers perceived negative external crisis effects, the more likely they are to use interactive MCS. The

researchers found empirical evidence of a positive relationship of the interactive use of MCS on senior managers' perception of negative external crisis effects, especially in times of economic crisis.

Arachchilage and Smith (2013) conducted a survey-based quantitative research to examine the relationship between business strategy and organizational performance. Arachchlage and Smith also examined the form of moderating effects from diagnostic and interactive uses of MCS. Finally, they examined whether Porter's (1980) cost leadership and differentiation strategies are mutually exclusive. Consequently, their survey-based research found evidence in support of the hypothesized moderating effects between the two uses of MCS (diagnostic and interactive) on the relationship between business strategy and organizational performance. The authors also found that the moderating effect created by the diagnostic use of MCS is more significant when cost leadership strategy is used than when it was not used. Contrary to expectation, the study found no support for Porter's hypothesis of mutual exclusiveness of differentiation and cost leadership business strategies.

Lee, Elbashir, Mahama, and Sutton (2013) used survey-based quantitative research to investigate the assumption that top management teams support MCS innovation. The study found empirical evidence for the hypothesized synergistic effect of the four enablers of top management team support for MCS innovation. These enablers were strategic IT knowledge of the top management teams (TMT), TMT knowledge creation process, the strategic business capability of the chief executive officer, and IT knowledge.

Tsamenyi et al. (2011) conducted survey-based quantitative research to investigate the hypothesized contingent relationship between business strategy, MCS, and performance in a sample of 215 enterprises operating in the Xinjiang autonomous region of China. They found that those organizations classified as pursuing differentiation strategy used more nonfinancial-based MCS, and this positively impacted organizational performance. Conversely, the study found that organizations classified as pursuing low cost strategy used more financial-based MCS, and this had a positive relationship on organizational performance.

Acquaah (2013) conducted quantitative research conceptually underpinned in Porter's (1980) organizational strategy to empirically investigate the degree to which family-owned businesses use MCS. Acquaah also investigated how the use of MCS allowed family-owned businesses to gain competitive advantage by positively impacting the implementation of business strategy and performance compared with nonfamily-owned businesses. This research was performed in the sub-Saharan transition economy of Ghana. The outcome of the study indicates that even though diagnostic control systems (DCS) positively impacted the implementation of the cost leadership strategy for both family and nonfamily businesses, they failed to impact the execution of the differentiation strategy. Additionally, the implementation of the cost leadership strategy fully mediated the relationship between DCS and performance. However, only the interactive control system (ICS) supported the implementation of the differentiation strategy, while differentiation strategy fully mediated the ICS/performance relationships. What the author labeled *dynamic tension* (created by the simultaneous use of DCS and

ICS) supported cost leadership strategy but not differentiation strategy. The cost leadership strategy also fully mediated dynamic tension/performance relationship. The author concluded that the study's outcomes suggest that DCS and dynamic tension should be used to support the implementation of cost leadership strategy, and ICS should also be used to support differentiation strategy for the organizations.

Naranjo-Gil and Hartmann (2007) empirically examined management accounting control systems with respect to the mechanism through which mediation is introduced to the relationship between an organization's strategic change and top management team composition. The found no evidence of any significant relationship between top management team heterogeneity and the management accounting control systems. However, they found that MCS within accounting systems control were positively related to strategic change in the organizations.

Agbejule and Jokipii (2009) quantitatively examined the expectation that there would be an interaction between the components of an internal control system, and that this expected interaction effect would hold when there is a juxtaposition of the fields of strategy and internal control system. In other words, essentially their research objective was to examine how the moderating effects of internal control activities and monitoring would determine the relationship between the strategy of a firm and the effectiveness of internal control. The results of their study indicated that firms pursuing *prospector strategy* have high degrees of internal control activity and low degrees of monitoring, which then ensured a greater effectiveness of the internal control system. Conversely, firms pursuing *analyzers strategy* had a high degree of internal control activity coupled

with a high degree of monitoring. These resulted in a high degree of effective internal control system. Finally, this empirical study found no significant differences between defenders and analyzers.

Henri and Journeault (2010) quantitatively examined the expectation that there would be an impact of integrated environmental variables within MCS on organizational economic performance. Specifically, the study used a mediation model to investigate whether eco-control directly mediated the effect of economic performance, as well as the indirect effect through environmental performance. The outcome of the study suggests that eco-control has no direct effect on economic performance, and that the mediating effect of environmental performance on the linkage between eco-control and economic performance is contingent on different contextual variables in their model. Specifically, the study found that eco-control has an indirect relationship on economic performance conditional on the following contextual variables: greater environmental exposure, greater public visibility, and greater overall concern for the environment.

Porporato (2009) quantitatively examined the hypothesized linkages between the timing of MCS implementations and the drivers of the timing of MCS implementations on joint venture (JV) survival. The author's methodological framework was basically a sample of organizations as cases whereby archival data provided by these organizations were complemented with interview data to test the author's hypotheses. In this framework, JV survival was the criterion variable, while the timing of MCS implementations and the drivers of the timing of MCS implementations were the predictor variables. Porporato's work was conceptually based on the contingency theory.

Porporato (2009) found that environment, strategy, and partner culture variables were weak influencers of the criterion variable (JV survival). However, the strong influencers of the criterion variable were structural and technological factors. The organization's focus was on the implementation of operative MCS such as budgeting, transfer prices/cost allocations of manufactured parts, and performance measurement.

Almqvist and Skoog (2006) used an inductive methodology to statistically explore the following three research questions:

(1) What are the internal mechanisms underlying the ongoing process of change in MCSs?

(2) How do these change mechanisms evolve?

(3) How are they interrelated, and how do they transform MCSs?

They gathered data from focused interviews with managers at different levels in one public and one private Swedish organization. They complemented their data with data obtained from different internal and external documents in the organizations. Thus, by using a non-probabilistic convenient sample, the study's outcomes cannot be generalized.

The study found evidence suggesting that one of many starting points for achieving a continuous MCS transformation in any organization was to select specific transformation mechanisms available to organizational managers. These mechanisms are capable of linking various aspects of organizational time and place as well as turning general expectations of continuous change into coordinated action through accountability and organizational learning (Almqvist & Skoog, 2006).

Frigotto, Coller, and Collini (2013) quantitatively examined whether MCS is linked to business strategy as conceptually hypothesized within the contingency theory research using cross-sectional data. In addition, these authors went further to explore whether there was empirical evidence of dynamic evolution of the companies they studied over a continuous span of time. The authors performed a diachronic analysis, which involved a vertical and a horizontal conception of dynamics. Overall, the authors found no evidence suggesting the existence of instantaneous (cross-sectional) fit between formal MCS and deliberate strategy, showing that it was not influential in illustrating evolution and its process dynamically. On the other hand, there was a fit between MCS and strategies at the practical managerial levels. Additionally, the authors claim to have found empirical evidence suggesting the presence of misfit between MCS and business strategy proxy, as there was no clear-cut evidence suggesting otherwise. Consequently, this assertion allowed the authors to conclude that managers may not dwell on reciprocal fit between the design of MCS and strategy. Instead, managers may dwell on the ability of both MCS and strategy to support the exploration of new directions of evolution. Finally, the authors proposed that "our case offers the intuition that identities, beyond practices, account for success in this case, as they embed both practices but also a way of being that, as a set of basic principles, directs behavior when practices are missing, i.e., in the face of the new" (p. 631).

Kariyawasam (2014) quantitatively investigated the assumption that there was a positive link between MCS and Return on Sales of manufacturing companies in Sri Lanka. Kariyawasam posed the empirical question: "What impact do MCSs have on the

Return on Sales of manufacturing companies in Sri Lanka?" (p. 111). Thus, the author designed and used structured questionnaires to elicit data from a sample of 83 publicly quoted manufacturing companies in Sri Lanka. Consequently, of the 83 respondents sampled, 71 (85.5%) of the companies responded to the questionnaire. To ensure that the data obtained by structured questionnaires were accurate, the author used structured interviews to complement the data collection process by structured questionnaire. However, only a few respondents out of the 71 organizations who responded to the questionnaire were interviewed in order to "ensure proper completion of the questionnaire and to authenticate the information provided" (p. 110).

Kariyawasam (2014) computed a simple Pearson correlation coefficient between respondents' perceptual data on MCS and data on Return on Sales from the companies sampled. The Return on Sales data was financial ratios. Analysis of the data indicated that MCSs have a statistically significant impact on the Return on Sales of manufacturing companies in Sri Lanka. Kariyawasam compared the outcome of the research with previous research that investigated whether there was a positive link between organizational financial performance and organizational MCS use. The author concluded that results of the study supported results of the research done by Bloom, Eifert, Mahajan, Mckenzie, and Roberts (2012) and Ho, Huang, and Wu (2011). MCS has a positive impact on organizational financial performance. Conversely, the author underlined that the results of the research contradicted the results of the study done by Jankala (2007), who found that MCS has little impact on the financial performance of an organization.

Akroyd and Kober (2010) used a 5-year retrospective longitudinal study to

empirically explore emergence and use of MCS in high-growth business organizations. Specifically, their investigation centered on pinpointing exactly the answers to the following key points:

(1) At which stage in the life cycle of a high-growth company the management introduces various control mechanisms,

(2) The various uses for these control mechanisms,

(3) The initial reasons that triggered the introduction of these control mechanisms, and

(4) The impact these control mechanisms have on the firm's growth.

Their study focused on a high-growth company, HRV, based in New Zealand, from its start-up in March 2003 to December 2007. The primary data collected were transcribed, analyzed, and categorized according to Simon's (1995b) four levers of control framework. These data were then statistically married to the documents and observations made by the researchers during their investigation of the company. The stages of HRV's life cycle analyzed by the researchers were the company's start-up and growth stages. The data from the interviews were divided into the selected life cycles by the researchers utilizing Miller and Friesen's (1984) framework of firm characteristics.

Findings from this study suggest that belief systems were the first control systems to be implemented in an organization, and that these belief systems are constantly reinforced and built-upon throughout the start-up and growth stages (Akroyd & Kober, 2010). Interestingly, this finding differed significantly from the findings of other prominent researchers who studied the same questions. Those prominent scholars

include, but are by no means limited to, Simons (1995b) and Sandino (2007), whose works on MCS as well as experience-based models found that internal controls and diagnostic financial controls were the first control categories adopted by young growth-oriented companies.

Ho et al. (2011) conducted an empirical investigation of the expectation that MCS would have a positive relationship to the efficiency and quality of Chinese correctional institutions, conditional on the dichotomy of tight and loose MCS. With this research objective, these authors empirically tested if the efficiency and quality of correctional institutions with tight MCS were better than those with loose MCS. They sampled 57 institutions, which consisted of 20 prisons, 18 detention houses, three juvenile reformatory schools, and 16 juvenile reformatory and classification houses. In terms of the data analytic methods, the efficiency of each correctional institution was computed by use of both Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA). They operationalized quality performance in the correctional institutions as the frequency of custody incidents in any given period. That is, quality was operationalized as the ratio of the number of custody incidents to the total prison population in each correctional institution. Finally, these researchers found that correctional institutions with tight MCS have both the higher efficiency and quality compared with correctional institutions with loose MCS.

Kariyawasam and Kevin (2014) quantitatively investigated the same research questions as in Kariyawasam (2014) but with two exceptions. Specifically, Kariyawasam and Kevin (2014) published their research in a different peer-reviewed academic journal

outlet than Kariyawasam (2014), and their dependent variable was normalized profits of manufacturing companies in Sri Lanka. Kariyawasam and Kevin (2014) operationalized normalized profit as the ratio of a company's operating (net) profit to price index (consumer price index). The authors computed Pearson correlation coefficients to test the strength of association between MCS (the independent variable) and normalized profits of manufacturing companies (the criterion variable) of interest.

The authors' study was conducted to investigate the hypothesis that there would be a positive impact of MCS on the normalized profits of manufacturing companies in Sri Lanka. Data gathered through questionnaires, interviews, and company archives were analyzed and interpreted by means of various financial ratios as well as applied statistical techniques. The study found strong to moderate positive correlation between normalized profit of companies and MCS in manufacturing firms in Sri Lanka. Additionally, this relationship was statistically significant at the 5 percent level. The authors concluded that there was a moderate, statistically significant positive association between the normalized profit of manufacturing companies in Sri Lanka and their MCS (Kariyawasam & Kevin, 2014).

I now review MCS quantitative research specifically underpinned in contingency theory.

Quantitative research on management control systems underpinned on contingency theory

Because this dissertation centers on a quantitative study of MCS theoretically underpinned in contingency theory, some of the quantitative research on MCS

conceptually driven by contingency theory may be insightful to review.

The literature review now focuses on the four key constructs in this study. These are: organizational performance, business strategy, non-financial forms of MCS, and financial forms of MCS.

Organizational performance measurement issues.

In this study, organizational performance continues to be the dependent variable of interest for researchers in any area of management, including management accounting. This broad construct is essential in allowing researchers and managers to evaluate their organizations at any point in time cross-sectional) as well as over time longitudinal), and then compare a specific organization with other rivals across the industry.

A consensus exists among scholars that organizational performance is the most important criterion variable in evaluating organizations and their actions as well as the organizational environments (March & Sutton, 1997). This pervasive use of organizational performance as a dependent variable attests to the importance research scholars have attached to the construct. March and Sutton found that, over a three-year period, of 439 articles in the Strategic Management Journal, the Academy of Management Journal, and Administrative Science Quarterly, 23% included some form of measure of organizational performance as a dependent variable in their studies.

Even though organizational performance plays such a dominant role in the management fields, researchers have not paid proportionate attention to what organizational performance is and how it should be correctly measured for empirical research purposes. Consequently, the operational definition of organizational

performance continues to be an open question with few studies using consistent definitions and measures of organizational performance (Kirby, 2005). In fact, organizational performance has become so vastly prevalent in management research that some researchers hardly make any attempts to justify its definitional structural domains (March & Sutton, 1997).

The studies by March and Sutton (1997) and Kirby (2005) suggest that measures of organizational performance ranged from an assortment of operating ratios, net profit after taxes, return on equity, FDA approvals, and other global perceptions of relative performance. Out of 132 measures identified, 92 different measures of performance were used across the papers. The measurement was further complicated by variation in the use of single, multiple, and aggregated measures. There was hardly any scope for meaningful comparisons between the papers that they studied (March & Sutton, 1997).

Similar to March and Sutton (1997), Boyd, Gove, and Hitt (2005) looked at papers about organizational performance published in four leading management journals. During their study period of 1998-2000, 677 papers used organizational performance as the dependent variable, and 228 of those (38.1%) were measures that used single indicators. Of the papers, only 19.6% of the studies used statistically constructed scales that allowed the measurement structure and error to be evaluated. The use of single measures indicates a broad need to integrate methodological developments into practice. Evidently, it is important to operationalize organizational performance in order to enhance its relevance and applicability in academic management research. The inability

to understand and characterize performance consistently reduces the impact and relevance of management research.

With specific attention to the management accounting, performance measurement models evolved from a cybernetic view, whereby performance measurement was based on financial measures and considered a component of the planning and control cycle, to a holistic view, whereby multiple nonfinancial measures act as an independent process integrated into a broader set of activities. However, performance measurement is traditionally viewed as an element of the planning and control cycle that captures performance data, enables control feedback, influences work behavior, and monitors strategy implementation (Simons, 1990). Evidently, the measurement of organizational performance is mainly underpinned by financial perspective (Johnson & Kaplan, 1987). Performance measurement plays a key role in the development of strategic plans and evaluating the achievement of organizational objectives, as well as acting as a signaling and learning device (Ittner & Larcker, 2001; Simons, 1990).

Non-Quantitative Research on Management Control Systems

Gooneratne and Hoque (2013) conducted a review of management control research in the banking sector and offered suggestions for future research directions. By design, the review was done by searching and gathering information from leading accounting journals as well as other related pertinent journals, covering all publications from the inception of each particular journal to 2010. Their framework also included sorting out articles on management controls based on research topics covered in the journal, theoretical platforms of the journal articles, research methodology used for the

research, and research settings. While the authors primarily reviewed materials in leading accounting journals, they also gleaned insights from other relevant journals as listed in their appendix. This way, the authors attempted to cover all publications from the inception of each focal journal until the end of 2010.

The authors' search strategy, included inputting search phrases as: "*management control systems*," "*management control*," and "*banking*," and this exercise was conducted on articles published in online databases only (Gooneratne & Hoque, 2013, p. 145). The outcome of the search yielded a sizable number of papers that indicated relevance to the objective of the study, namely issues related to management control in banking industry. It is notable that some online databases produced irrelevant papers once the words "*management*," "*control*," or "*banking*" were entered individually or collectively into their search engines. It became inevitable that such unwanted results would be manually deleted. Equally deleted were papers premised on conceptual platforms, commentaries, reviews, and editorial articles, so that the list of articles finally collated were those whose focus were field study and/or empirically evidenced articles with academically substantive insights on management control issues within the banking industry. This exercise yielded 40 studies for review, and the authors presented the frequency distribution of those 40 articles from those journals sampled in a table.

In terms of the study's outcome, the authors' review revealed that there are detailed studies on management controls in the banking sector, which is attested to by the sizeable number of descriptive studies. They noted that most of the past studies did not perform an in-depth studies on control issues of banks, nor did they clearly engage in

well-grounded articulation in theory and methodological rigor. Additionally, the authors found that, conditional on the studies they reviewed, these studies failed to uncover the fundamental problems encountered by banks and the nature of management control practices deployed by those banks (Gooneratne & Hoque, 2013).

As the authors admitted, their review had some obvious limitations and caveats. The major caveat was that the review was deliberately selective by design. As such, even though their review was illustrative only of the state of management control research in the banking sector, it could not in any sense attempt to be a comprehensive coverage of all research in the banking sector. That said, the review identified critical gaps in the current literature and made calls for further research on a number of management control issues in the banking industry (Gooneratne & Hoque, 2013).

Guacimara and Rosa (2012) employed a comprehensive framework to review different components (strands) of management controls in accounting, strategic planning, budgeting, and forecasting under the broad heading of MCS, with a focus on the tourism industry. In this framework, the authors chose to address performance management systems (PMS) separately, even though both MCS and PMS are intertwined managerially and academically, as the authors explicitly admitted. In conclusion, the authors made suggestions for future research in both MCS and PMS.

In terms of the outcome of the review, the authors concluded that performance measurement continues to be a very useful tool for MCS, especially as contemporary approaches such as the Balanced Scorecard (BSC) attest that performance measurement improves business performance across management fields. The authors added that while

BSC is widely used as a management framework instead of the traditional ratio analysis, their review also found recent studies that used data envelopment analysis (DEA) to analyze the efficiency and performance of businesses across industries. The authors went further to cite other scholarly works that described how BSC helped managers to link current strategic actions to future goals, thereby becoming a strategic management system for teamwork and innovation (Guacimara & Rosa, 2012).

Consequently, the authors cautioned that even though there is still much confidence in financial reporting as a business strategy, nonfinancial measures are increasingly taken into account, and that most successful companies consider these measures as the key for future business performance as reflected in long-term financial performance. The authors cited the example in Banker, Potter, and Srinivasan (2005) indicating empirically how improvements in the nonfinancial measures of a hotel chain were followed by increases in revenue and profit. The authors' stressed that for over two decades, academics and professionals have been arguing that performance management is only possible if the PMS reflects the company's multidimensional nature (Guacimara & Rosa, 2012).

Guacimara and Rosa (2012) noted that the caveat in this stream of thought is that multiple measures may divert management attention from the organizations' objectives. They also made multiple conclusions and recommendations. The study found that a subjective weighted average rate may generate a performance index from the BSC. In this sense, the data envelopment analysis (DEA) satisfies the criticism where the weights applied to each variable within the model are determined to maximize the performance

index of each decision-making unit. The study concluded that there should be increased use of DEA in strategic management and performance measurement across industry settings. With regard to MCS and PMS, evidence suggests that these are not new ideas in the research in management disciplines. However, they may be new in some industries like tourism, as little research has been done there based on PMS and MCS.

Finally, these authors summarized their review as follows. First, the articles reviewed contributed to a greater understanding of management practices as the review focused on analyzing issues related to accounting information systems, management control, strategic planning, and the use of BSC as a primary tool to measure an organization's financial and nonfinancial performance. Second, the main conclusions from the review were related to the relevance of identifying areas of future research. To this end, the studies analyzed demonstrated a significant association between the use of MCS and PMS on organizations' performance. Third, the use of different MCS and PMS promotes the strategic implementation and execution of organizational goals.

In this regard, performance measurement arises as a key factor for small and medium-sized organizations in their strategic actions for success in the tourism industry. This stance transformed Kaplan and Norton's (2001) methodology into a very useful tool for measuring performance within management control paraphernalia (Banker et al. 2005; Denton & White, 2000). Related to this, any improvement on nonfinancial measures results in revenues and profits increases in the short term, as previous research attests (Banker et al. 2005). The use of budgets as a control technique is highly relevant in the hospitality industry, as previous research evidence has been documented (Jones,

2008). The authors reiterated that the interplay among MCS, PMS, and performance help to establish the conceptual framework for future research in these areas (Guacimara & Rosa, 2012).

Guacimara and Rosa (2012) suggest that little is known about MCS and PMS with respect to small and medium-sized enterprises (SMEs) within the tourism industry. Guacimara and Rosa suggested that future research should focus on further understanding of the links between management control and performance, with the understanding that no set criteria are clear enough to empirically accomplish this mandate. Thus, Guacimara and Rosa noted that the development of more qualitative studies would be an advance towards a better in-depth understanding of the issues. There is need for articles using experimental and analytical methods to employ a more consistent statistical analysis, which allows for a better fit of the relationship between variables. This way, their suggested recommendation should contribute positively to academic understanding of developments in various industries, including the tourism industry. The authors suggested that the principal focus for future research should be geared to empirically ascertain why some companies use formal systems where others use informal systems, as well as the consequences these actions have on organizational performance. This subject should be considered a serious matter for SMEs, as there are significant differences between SMEs and large companies in this review. The authors remarked that cross-studies regarding the use of these control systems in different areas and economic sectors, such as tourism, should help identify these companies' contributions to the global economy. Tourism being the world's largest industry, and owing to the prominent role of SMEs in the global

economy, new studies relating to these issues are necessary, with performance improvement being the main objective (Guacimara & Rosa, 2012).

Stewari's (2010) research presented a conceptual model of the MCS design of mid-19th century U.S. slave plantations in the framework of contingency theory. The study used archival primary data drawn from multiple sources (the University of South Carolina Library, the South Carolina Historical Society, the Duke University Library, the Maryland Historical Society, the Louisiana and Lower Mississippi Valley Collection, the Louisiana State University Libraries, and the University of Virginia Library) to portray how large rice plantations that relied on forced labor and tidal-flow agricultural technology were found to be extremely profitable to their owners. The conceptual model linked these favorable operating results to a close fit between the control system design and contingent environmental variables. In these linkages, absentee owners used the agency of plantation managers to provide on-site oversight and periodic operational reporting for the plantation. These managerial agents working for the interests of the absentee plantation owners relied on slave drivers to assign individualized daily tasks to the plantation's field workers and monitor their performance. In this MCS design, field slaves were rewarded with greater free time each working day as well as working cooperatively with their masters to obtain better jobs outside the rice fields, in addition to a possible cash income. However, it was the institution of chattel slavery that kept the slaves working in the rice fields under oppressive and unhealthy conditions.

The contingency theoretical perspective predicted that superior organizational outcomes among 19th century tidal rice plantations were associated with an MCS design

that efficiently adapted to the key features of the organizational environment at the plantation studied. The study allowed the following key conceptual outcomes: It was conceptually predicted that a high level of productivity came from the plantation's slave labor force, since all slaves (both men and women) aged seven and up worked. Even though most slaves toiled in the rice fields, many others worked in workshops surrounding the fields and in the owner's residence. All these jobs (directly or indirectly) contributed to the size of the annual harvest for the owner, and thereby positively impacted the plantation's profitability for the owners. Notably, the presence of these non-field occupations offered opportunities for those slaves willing to work hard for a living rather than becoming run-away slaves. Consequently, this and other advantages accrued to the few loyal slaves, as they became skilled artisans. Overall, these key predictions rested on the design and use of MCS (Stewari, 2010).

Budgeting as a Management Control System

In the past, accounting has been the basic tool of control for managers. Within the framework of accounting, budgeting has played a dominant role as a technique for control and evaluation. In contemporary businesses, budgets remain one of the most widely used MCS techniques, as current research has revealed. For example, Jones (2008) discovered three key reasons why organizations in the hospitality industry develop budgets: as a tool for management control, performance evaluation, and planning.

Currently, budgets can be viewed as a forecasting tool in the short term (about a year). However, in order to align strategy and business objectives in the long term, the need for advanced forecasting (about five years to ten years) may arise (Hesford & Potter,

2010). Hesford and Potter also identified significant differences in processes between large and small hotel management companies. Additionally, Hesford and Potter presented evidence of a complete collection of accounting research papers that were published in the Cornell Hospitality Quarterly, which include a range of issues involving accounting practice, cost management, and strategic management controls. The authors also presented detailed organizational reasons attesting to the explanations for accounting topics such as budgets, costs, and performance measurement. This way, some problems and limitations were drawn from their study as they relate to the limits of cost assignment and the misuse of flexible budgets as well as nonfinancial measures in the literature.

With specific focus on the purpose of this study, there has been a sustained increase in scholarly efforts towards better understanding of the role MCS plays as a contingent variable in organizational strategy formulation and implementation (Cadez & Guilding, 2008; Jermias & Gani, 2004; Kald et al. 2000). The reason for this increase in scholarly research is not far-fetched. It is explained by the increasing competitive environment in which firms operate (Langfield-Smith, 1997; Simons, 1990). It is also attributed to the development of methods such as the balanced scorecard, strategic management accounting, and value-based management (Kald et al. 2000).

Researchers agree that to achieve better performance and competitive advantages, firms must not only have appropriate strategies but also ensure that such strategies are aligned with their MCS (Acquaah, 2013; Jermias & Gani, 2004; Kald et al. 2000; Simons, 1987, 1990). Therefore, business strategy has become an important contingency variable in the study of how MCS can be used to improve organizational performance (Langfield-

Smith, 1997). To this end, the role organizational strategy plays in MCS research has been well articulated by Chenhall (2003), who concluded that "the role of strategy is important as it addresses the criticism that contingency-based research assumes that an organization's MCS is determined by context and that managers are captured by their operating situation" (p. 150). Drawing on Chenhall's note, this study aims to make a contribution to the knowledge of scholars and managers by empirically investigating the theorized linkages between business-level strategy, MCS, and performance of minority-owned business organizations, an overlooked yet critical research gap.

Performance Management Systems as Management Control Systems

It is now well established that management accounting control (MAC), performance management systems (PMS), and management control systems (MCS) are closely related areas (Jansen, 2011). Because of this close relationship and overlapping, quantitative empirical studies in the extant literature in these areas appear as: (a) strategic performance measurement systems (SPMS), which focus on the effects of SPMS on organizational performance mediated by sound strategy implementation (Bisbe & Malagueno, 2012; Crabtree & DeBusk, 2008; De Geuser et al. 2009), (b) contemporary performance measurement (CPM) which investigates the hypothesized impact of financial and nonfinancial performance measures on organizational strategy and performance (Cheng et al. 2007; Franco-Santos et al. 2012; Hall, 2008), (c) environmental management accounting (EMA) of which eco-control is a subset that allow managers to apply financial and strategic control mechanisms to environmental

management; which then positively impacts organizational performance indirectly via effects on the environment (Henri & Journeault, 2010; Schaltegger & Burritt, 2000), and (d) the contingent linkages among MCS, organizational business strategy, and performance (Tsamenyi et al. 2011).

Consequently, other forms of performance measurement tools useful for MCS have emerged. One notable development is the Balanced Scorecard (BSC) which is one of the contemporary approaches that managers use to improve business performance in management fields. BSC is widely used as a management framework instead of the traditional ratio analysis. However, there are also recent studies that use data envelopment analysis (DEA) to analyze efficiency and performance.

In 1992, Kaplan and Norton revolutionized conventional thinking about performance metrics by going beyond traditional measures of financial performance. In a later work, Kaplan and Norton (1996) showed that nonfinancial indicators were extremely valuable for predicting future financial performance rather than simply reporting the past. Their work described how BSC helped managers' link current actions to future goals, thus becoming a strategic management system for teamwork and innovation. Denton and White (2000) demonstrated the advantages of implementing BSC in a hotel chain in order to achieve managerial long-term objectives, move into new strategic areas, and identify negative trends in the early stages. Amaratunga, Baldry, and Sarshar (2001) extended Kaplan and Norton´s (1992, 1996, and 2001) BSC concept by showing a novel view of deploying strategic direction, communicate expectations, and measure progress towards agreed objectives. A common thread in the works of these

research scholars was that the key approach to overcome BSC implementation is to develop a systematic and structured improvement process to support the measurement system.

Given the above discussion, a pertinent question arises: What is the role of organizational leadership in strategic design and deployment of MCS? It is becoming widely accepted that an organization's management accounting and MCS are tied to the leadership style of the organizational managers (Hopwood, 1974). For example, cybernetic MCS is supportive of a transactional leadership style. A cybernetic MCS is a system in which performance targets are determined by means of a measuring system so that performance is evaluated and compared with predetermined standards and actual performance. In this framework, managers intervene only where there are variances between these established standards and the actual performance (Fisher, 1998; Simons, 1995a, 1995b). Furthermore, in organizational settings with a cybernetic MCS, managers who have a transactional leadership style can be effective, since the information such managers typically use are performance targets and performance measures. Performance targets enable such managers to express the performance that is expected from the members of the organization. Furthermore, performance measures enable managers to monitor the activities of their subordinates so that targeted performance will be used for the allocation of performance related rewards. In this setting, if performance targets and measures are absent for any reason, cybernetic controls cannot be usefully applied (Simons, 1995a, 1995b). For example, if an organization's tasks and environment is complex, expressing its objectives in terms of clear and realistic targets can be very

difficult. In these circumstances, a manager may not be able to rely on formal management accounting and control procedures (Simons, 1995a, 1995b). Consequently, it may be necessary to rely on more controls that are implicit. An example of an implicit management control system is what Simons (1995a, 1995b) termed belief systems. Beliefs systems, one of Simons' (1995a, 1995b) levers of control, act to inspire and promote commitment to the organizational core values (Simons, 1995b). Managers may use more qualitative data including organizational values, beliefs, and the mission of the organization to express what they expect of their subordinates instead of targets and performance measures.

In sum, MCS is designed to be a managerial enabler that allows managers to achieve the greatest attainable goal congruence. Managers and their employees are permitted to pursue both personal and organizational goals (Chenhall, 2003; Simons, 2000). However, the extent to which managers achieve these goals is contingent on contextual factors prevalent across different organizational settings. This perspective brings contingency theoretical framework as the key conceptual platform in the research on MCS as key driver of organizational performance (Chenhall, 2003).

Disjointed Management Control Systems Field

Arguably, the greatest factor acting against the tempo of conceptual and empirical research on MCS is that the field of MCS is greatly disjointed (Berry, Coad, Harris, Otley, & Stringer, 2009). For example, in their review of the field of MCS, Berry et al. (2009) attested to this fact as they echoed resoundingly "as the preceding review indicates, the field of MCS research is fragmented, with different researchers examining different

aspects of control systems design and use, often adopting very different theoretical perspectives" (p. 2). Consequently, this fragmentation in conceptual and empirical research on MCS has become a stumbling block against the capacity of scholars to delineate what has been previously accomplished by past research and what remains to be accomplished by future research study (Chenhall, 2003). Furthermore, critics argue that this fragmentation may have been compounded by the fact that MCS is a field that dovetailed into other management fields, including but not limited to the strategic management discipline (Zanibbi, 2011). The result of all these problems is that scholarly efforts in reviewing the literature in MCS have become a painstaking ordeal (Chenhall, 2003).

With the above points in mind, contingency theoretical framework underpins the empirical investigation in this study as a response to the research void on the relationship between MCS and strategy as they impact organizational performance (Tucker et al. 2009). Finally, because business strategy is another independent variable in this study, a review of business strategy is now presented.

Overview of Business Strategy

As one of the key constructs in this quantitative study, it is important to review the concept of business strategy. Chandler (1962) first introduced business strategy into the management field as he wrote about how corporate managers conducted their businesses. From the perspective of Chandler, business strategy is sometimes referred to as organization-level strategy, or the logical justification that an organization's management has to rationalize the suitability of the manner in which the scare resources

of the organization are deployed (Dent, 1990). In other words, business strategy is an assumption or a belief held by the management of an organization in defense of its rationale for asset deployment. Interestingly, as in any other human behavior driven by human belief system or faith, strategies can and in fact do misfire. Without going too far, this notion of strategy led scholars to form a new interest group in the American Academy of Management, and that interest group has an outlet now called "Journal of Management, Spirituality and Religion" (JMSR).

In spite of these efforts, strategic management scholars are still attempting to delineate the types of business strategy that exist (Mintzberg, 1978; Mintzberg, Raisinghani, & Theoret, 1976). For example, Mintzberg (1992) discussed his notion of the five P's of strategy as well as his five definitions of strategy: plan, ploy, pattern, position, and perspective. Each of these will be briefly explained below:

- Strategy as a plan: Strategy takes the form of a consciously intended course of action, a guideline (or a set of guidelines) to deal with a specific situation. By this definition, strategies have dual primary tenets or essential characteristics. These characteristics are that they are made in advance of the actions to which they apply, and they are developed consciously and purposefully.
- Strategy as a ploy: A strategy can be a ploy in the important sense it can be used to outwit a competitor, just as in warfare.
- Strategy as a pattern: While strategies can be intended as a general plan or as a specific ploy, they can also be realized. That is, defining strategy as plan may be sufficient to really portray what one wants to say about strategy, unless such a

definition is inclusive of resultant behaviors. Thus, strategy as a pattern essentially suggests a pattern in a stream of actions. In other words, strategy encompasses consistency in behavior in spite of whether or not the strategic actions were intended. Thus, the definitions of strategy as plan and pattern can be mutually exclusive from each other, implying that plans may go unrealized even though patterns may appear without preconception. Thus, while plans suggest that strategies are intended strategy, patterns are a realized strategy that leads to a distinction between deliberate strategies (such that intentions that existed previously were realized) and emergent strategies (where patterns developed in the absence of intentions or despite intentions occurred).

- Strategy as a position: With respect to strategy as a position, strategy may be seen as a form of connector between the organization and its environment - perhaps in the same spirit as the Industrial Organization Economics (IOE) school, whereby strategy becomes the mediating force, or the match between the organization and its environmental forces (i.e., between the internal and the external contexts).
- Strategy as a perspective: With respect to strategy as a perspective, the focus is on strategy content. This means that, its content is not simply a chosen position but as a form of an ingrained way of perceiving the world. Thus, strategy seen in this respect is roughly to the organization what core personality is to the individual. Essentially, seen from this light, strategy is a perspective shared by members of an organization through their common intentions for concerted actions.

Even though the strategy concept has been applied and defined in management disciplines, for many decades scholars have been wrestling with the problem related to the lack of a general model of an organization's strategy content. This includes but is not limited to the idiosyncratic organizational characteristics that enable discussions on the effects of different compositions of organizational strategy. Beginning with the work of Chandler (1962) who first introduced business strategy into the management field, the lack of consensus on the elements of organizational strategy content still persists. As Chandler was writing about how corporate managers conducted their businesses, his observations allowed him to offer his own definition of business strategy. Thus, Chandler defined strategy in terms of the "long term goals and objectives" as well as the "courses of action" of an enterprise (p. 13).

Resulting from Chandler's (1962) work, the concept of strategy has been frequently applied in management texts, with a variety of different meanings (Ghaziani & Ventresca, 2005). However, within the extant strategic management literature there are several typologies of business strategy orientation providing descriptions of how an organization could develop sustainable competitive advantages in an industry relative to its competitors (Acquaah, 2013; Acquaah, Adjei, & Mensa-Bonsu, 2008; Kim, Nam, & Stimpert, 2004; Miles & Snow, 1978; Mintzberg, 1988; Porter, 1980, 1985; Spanos, Zaralis, & Lioukas, 2004). Because Porter's (1980, 1985) generic strategy is used to operationalize the strategy construct for this study, a brief summary of it is presented, followed by a comparative summary of its key elements.

Porter's Generic Strategy

The relative position of an organization within its industry will determine whether that organization's profitability is below or above the industry average. The latter position is called monopoly rent (Porter, 1980, 1985). It should be noted that this position goes against government policy; nevertheless it is the heart of Porter's thesis. The fundamental basis of above average profitability in the long run is sustainable competitive advantage. There are two basic types of competitive advantage a firm can possess: low cost or differentiation. The two basic types of competitive advantage combined with the scope of activities for which an organization seeks to achieve them lead to three generic strategies for achieving above average performance (rent) in an industry: cost leadership, differentiation, and focus. The focus strategy has two variants, cost focus and differentiation focus.

With respect to cost leadership, an organization sets out to become the low cost producer in a focal industry by pursuing a number of cost minimization tactics, even though the sources of cost advantage are varied and depend on the structure of the industry. These tactics may include the pursuit of economies of scale, proprietary technology, preferential access to raw materials, and other factors. A low cost producer must find and exploit all sources of cost advantage if that organization is serious about achieving and sustaining cost leadership. Other things being equal, once the organization performs these tactical activities, it becomes the above average performer in its industry, conditional on its customers' continued perception of unique offerings in its products or services (Porter, 1980, 1985).

With respect to differentiation strategy, an organization seeks to be unique in its industry along some dimensions that are widely valued by buyers according to their perception of uniqueness in the organization's products or services. The organization selects one or more attributes that many buyers in an industry perceive as important and uniquely positions itself to meet those needs. Once this is done, the organization is rewarded for its uniqueness with a premium price (Porter, 1980, 1985).

With respect to focus strategy, a generic strategy of focus occurs when the organization chooses a narrow competitive scope within an industry. This is accomplished by focusing on a segment or a group of segments in the industry and tailor strategy to serving them to the exclusion of other segments within the industry. There are two variants to the focus strategy, namely cost focus and differentiation focus. For the former, an organization seeks a cost advantage in its target segment. For the latter, the organization seeks differentiation in its target segment. Both variants of the focus strategy are premised on differences between a focuser's target segment and other segments within the industry. However, the target segments either must have buyers with unusual needs or else the production and delivery system that best serves the target segment must differ from that of other industry segments (Porter, 1980). Cost focus exploits differences in cost behavior in some segments, while differentiation focus exploits the special needs of buyers in certain segments.

Notably, all the strategy typologies in use for empirical research in management focus on comparing the efficiency or performance of one business organization against other business organizations in the same industry where both businesses compete for

market position (Porter, 1980, 1985). Attesting to this common trend, Acquaah (2013) noted that "the common inclination in all of these business strategy typologies is a focus on the relative emphasis a business places on the efficiency or effectiveness of a firm's market position" (p.134). Examples of these business typology frameworks include but are not limited to Miles and Snow's (1978) defender strategy, and Porter's (1980) overall cost leadership strategy, in which an organization's market position is compared with its competitors in terms of its relative focus on efficiency to become the lowest cost producer in the industry. Conversely, prospector strategy (Miles & Snow, 1978) and differentiation strategy (Porter, 1980) describe a firm's relative focus on the search for market opportunities to create and offer unique products and services to customers.

The present study focused on Porter's (1980, 1985) generic competitive strategy typology to depict the business strategy orientations of minority-owned manufacturing businesses in the United States. Porter argued that the generic competitive strategies of cost leadership, differentiation, and focus (both cost leadership focus and differentiation focus in a narrow market segment) represent different strategic orientations available to a firm to compete and achieve sustainable competitive advantages in its industry. Cost leadership and differentiation represent two fundamentally different means of achieving sustainable competitive advantages and enhanced performance. A firm that pursues a cost leadership strategy could achieve a sustainable competitive advantage by becoming the lowest cost producer or service provider in its industry. In line with Porter (1980), a firm implementing a cost leadership strategy fundamentally underscores "aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from

experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D, service, sales force, advertising, and so on" (p. 35).

On the other hand, an organization pursuing the differentiation strategy will focus on developing products or services that are unique and/or products and services that customers perceive to be unique. Critically, it is notable that Porter's (1980, 1985) thesis in terms of the guarantor of competitive advantage is customer perception of unique value in the product or service, and that is the linchpin that brings a competitive advantage. This point is underlined because perception is subjective; as long as this perception of uniqueness of the services or the products perpetuates in the psyche of the customers, they will be locked in to continually buy the product. Once this happens, sustainable competitive advantage becomes a reality. This is how the big organizations make their billions of dollars. Again, this point is underscored as Porter's competitive strategy. Consequently, the focal organization continues to generate and perpetuate their product or service perceptions through advertising programs, marketing techniques and methods, offering products with greater reliability, durability, features, aesthetics, and superior performance than their competitors (Miller, 1988; Mintzberg, 1988; Porter, 1985). The differentiation strategy is typically bolstered by substantial investments in research and development, marketing, and product and service innovation.

Empirically, previous studies of the competitive strategy/performance relationship using Porter's (1980) typology have supported the existence of a relationship between competitive strategy (cost leadership and differentiation) and performance in both

transition and advanced economies (Acquaah, 2013; Acquaah et al. 2008; Kim et al. 2004; Spanos et al. 2004). Consequently, there are other strategy types in the literature, and these are briefly discussed next. Essentially, these strategy types are articulated and discussed as a framework to guide scholars and business managers in their quest to really know what business strategy means.

Other Strategy Typologies

Shared strategy. According to Steensen (2014) shared strategy is present in an organization when members of the organization are informed of the selected strategy decision or course of action. Steensen (2014) noted the relative consistency often associated with shared strategy. Shared strategy may symbolize the existence of multiple ambitions and communications of a select members of the organization (Steensen, 2014). Previous research described strategy as consisting of official communications of an organization such as "plans, goals, objectives, game plans, action program, policies, and explicitly formulated business program" (Steensen, 2014, p. 271).

Continuing, Steensen (2014) discussed the cultural dimension of shared strategy and noted that culture-leaning researchers advocated for the emergence and embedding of mission statements and strategic intentions of the organization. Steensen admitted that the strategic intentions of the manager is a representation of the overall strategic intents of the organization. These strategic intents are communicated within the organization by the managers through informal methods of communication (Steensen, 2014).

Hidden strategy.

In organizations with hidden strategy, the general systems of members' activities are known to the strategy actors but are not made known to other members of the organization (Steensen, 2014). In defense of this strategy, Mintzberg and Waters (1985) stated that organizational managers deliberately withhold their intentions to make room for flexibility and revision of their plan of action. Specifically, Mintzberg and Waters (1985) stressed that excessive articulation and formalization of the plan of action may hinder flexibility and ability to update new information or course of action. Mintzberg and Waters (1985) further stated that precise formulation often locks in the strategy and forecloses the actors mental ability to make plan adjustments In other words, managers deliberately create leeway in their strategy so that adjustments can be effected for unforeseen contingencies (Mintzberg & Waters, 1985). Key strands from Mintzberg and Waters (1985) allow the inference that there may be excessive formulation and formalization of programs in ways that can hinder flexibility and mental ability necessary to make future strategy adjustments or take advantage of new opportunities.

Furthermore, political motive was introduced by writers like (Peters, 1978; Pfeffer, 1981) to justify manager's hidden intention as a strategy. These writers argued that organizational managers' use hidden intentions as a way of maintaining the confidentiality of action plans, avoid potential conflicts, and push-back in situations when strategic intentions are adjudged to be sensitive or unpopular. Mintzberg and Waters (1985) added that managers' that favor strong strategy do so to fend-off resistance to

adopted strategic plan pending opportunity to either defend or terminate the planned strategy.

However, Mintzberg and Waters (1985) provided additional explanation for the use of hidden strategy. According to the authors, hidden strategy is used to provide protection for the manager's strategic intentions against influential shareholders who do not support the strategic intentions. The influential stakeholders may include company customers, organized labor, or industry competitors with capability of derailing the outcome of the strategic intentions (Mintzberg & Waters, 1985). In the literature of strategic management, Mintzberg and Waters (1985) described the managers' strategic intentions as 'clandestine'.

False strategy.

As the name implied, false strategy are made known to the members of the organization. However, the information given to the members of the organization is not the real representation of the information communicated by the organizational managers (Steensen, 2014). At best, this is a calculated misrepresentation of the real strategic intentions of the strategy actors. Contextually, false strategy are often found in strategic political planning, industry competition planning, and war or aggression related strategy plans (Steensen, 2014). Often, industry strategists use the word 'market signals' to exemplify false strategy. The purpose in using 'market signals' is to test the responses from the industry competitors (Porter, 1980, p. 76). Porter succinctly stated that: "market signals can have two fundamentally different functions: they can be truthful indications of a competitor's motives, intentions or goals or they can be bluffs. Bluffs are signals

designed to mislead other firms into taking or not taking an action to benefit the signaler" (1980, p. 76). In real terms, Porter (1980) pointed to cases where organizational manager's announced dubious intentions that were not acted upon simply to stifle competition. For example, Mintzberg (1987) intentionally used the 'strategy as a ploy' technique to fend-off industry competitors.

Learning strategy.

Steensen (2014) presented the learning strategy as mid-grade option that did not represent either the strategic intentions or the communicated courses of actions of the organization managers. Learning strategy would have occurred when courses of actions emanate from the pool of possibilities not known beforehand to organization managers. Stated differently, learning strategy is the ability of the organization to unintentionally or spontaneously formulate action plans (Steensen, 2014). Mintzberg (1978) recognized the need to incorporate this capacity into organizational learning process by proposing a redefined strategy called 'realized'. The proposed 'realized' strategy was transformed into another potential organizational learning platform termed 'emergent strategy'. Thus, emergent strategy became a major feature of a new strategy types which Mintzberg and Waters (1985) referred to as 'consensus and unconnected' models.

Realized strategy.

According to Steensen (2014) realized strategy refers to the idea of strategy representing what actually happened. In effect, realized strategy refers to the overall patterns of changes in how members' decisions changed over time within the organization regardless if the changes are due to coincidence, adaption, or by intention

(Steensen, 2014). This view according to Steensen found support from the literature on strategy published between 1960 and 1970. Within this period, awareness was high of a potential misinterpretation of the views of some organization managers who are considered to be uncritical about the activities of the organization (Steensen, 2014).

Miles and Snow's strategy typologies.

In their work titled *Organizational strategy, structure, and process*, Miles and Snow (1978) proposed four types of strategies that organizations pursue: defenders, prospectors, analyzers, and reactors. Defenders are organizations that prefer a stable strategy domain. They are the organizations that try to play safe and avoid competition in the most aggressive manner. Defenders have a myopic view towards developments outside their domains and chose to grow through market penetration and limited product development. Their limited (narrow) product-market domain helps them invest a lot of resources and gain high level of efficiency.

In contrast to defenders, prospectors are on the opposite end. They perform in the most dynamic environment and constantly look for opportunities in the form of new markets and new products. Prospectors are venture organizations. They always look for new markets and opportunities and always add new products to their domain. Prospector managers are more dynamic in their approach than managers of the defender organizations. Their technology is contingent on forward-looking moves, and their product development is not restrictive because it goes beyond the organization's present technological capability (Miles & Snow, 1978).

Analyzers are the strategy types that inherit the characteristics of both defenders and prospectors. They juxtapose the key elements of both defenders and prospectors. Analyzers try to minimize risk and maximize the profits at the same time. Analyzers try to exploit new product and market opportunities and at the same time maintain their core products and customers. Analyzers learn to achieve and protect equilibrium between conflicting demands for technological flexibility and stability (Miles & Snow, 1978).

Reactors are organizations that fail to articulate organization strategy. Their managers maintain the organization's current strategy structure relationship despite overwhelming changes in environmental conditions, and hence they fail to align organization strategy with organization structure. Studies typically underpinned in Miles and Snow's (1978) strategy typologies treat reactors as strategy losers, and these types of organizations are generally not operationalized in empirical studies.

Resource-Based View of Strategic Management

Barney (1991) propounded the resource-based view (RBV) of strategic management. Since then, the RBV of strategic management has become a leading theoretical concept in the field of strategic management because it attempts to explain how organizations achieve competitive advantages. As the name resource-based view suggests, this theoretical model looks at the organization's resources as the key to superior organizational performance. From this perspective, RBV defines resources broadly to include all assets that an organization can draw upon when formulating and implementing strategy. Thus, if a resource exhibits certain attributes (as explained below), then that resource will enable the organization to gain and sustain a competitive

advantage.

A competitive advantage is attained when an organization creates more economic value than the competitors in its product market, and therefore economic value is "the difference between the perceived benefits gained by the purchasers of the good and the economic cost to the enterprise" (Peteraf & Barney, 2003, p. 314). Within the RBV conceptual framework, the emergence of competitive advantage is strongly tied to the existence of organization-specific resources and capabilities that are valuable, rare, non-imitable, and non-substitutable (Barney, 1991). Beyond this, a further prerequisite is that resources and capabilities must be heterogeneously distributed and immobile between organizations.

The RBV conceptual framework asserts that organizational resources fall broadly into two categories, tangible and intangible. Key attributes of tangible resources are that they have physical attributes and are visible; examples of tangible resources are capital, land, buildings, plants, equipment, and supplies. Conversely, intangible resources have no physical attributes and thus are invisible. Some examples of intangible resources are an organization's culture, its knowledge base, brand equity, reputation, and intellectual property (Barney, 1991, 2007). With respect to this study, the financial form MCS has intangible resources such as customer satisfaction, timely delivery of products and services to customers, reliable delivery of products and services to customers, dependable production activities where customers are co-producers in service consumption, good quality in services and products, strategic benchmarking with the best players in the industry, employee-based issues aimed at motivating employees, and strategic planning

capabilities. Thus, the outcome of this study will inform managers and academics of the significance of these intangible resources to organizational performance.

Importance of Minority-Owned Businesses

It is now well established that small businesses are the engine of growth for the United States national economy as well as the global economy. To this end, according to the most recent data from the United States Census Bureau (2010), the number of minority-owned businesses grew 45.6% between 2002 and 2007, in contrast to a growth rate of 13.6% by White-owned businesses. Of all minority groups, African American businesses grew the fastest during this period, at a rate of 60.5%. Approximately 107,000 African American-owned employer firms generated $98.8 billion in annual revenue in 2007, with average receipts of less than $1 million. During the same period, 4.6 million White-owned employer firms generated $9.4 trillion in receipts, with average receipts in excess of $2.0 million. Finally, the number of people employed at minority-owned businesses jumped 27% from 4.7 million to 5.9 million between 2002 and 2007, while job growth for nonminority-owned firms was less than 1%. Hence, these economic indicators appear to attest to the significance of positioning this study within the minority-owned manufacturing industry.

Summary and Conclusion

Chapter 2 reviewed the current theoretical and empirical literature on management control systems (MCS) and business strategy as the contingent variables predicting organizational performance. Clearly, as the review pointed out, even though past research has deepened scholarly knowledge of the contingent relationships among

management control systems, business strategy, and organizational performance, significant research gaps still remain. Whereas minority-owned business organizations are the engine of economic growth for both national and global economies, scholarly research on the relationships among management control systems, business strategy, and organizational performance, remains unknown for these types of organizations. The present study contributes to the literature by filling this research gap.

Chapter 3 includes a discussion of the research design. This includes the research setting, data sampling frame, and the analytical procedures used in the dissertation.

Chapter 3: Research Methodology

Overview

The purpose of this study was to quantitatively investigate whether organizational performance was related to (contingent on) management control systems and business strategy. In other words, do the contingent factors of management control systems and business strategy positively relate to organizational performance in a sample of minority-owned businesses? This chapter presents the methodology used to answer this question. The key sections of this chapter include research design and rationale, research methodology including the population sampling frame and procedure to contact the respondents, instrumentation and construct operationalization, data analysis strategy including reliability and validity issues, and a summary.

Research Design and Rationale

It is well established that the first step in every research design is definition of the problem (Creswell, 2003, 2014; Singh, 2007). That is, the research problem should dictate the methodology to be used rather than vice versa (Babbie 2010; Creswell, 2014). Rather than forcing a research design to the problem, I allowed the potential solutions to dictate the most suitable design. The purpose of this study was to quantitatively investigate whether organizational performance (dependent variable) was related to, or contingent on management control systems and business strategy (independent variables).

This quantitative study premised on minority-based manufacturing businesses had a primary purpose and a secondary purpose. The primary purpose of this study was the empirical investigation of the theorized relationships among three constructs: (a)

business-level strategy, (b) management control systems (MCS), and (c) organizational performance. This framework is presented in Figure 1. The secondary purpose of this study was the quantitative investigation of the empirical dimensions of the MCS construct. This secondary purpose was equally important because the current empirical research literature on MCS reveals that the conceptual (Chenhall, 2003) and the empirical (Tsamenyi et al. 2011) dimensions of the MCS construct are unknown to scholars and managers. Filling this gap is important to managers and academics because sound knowledge of the dimensions of the MCS construct is the foundation of and precursor to efficient use of MCS by managers who deploy it for the purpose of attaining sustainable competitive advantage (Langevin & Mendoza, 2013; Lee, M. T., et al. 2013). Unfortunately, this research gap has been made even more problematic by the diversity of conceptual definitions of MCS (Malmi & Brown, 2008; Mundy, 2010). Accordingly, this study was conducted to make an initial attempt to fill these critical research gaps.

Methodology

Population

I procured access to a population of minority-owned manufacturing businesses in the United States from Manufacturers' News, Inc., widely known since 1912. Manufacturers' News, Inc. is the oldest and largest compiler and publisher of U.S. industrial directories and databases. Using this sampling frame, I randomly identified and selected a sample of 1,000 minority-owned manufacturing business organizations out of a population of 2,583 minority-owned manufacturing businesses in the Manufacturers'

News database. I mailed questionnaire surveys to these randomly selected organizations according to the following sampling and sampling procedure.

Sampling and Sampling Procedure

Following previous studies on management control systems (MCS) (Tsamenyi et al. 2011), I randomly selected 1,000 out of a population of 2,583 minority-owned manufacturing businesses from Manufacturers' News database. Following Tsamenyi et al. (2011), I chose senior finance managers or their representatives as the key informants to complete the questionnaire survey. By this sampling procedure, I established that the sample would be representative of the target population of minority-owned manufacturing businesses as suggested by quantitative research methodologists (Babbie, 2010; Creswell, 2014; Singleton & Straits, 2005). By being a representative sample, it meant that the sample of minority-owned manufacturing businesses would be a close approximation of key characteristics of minority-owned manufacturing businesses in the population (Singleton & Straits, 2005). This way, each sample point in the population of minority-owned businesses had an equal likelihood of being selected into the sample (Manheim et al., 2011). This statistical requirement was critical for the generalization of the study's results to the entire population (Creswell, 2003, 2014).

Additionally, to ensure that a robust sample size of minority-owned manufacturing businesses was used in the study, certain procedures were met (Babbie, 2010; Creswell, 2003, 2014; Singh, 2007). First, in administering the survey questionnaires, I followed Dillman (2000) (as recently followed by Bhimani & Langfield-Smith, 2007) to ensure that the key informant (or representative) of each minority-owned

manufacturing business was the person who received and responded to the survey questionnaire. Second, following current quantitative research in MCS (Bhimani & Langfield-Smith, 2007; Tsamenyi et al. 2011), I determined that the senior finance manager (or representative) of each of the firms in the sample must be the respondent to the questionnaire.

Finally, it is well established that the robustness of a sample size as well as the response rate based on that sample are critical requirements that must be established to ensure confidence in the results of the study (Creswell, 2014). To address this important issue, I followed previous quantitative studies on MCS (Bhimani & Langfield-Smith, 2007; Tsamenyi et al. 2011) to ensure that the sample was large enough to yield a response rate equal to or better than those of current quantitative studies on MCS. This was computed by use of the well-known G*Power sample size software program, which is used to determine an appropriate sample size and effect size (Faul, Erdfelder, Buchner, & Lang, 2009). I ensured that the sample size and response rate for this study were at least equal to the smallest of the following studies.

Arachchilage and Smith (2013) quantitatively investigated the effects of both the diagnostic and the interactive use of MCS on the strategy-performance relationship on a sample of 833 respondents drawn from Sri Lankan textile apparel manufacturing firms. Arachchilage and Smith received 117 completed responses, which allowed them to report a response rate of 14.04 %.

Janke et al. (2014) conducted a quantitative longitudinal survey (2008-2010) to answer a dual research question premised on whether perceptions of negative external

crisis negatively impacted interactive uses of MCS, as well as whether interactively used MCS affected top management's perception of negative external crisis. Using a two-wave total population of 1572, Janke et al. received 332 responses out of a 1572 sample, yielding a response rate of 21%.

Lee et al. (2013) used survey data of Australian organizations and quantitatively investigated the assumption based on anecdotal evidence that top management teams support MCS innovation. Lee et al. sent their survey to 1,873 managers in 612 organizations and received a total of 419 responses from 220 organizations; "this resulted in a response rate of 22%" (p. 7).

There are other examples of response rate on peer-reviewed quantitative research on MCS; however, this study aimed to obtain a response rate higher than each of the above three studies cited above. I procured access to a database of minority-owned manufacturing businesses in the United States from Manufacturers' News, Inc. From this database, I randomly identified a sample of at least 1,000 senior finance managers or their representatives (Arachchilage & Smith, 2013) to receive the questionnaire survey. I expected that from this sample there would be enough completed and returned questionnaires to permit a computed response rate that would be greater than each of the response rates for the three examples cited above (Janke et al. 2014; Lee, J., et al. 2013; Tsamenyi et al. 2011).

Procedures for Recruitment, Participation, and Data Collection (Primary Data)

Following previous research on MCS (Tsamenyi et al. 2011), I used the follow procedures for recruitment, participation, and data collection. Because the quantitative

study was survey based, the setting was the location of the respondents in the population of minority-owned manufacturing businesses in the United States.

Following recent research on MCS (Acquaah, 2013), I used a three-pronged strategy when implementing and administering the structured questionnaires. First, a letter was sent to the chief executive officers (CEO) of the 1,000 randomly selected minority-owned manufacturing businesses to inform them about the study. In that letter, a full explanation of the purpose of the study was provided, as well as a request for their cooperation to participate in the study. To increase the likelihood of obtaining a high response rate and accurate responses, I confirmed that the respondent's participation would be strictly anonymous. To establish this anonymity, I ensured that the questionnaires made no request for personal identifying information or that of the company. To increase the likelihood of high response rate, I assured the respondents that, upon completion of the study, the executive summary of the findings would be provided to them freely.

Second, where financial budget constraints permitted, I proposed to personally visit some of the companies after the questionnaires were mailed to them to encourage their response to the questionnaire. This strategy has precedent in MCS research (Acquaah, 2013). Following Acquaah (2013), I asked the CEO/deputy CEOs to respond to the questionnaires pertaining to MCS, business strategy, and demographic characteristics of the companies; the divisional heads of finance/accounting divisions were asked to provide information on the company's performance. Using this research data collection strategy, I mitigated potential effects of common method variance bias

because data on the dependent variable and the independent variables were not collected from the same source at the same time.

Another strategy to improve respondent participation and response rate was to make several follow-up telephone calls, send reminder letters to those who had not yet responded, and personally visit them when possible. Overall, these strategies yielded a high enough number of completed, usable, and returned questionnaires on which a statistically acceptable response rate was obtained.

Instrumentation and Operationalization of Constructs

This study was survey based with structured questionnaires. Published instruments adopted from researchers were used. A brief description of each instrument to be adopted for the dependent variable and the independent variables is presented. A letter of permission from the instrument developer is included in Appendix B.

Dependent Variable Instrumentation

As shown in Figure 1, the dependent variable of this study was organizational performance. This was measured by use of instruments adopted from Tsamenyi et al. (2011).

Independent Variables Instrumentation

As shown in Figure 1, the independent variables of this study were business strategy, financial MCS, and nonfinancial MCS (Tsamenyi et al. 2011).

Organizational Performance Instrumentation

The dependent variable of the study, organizational performance, was measured using instruments adopted from Tsamenyi et al. (2011). Tsamenyi et al. measured organizational performance on a Likert scale. There is controversy among researchers regarding whether a Likert scale should be assumed to have interval properties (Li, 2013).

Problems of Likert Scale Properties

The Likert scale was developed by Rensis Likert, who assumed that the Likert scale had interval properties and that it would be appropriate for mapping unobserved latent variables such as organizational performance. On the basis of advanced scientific methodological reasons, many researchers disagreed with Likert's assumption that the Likert scale has interval properties that will give it the capability to map underlying latent constructs like organizational performance (Li, 2013). However, a full discussion of the methodological disagreements, rebuttals, and counter-rebuttals is beyond the scope of this study. Even though there are sound statistical reasons to argue against using the Likert scale as a scale with interval properties, many researchers still use it as if it has interval properties, including Tsamenyi et al. (2011). Clearly, this is not a criticism of Tsamenyi et al. as many research scholars use a Likert scale as if it has interval properties. For example, Christmann and Taylor (2006) ran a multiple regression procedure on data on a dependent variable. After running the multiple regression tests, Christmann and Taylor conducted a diagnostic test to ensure readers that there were no differences in results with or without the assumptions of violations of interval properties in their use of Likert scales.

Likewise, Martin-Tapia et al. (2009) used an innovative methodological approach to address this problem of whether or not Likert scales may or may not have interval properties. To enhance the explanation of how Martin-Tapia et al. approached this controversial issue, Figure 10 depicts Martin-Tapia et al.'s reasoning.

	(1) 0-20% Significantly below Average	(2) 21-40% Less Significantly below average	(3) 41-60% Average	(4) 61-80% Slightly above Average	(5) 81-100% Significantly above Average
(1) ROI					
(2) Profitability					
(3) Cash flow from operation					
(4) Cost control					
(5) New Product Development					
(6) Sales turnover					
(7) Market share					
(8) Market Development					
(9) Human Resource Management					

Figure 10. Martin-Tapia et al. (2009) Likert Scale Modification. *Compare the following aspects of your company's performance to that of your biggest competitor and express the extent to which they are similar on the scale provided against each aspect.*

The key issue with the Likert scale that in a conventional (standard) interval scale, the differences between any two consecutive points on the scale reflect equal differences in the underlying unobserved construct being measured. For example, suppose a

researcher wants to measure a respondent's income in dollars and found that the respondent's annual income is $50,000.00. The differences between any two consecutive points on a monetary scale would be equal. This is well established. Conversely, the same researcher wants to measure the same respondent's attitude towards marriage (ATM) on a 5-point Likert scale anchored on: (1) strongly disagree, (2) disagree, (3) don't know, (4) agree, and (5) strongly agree. While any two consecutive points on this Likert scale are physically equal, this equality will not apply to any two consecutive points on the unobserved continuous construct called attitude towards marriage, and that is where the debate hinges (Jamieson, 2004).

Rensis Likert, who developed the Likert scale, provided no mathematical proof to demonstrate that equality of any two physical consecutive points on a Likert scale holds on any two consecutive points on the unobserved latent variable under measurement. Instead, he made the argument that his interval properties assumption holds. However, a full discussion of these methodological disagreements, rebuttals, and counter-rebuttals is beyond the scope and objective of this study. However, a looked at what Tsamenyi et al. (2011) did as a solution to this problem deserves attention.

Tsamenyi et al. (2011) used 5- point Likert scale items, anchoring them as follows: "1" represents 0-20% for strongly disagree, "2" represents 21-40% for disagree, "3" represents 41-60% for neutral, "4" represents 61-80% for agree, and "5" represents 81-100% for strongly agree. Using this framework, even though the physical Likert scale does not represent or possess interval properties, the percentages they capture surely have interval properties. Finally, researchers in empirical studies in management have begun to

follow Martin-Tapia et al. (2009) and Tsamenyi et al. (2011) to use this form of modified Likert scales in empirical studies. For example, in a peer-reviewed empirical study, Oladapo and Onyeaso (2013) used this modified Likert scale to gather data for their study, which was premised on the empirical investigation of organizational innovation as a predictor of high performance work systems and was based in the framework of hierarchical multiple regression analysis. Following Martin-Tapia et al. (2009) as well as Oladapo and Onyeaso (2013), this study used this modified Likert scale to gather data in the framework of the instruments adopted from Tsamenyi et al. (2011), as stated above.

Business Strategy Instrumentation (Independent Variable)

The business strategy construct was measured according to a scale to be adopted from Govindarajan (1988), extended by Jermais and Gani (2004), and recently used by Tsamenyi et al. (2011). Specifically, Tsamenyi et al. were formally contacted for consent to use their measurement scales for all the variables in this study.

Financial form management control systems instrumentation (independent variable)

Following Tsamenyi et al. (2011), the financial forms of MCS operationalized in the study were strategic assets that include: budgetary performance measures, variance analysis, absorption costing, multiple overhead cost pools, multiple activity bases to allocate overheads, multiple service cost pools, multiple activity bases to allocate service cost pools, standard costing, sales budget, participative budgeting at lower management, product costs used for inventory valuation, and product costs used in setting prices. Evidently, these variables were operationalized because the study here involved both

financial forms and nonfinancial forms of MCS as the key independent variables (Tsamenyi et al. 2011). For example, it has been well established that non-financial forms of MCS are much more appropriate and relevant for a differentiation strategy instrumentation, while financial forms of MCS appropriated to cost leadership strategy (Chenhall, 2003; Langfield-Smith, 1997).The financial forms of MCS were operationalized according to the research done by Tsamenyi et al. (2011) and Firth (1996). Following the methods of these researchers, the respondents were asked about the extent to which the cost control and budgetary control elements in their operations are executed using a 5-point scale that was anchored between "used less often" and "used more often". The appendices report the exact items and more.

Nonfinancial form management control systems instrumentation (independent variable)

Following Tsamenyi et al. (2011), the nonfinancial forms of MCS operationalized in this study were intangible strategic assets (Omachonu, Johnson, & Onyeaso, 2008) in the form of customer satisfaction, timely delivery of products and services to customers, reliable delivery of products and services to customers, dependable production activities where customers are co-producers in service consumption, good quality in services and products as in total quality management (TQM), strategic benchmarking with the best players in the industry, employee-based issues aimed at motivating employees, and strategic planning. The appendices report the exact items and more.

Data Analysis and Plan

In this sub-section of the research, all data analyses were performed with SPSS statistical software. Upon data cleaning to ensure that all cells in the SPSS spreadsheet contained the desired entries, descriptive statistics were computed. I computed measures of central tendency (mean, median, etc.) and reported same as numbered tables. In addition, the financial management controls (FMCS) data were used to investigate the number of components underlying the management control systems (MCS) construct. The FMCS data were subjected to principal component analysis (PCA) in order to determine the number of components (factors) underlying the MCS data. The factor scores derived from the PCA of FMCS were entered along with the business strategy data into the multiple regression analysis stated in equations 5 and 7. Using the framework of Equation 5, the research questions and the hypotheses are restated as follows.

RQ1: Is financial MCS positively related to organizational performance?

H_0: Financial MCS is not positively related to organizational performance.

H_1: Financial MCS is positively related to organizational performance.

RQ2: Is non-financial MCS positively related to organizational performance?

H_0: Non-financial MCS is not positively related to organizational performance.

H_1: Non-financial MCS is positively related to organizational performance.

RQ3: Is differentiation strategy positively related to organizational performance?

H_0: Differentiation strategy is not positively related to organizational performance.

H_1: Differentiation strategy is positively related to organizational performance.

RQ4: Is low-cost leadership strategy positively related to organizational performance?

H_0: Low-cost leadership strategy is not positively related to organizational performance.

H_1: Low-cost leadership strategy is positively related to organizational performance.

Statistical Tests for Hypotheses

Prior to the test of the hypotheses, the raw data on MCS were subjected to a principal component analysis (PCA), for two reasons. The first reason is that MCS was operationalized with Likert scale items. The raw data from these Likert items caused multicollinearity in the multiple regression analysis conducted in step 2 to test the various hypotheses. To mitigate the undesirable effects of multicollinearity in the raw data, the PCA yielded new uncorrelated variables called "factor scores" that are free from multicollinearity. These factor scores were used instead of the raw data in the multiple regression analysis conducted in step 2. Scholars have established that factor scores are free from the confounding effects of multicollinearity (Eyduran et al. 2010; Sakar et al. 2011).

The second reason for the PCA is that the number of empirical dimensions (components) underlying the MCS construct is unknown to scholars (Malmi & Brown, 2008), as well as the conceptual and the empirical boundaries of the MCS construct (Fisher, 1998). Malmi & Brown (2008) agreed with the above assertion and concluded that "a number of definition and descriptions of MCS exist; some of which contain

overlaps, while others are quite different from each other" (p. 288). This statement represents a call for research that will make a contribution to scholarly understanding of the conceptual and empirical dimensions of the MCS construct. This study contributed to scholarship by using a dimension investigation statistical technique (PCA) to uncover the number of empirical dimensions underlying the MCS construct in the sample. This initial approach was exploratory and was followed by a confirmatory factors analysis by subsequent researchers. Finally, it must be stated that the primary research objective of this study was not an empirical investigation of the dimensions (components) of MCS. For this reason, only the FMCS data were used to investigate the number of components underlying the MCS construct. On this note in mind, I now discuss the details of how the hypotheses were tested.

Hypothesis 1 involved a test of the proposition that FMCS is positively related to organizational performance (OP). This hypothesis was tested by use of the framework of Equation 7 presented below.

$$OP = \beta_0 + \beta^* (\beta_1 FS_1 + \beta_2 FS_2 + \ldots) + \varepsilon \qquad (7)$$

Where:

OP = organizational performance (the dependent variable)

β_0 = constant term

FS = factor scores

β_1 = coefficient on FS_1

β_2 = coefficient on FS_2

ε = error term

Focusing on the multiple regression of equation 7, if and only if the value of β^* is positive with the associated *t*-statistic being substantially large to be statistically significant, then the null of Hypothesis 1 will not be supported, thus the alternative hypothesis will be supported. Importantly, notice that β^* is a linear combination of β_1 and β_2, which are the coefficients on their respective factor scores, as discussed in the preceding sections. Likewise, the triple dots on Equation 7 denote that I did not know in advance the number of factor scores underlying the FMCS data until the PCA data were crunched. In other words, the number of the factor scores may be greater than 2.00.

Hypothesis 2 entails a test of the proposition that nonfinancial management control system (NFMCS) is positively related to organizational performance, as expressed in Equation 8 below.

$$OP = \alpha + \beta\ NFMCS + \varepsilon \qquad (8)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of NFMCS is zero

β = coefficient on NFMCS (slope of the regression line saying how much OP changes for each unit change in NFMCS)

NFMCS = independent variable explaining (predicting) OP

ε = error term (the error in predicting the value of OP conditional on the values of NFMCS)

Finally, in the framework of Equation 8, the null hypothesis will not be supported if, and only if, the value of β (the coefficient on NFMCS) is positive and statistically significant as will be revealed by a *t*-statistic (*t*-ratio) that is positively and substantially greater than 2.00. Once the null hypothesis is not supported, the alternative hypothesis will then be supported. Expectedly, since this statistical analysis was conducted in SPSS, routine SPSS tables were produced containing these bits of information and more.

It is important to underscore that even though Hypothesis 2 was tested using the framework of Equation 8, Hypothesis 2 could also have been tested using the framework of Equation 9, stated below. Notice that Equation 9 is the familiar Person zero-order correlation coefficient expression.

That is:

$$r12 \quad = \quad \sum_{i=1}^{N} \; (Vi1Vi2) \; / \quad N \qquad (9)$$

Where:

$r12$ = the correlation between variable 1 and variable 2

$\sum_{i=1}^{N}$ = the summation of the sample from 1 to the last sample point of the sample size, N

$Vi1$ and $Vi2$ = the scores for case I on the two variables of interest (organizational performance & the other variable [NFMCS]).

It is important to mention that the Pearson zero-order correlation coefficient in Equation 9 is similar but not identical to a simple bivariate regression as in Equations 8 and 10.

Hypothesis 3 posits a test of the proposition that differentiation strategy (DS) is positively related to organizational performance (OP), as expressed in Equation 10 below.

$$OP = \alpha + \beta DS + \varepsilon \qquad (10)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of DS is zero

β = coefficient on DS (the slope of the regression line saying how much OP changes for each unit change in DS)

DS = independent variable explaining (predicting) OP

ε = error term (the error in predicting the value of OP conditional on the values of DS)

Finally, in the framework of Equation 10, the null hypothesis will not be supported if, and only if, the value of β (the coefficient on DS) is positive and statistically significant as will be revealed by a *t*-statistic (*t*-ratio) that is positively and substantially greater than 2.00. Accordingly, once the null hypothesis is not supported, the alternative hypothesis will then be supported. As to be expected, since this statistical analysis was conducted in SPSS, routine SPSS tables were produced containing these bits of information.

As indicated above, even though Hypothesis 3 was tested with the framework of equation 10, it could also have been tested by use of the framework of Equation 11, stated below. That is, equation 11 is the familiar Pearson zero-order correlation coefficient expression.

Hence:

$$r12 \quad = \quad \sum_{i=1}^{N} \; (Zi1Zi2) \; / \; N \qquad (11)$$

Hypothesis 4 states the proposition that low cost strategy (LCS) is positively related to organizational performance (OP) as expressed in equation 12 below.

$$OP = \alpha + \beta \, CSLC + \varepsilon \qquad (12)$$

Where:

OP = organizational performance (the dependent variable)

α = a constant set equal to zero when the value of CSLC is zero

CSLC = competitive strategy of low cost (low cost leadership strategy), which is the independent variable explaining (predicting) OP

β = coefficient on CSLC (the slope of the regression line saying how much OP changes for each unit change in CSLC)

ε = error term (the error in predicting the value of OP conditional on the values of CSLC)

In the framework of Equation 12, the null hypothesis will not be supported if, and only if, the value of β (the coefficient on CSLC) is positive and statistically significant as will be revealed by a *t*-statistic (*t*-ratio) that is positively and substantially greater than 2.00. Accordingly, once the null hypothesis is not supported, the alternative hypothesis will then be supported. SPSS tables were produced containing these bits of information as well as other outputs.

Finally, even though Hypothesis 4 was examined in the framework of Equation 12, it could also have been tested by use of Pearson zero-order correlation coefficient

framework as in the case of Hypotheses 2 and 3. At this juncture, one may ask if it is possible to use an "omnibus" multiple linear regression equation to test the four hypotheses. It is possible, but the system may be too noisy as the chances of multiple collinearity increases. Largely, equation 13 below is the omnibus multiple linear regression equation.

$$OP = \beta_{0+}\beta_1 (FS_1 + \beta_2 FS_2 + ...) + \beta_2 NFMCS + \beta_3 DS + \beta_4 CSLC + \varepsilon \quad (13)$$

Where

OP = organizational performance (the dependent variable)

β_0 = constant term

β_1 = coefficient on linear combination of all the factor scores

β_2 = coefficient on NFMCS

β_3 = coefficient on DS

β_4 = coefficient on CSLC

FS = factor scores

ε = error term

Thus, focusing on equation 13, if and only if, β_1 is positive with the associated *t*-statistic being equal or greater than 2.00 to be statistically significant, then the null of Hypothesis 1 will not be supported so that the alternative hypothesis will then be supported. Likewise, if and only if, β_2 is positive with the associated *t*-statistic being substantially large (2.00 and greater) to be statistically significant, then the null of Hypothesis 2 will not be supported so that the alternative hypothesis will be supported. Following the same reasoning, if and only if, β_3 is positive with the associated *t*-statistic

being substantially large to be statistically significant, then the null of Hypothesis 3 will not be supported so that the alternative hypothesis will be supported. Finally, if and only if, β_4 is positive with the associated *t*-statistic being substantially large to be statistically significant, then the null of Hypothesis 4 will not be supported so that the alternative hypothesis will be supported.

Consequently, it is evident that interaction effects may exist in the framework of equation 13. Interaction effects are outside the objective of this study. Instead, a test of interaction effects is suggested for further research, since it is beyond the articulated research objective of this study. As stated in Chapter 1 of this study, single equation models may be used to test the hypotheses if multicollinearity and similar problems necessitate the use of those single equation models discussed in section 1.

Threats to Validity

External Validity

As in the present study, it is well established that one of the ways that the threats of external validity can arise is through selection bias. Selection bias occurs when the sample that is studied does not represent the population that the researcher hopes to make generalizations to. Where selection bias occurs, it is difficult (if not impossible) to argue that the results of the study can be generalized to the wider population from where the sample was drawn (Bagozzi, 1980; Bagozzi, Yi, & Phillips, 1991). In this study, I mitigated potential effects of sample selection bias by establishing that the sample is a random draw from the population of minority-owned manufacturing businesses (Churchill, 1979), as discussed above.

Internal Validity

The concept of internal validity is relevant to studies premised to investigate cause-and-effect (Churchill, 1979; O'Leary-Kelly, & Vokurka, 1998). This study was not concerned with cause-and-effect, and thus, internal validity was not relevant for this research. To reiterate, this study investigated the question: How much of the variations in the dependent variable (organizational performance) can be explained by two independent variables, namely management control systems (MCS) and business strategy.

The internal consistency of the instruments borrowed and used in this study was established with the Cronbach's alpha coefficient indices (Carmines & Zeller, 1979; O'Leary-Kelly & Vokurka, 1998; Pedhazur & Schmelkin, 1991). O'Leary-Kelly and Vokurka (1998) proclaimed "the Cronbach alpha coefficient is one of the most popular methods for assessing reliability" (p. 397).

Construct Validity

Schwab (1980) defines construct validity as "representing the correspondence between a construct (conceptual definition of a variable) and the operational procedure to measure or manipulate that construct" (p. 5). As this definition indicated, construct validity indices are many. As stated above, the measurement instrument I used for this study was borrowed from previous researchers in MCS (Tsamenyi et al. 2011), I ensured that the measurement instrument borrowed was scientifically well developed as to assure that the psychometric properties were met (Churchill, 1979).

Specifically, O'Leary-Kelly and Vokurka (1998) suggested that "establishing construct validity involves the empirical assessment of the adequacy of a measure and

requires that three essential components be established: unidimensionality, reliability and validity" (p. 390). Unidimensionality entails that construct indicators are designed to tap into only one latent construct. Bagozzi (1980) suggested, "it is a matter of logical and empirical necessity that a variable be unidimensional" (p.126).

Ethical Procedures

Ethical consideration in research is a significant concern involving data collection in natural settings where human subjects and ethical issues related to them are at stake (Manita, Lahbari, & Elommal, 2011). Even though this study did not directly entail data collection on issues related directly to human subjects, I still followed ethical standards to ensure that: (a) by agreeing to complete the questionnaires, the respondents in the study had consented to participate in the study, (b) the questionnaire explicitly asked the respondents not to mention their names and the names of their organization on the completed questionnaires, (c) the respondents were assured of strict confidentiality and anonymity of the data they provide, and (d) the executive summary of the completed study will be made available to them freely.

Summary

The purpose of this study was to quantitatively investigate whether organizational performance is dependent on (contingent on) management control systems, and business strategy. In other words: Do contingent factors (management control systems and business strategy) positively relate to organizational performance in a sample of minority-owned businesses? To explain how this purpose was attained, the key sections of this chapter included: the research design and its rationale, research methodology

including the population sampling frame and the procedure to contact the respondents, instrumentation and construct operationalization, data analysis strategy including reliability, and validity issues.

Chapter 4: Results

The purpose of this quantitative survey-based correlational study was to use the theoretical framework of contingency theory to empirically investigate the contingent relationships among three key variables: management control systems (MCS), business strategy, and organizational performance. To attain this end, the research questions and the hypotheses related to this research objective were examined as presented below.

RQ1: Is financial MCS positively related to organizational performance?

H_0: Financial MCS is not positively related to organizational performance.

H_1: Financial MCS is positively related to organizational performance.

RQ2: Is nonfinancial MCS positively related to organizational performance?

H_0: Nonfinancial MCS is not positively related to organizational performance.

H_1: Nonfinancial MCS is positively related to organizational performance.

RQ3: Is differentiation strategy positively related to organizational performance?

H_0: Differentiation strategy is not positively related to organizational performance.

H_1: Differentiation strategy is positively related to organizational performance.

RQ4: Is low-cost leadership strategy positively related to organizational performance?

H_0: Low-cost leadership strategy is not positively related to organizational performance.

H_1: Low-cost leadership strategy is positively related to organizational performance.

In this chapter, the data collection procedures used to contact survey respondents and obtain questionnaire responses are described. Next, the study results are presented. Finally, a summary of the chapter is presented.

Data Collection

Following the IRB approval for this dissertation (IRB number 05-01-15-0179402), I procured access to a population of minority-owned manufacturing businesses in the United States from Manufacturers' News, Inc., widely known since 1912 as the nation's oldest and largest compiler and publisher of industrial directories and databases. Using this sampling frame, I randomly identified and selected a sample of 1,000 minority-owned manufacturing business organizations out of a population of 2,583 minority-owned manufacturing businesses in the Manufacturers' News database. These randomly selected minority-owned manufacturing businesses had the following pieces of information: organization names and physical addresses, first and last names of executives, and phone numbers and website contact (where possible).

Following recent research on MCS (Acquaah, 2013), I implemented and administered the structured questionnaires sent to each executive officer of the 1,000 randomly selected minority-owned manufacturing businesses. Firstly, a letter was sent to the chief finance officers (CFO) of the randomly selected minority-owned manufacturing businesses to inform them about the study. In that letter, a full explanation of the purpose of the study was provided as well as a request for their cooperation to participate. To increase the likelihood of obtaining a high response rate and high likelihood of accurate responses leading to high reliability, I indicated to the CFOs that the senior finance

manager (or representative) should fill out the questionnaire, and the organization's information would be strictly confidential. To ensure anonymity, the questionnaires included no requests for identifying information about the respondent or the company. It is well established in the literature that the company executives who fill out survey questionnaire are the key informants for the organizations they serve (Hammond, 2014; Phillips, 1981). Another strategy I used to increase the likelihood of high response rate was that I ensured that, upon completion of the study, the executive summary of the results would be provided to all study participants who completed the survey questionnaire.

On May 4th, 2015, I used first-class mail to send the following materials to the chief finance officer (or representative) of each of the 1,000 randomly selected minority-owned manufacturing businesses: (a) a cover letter explaining the purpose of the study, (b) an informed consent notice, (c) the survey questionnaire, and (d) a pre-paid self-addressed envelope to return the completed questionnaire. In addition, I made follow-up telephone calls to each senior finance executive (or representative) asking him or her to help me by filling out the questionnaires. I explained that I was an American citizen doing doctoral research in management accounting. Many of the respondents expressed their desire to assist me.

As a result of these efforts, I received an encouraging response. Approximately three weeks later, I received 127 completed questionnaires. I was encouraged to make more follow-up calls to remind those who had not yet responded to complete the survey questionnaires. As a result, about two weeks later I received an additional 109 completed

questionnaires, yielding 236 returned questionnaires. However, 11 of the 236 questionnaires were either incompletely filled out or had serious omissions. Therefore, I had 225 usable questionnaires that yielded a response rate of 23% (225/1000). The sample size and response rate were validated by current research in management accounting and sample size computation results using G* Power software 4.0 (Faul et al. 2009). Table 1 presents the sample size computation results using G* Power software.

Table 1

Sample Size Computation Results Using G Power 4.0*

F test Linear Multiple Regression: Fixed Model, R^2			
Analysis: A prior: Compute required sample size			
Input Parameters		Output Parameters	
Effect size	0.15	Noncentrality parameter	= 20.7000000
A err prob.	0.05	Critical *F*	= 2.2829
Power (1- err prob.)	0.95	Numerator *df*	= 5
Number of tested predictors	5	Denominator *df*	= 132
Total number of predictors	5	Total sample size	= 138
		Actual Power	= 0.9507643

The left-hand side (LHS) pieces of information inputted into G* Power yielded the outputted pieces of information on the right-hand side (RHS). The total sample size required was 138 with actual power of 0.9507643. A sample size of 225 for this study was far greater than the sample size of 138 suggested by G* Power.

In Table 2, the response rate for this study and rates reported by current researchers on MCS are presented. The response rate of 23% for this study was comparable to response rates reported by other researchers on MCS.

Table 2

Comparing Study Response Rate with Other Response Rates

Researcher(s)	Response Rate Reported
Arachchilage & Smith, 2013	14.04%
Janke et al., 2014	21%
Lee, J., et al., 2013	22%

The empirical evidence presented in Table 1 and Table 2 indicates the following conclusions should be drawn regarding data collection and sampling procedures. First, the strategy for data collection was approximately the same as was initially proposed. Second, the sampling procedure ensured that the randomly drawn sample was representative of the population. Third, the response rate of 23% was comparable to the response rates reported in other research on MCS.

Study Results

Descriptive Statistics

In this subsection, I follow recent empirical research in management control systems (MCS) to reiterate that the unit of analysis for empirical studies on MCS is the organization itself and not the organizational key informants who completed the questionnaires **(**Acquaah, 2013; Tsamenyi et al. 2011). Descriptive statistics are reported on the dependent variable and independent variables. Table 3 presents the descriptive statistics of the dependent variable (organizational performance).

Table 3

Descriptive Statistics of Organizational Performance

	N	Minimum	Maximum	Mean	Std. Deviation
OP1	225	1.00	5.00	4.5822	.78697
OP2	225	1.00	5.00	4.4356	.95739
OP3	225	1.00	5.00	4.4356	.94329
OP4	225	1.00	5.00	4.4444	.91504
OP5	225	1.00	5.00	4.4844	.94537
OP6	225	1.00	5.00	4.1867	1.18427
OP7	225	1.00	5.00	4.1600	1.26815
OP8	225	1.00	5.00	4.3467	1.09169
OP9	225	1.00	5.00	4.2711	1.12691
Valid N (listwise)	225				

Note. OP = organizational performance.

Table 3 indicates that organizational performance was operationalized on a 9-item 5-point Likert-type scale (with minimum = 1 and maximum = 5). The operationalization of MCS was twofold: (a) financial forms of management control system (FMCS) and (b) nonfinancial forms of management control system (NFMCS). Table 4 presents the descriptive statistics for FMCS.

Table 4

Descriptive Statistics of Financial Management Control System

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
FMCS1	225	1.00	5.00	4.1867	1.18427	-1.343
FMCS2	225	1.00	5.00	4.1600	1.26815	-1.457
FMCS3	225	1.00	5.00	4.1600	1.18819	-1.264
FMCS4	225	1.00	5.00	4.3467	1.09169	-1.700
FMCS5	225	1.00	5.00	4.1289	1.22340	-1.223
FMCS6	225	1.00	5.00	4.2222	1.15899	-1.311
FMCS7	225	1.00	5.00	4.2356	1.12701	-1.362
FMCS8	225	1.00	5.00	4.2489	1.11816	-1.394
FMCS9	225	1.00	5.00	4.2267	1.17154	-1.475
FMCS10	225	1.00	5.00	4.3511	1.06750	-1.761
FMCS11	225	1.00	5.00	4.2978	1.10811	-1.604
FMCS12	225	1.00	5.00	4.2711	1.12691	-1.532
FMCS13	225	1.00	5.00	4.1600	1.18819	-1.264
FMCS14	225	1.00	5.00	4.2044	1.17753	-1.414
FMCS15	225	1.00	5.00	4.1911	1.18544	-1.382
FMCS16	225	1.00	5.00	4.4267	1.02435	-1.963
FMCS17	225	1.00	5.00	4.4267	1.02435	-1.963
FMCS18	225	1.00	5.00	4.3867	1.08430	-1.920
FMCS19	225	1.00	5.00	4.1422	1.23825	-1.312
FMCS20	225	1.00	5.00	4.1289	1.24510	-1.283
FMCS21	225	1.00	5.00	4.1289	1.24510	-1.283
FMCS22	225	1.00	5.00	4.2622	1.10907	-1.426
FMCS23	225	1.00	5.00	4.2222	1.15899	-1.415
FMCS24	225	1.00	5.00	4.2622	1.10907	-1.426
Valid N (listwise)	225					

Note. FMC = financial management control system.

As indicated in Table 4, FMCS was operationalized as a 24-item 5-point Likert-type scale. Table 5 presents the descriptive statistics for NFMCS.

Table 5

Descriptive Statistics for Nonfinancial Management Control System

	N	Minimum	Maximum	Mean
NFMCS1	225	1.00	5.00	4.5556
NFMCS2	225	1.00	5.00	4.4444
NFMCS3	225	1.00	5.00	4.4756
NFMCS4	225	1.00	5.00	4.5022
NFMCS5	225	1.00	5.00	4.5422
NFMCS6	225	1.00	5.00	4.5600
NFMCS7	225	1.00	5.00	4.4356
NFMCS8	225	1.00	5.00	4.5022
Valid N (listwise)	225			

Note. NFMCS = nonfinancial management control systems.

As indicated in Table 5, NFMCS was operationalized as an 8-item 5-point Likert-type scale (with minimum = 1 and maximum = 5). Tsamenyi et al. (2011) followed Porter (1980) to conceptualize and operationalize competitive strategy (CS) as having two mutually exclusive domains: (a) differentiation strategy and (b) low cost strategy. Therefore, I first present the descriptive statistics for CS and then present the descriptive statistics for differentiation strategy and low-cost strategy as two mutually exclusive components of competitive strategy. Table 6 presents the descriptive statistics for CS.

Table 6

Descriptive Statistics of Competitive Strategy

	N	Minimum	Maximum	Mean
CS1	225	1.00	5.00	4.6000
CS2	225	1.00	5.00	4.4533
CS3	225	1.00	5.00	4.4533
CS4	225	1.00	5.00	4.4622
CS5	225	1.00	5.00	4.5022
CS6	225	1.00	5.00	4.5022
CS7	225	1.00	5.00	3.6222
CS8	225	1.00	5.00	3.1733
CS9	225	1.00	5.00	2.8089
Valid N (listwise)	225			

Note. CS = competitive strategy.

Following Porter (1980), Tsamenyi et al. (2011) operationalized CS as two mutually exclusive domains. In accordance with this framework, Table 7 presents the descriptive statistics for competitive strategy differentiation (CS_DS), and (2) competitive strategy low cost (CS_LC).

Table 7

Descriptive Statistics Showing Competitive Strategy of Differentiation and Low Cost

	N	Minimum	Maximum	Mean	Std. Deviation
CS_DS	117	3.00	5.00	4.6410	.53275
CS_LC	105	1.00	2.00	1.8762	.33094
Valid N (listwise)	105				

Note. CS_DS = competitive strategy differentiation strategy, CS_LC = competitive strategy low cost strategy.

Before testing the hypotheses of this study, a principal component factor analysis was conducted for two purposes: (1) to derive the factor scores to be used to replace the raw data on the 24-item 5-point Likert-type scale of the NFMCS, as the raw data were prone to multicollinearity; and (2) to uncover the unknown empirical dimensions of the NFMCS raw data, as discussed in Chapter 3.

Component Factor Analysis

As I discussed above, it was imperative to first empirically ascertain the number of sub-dimensions that characterize the raw data on the 24-item 5-point Likert-type scale of the nonfinancial management control systems (NFMCS). However, before the principal component analysis (PCA) was conducted, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (0.912) and Bartlett's test of Sphericity (X^2 = 6210.5/253, $p < 0.000$) suggested that the NFMCS data set was not an identity matrix and the data set should then be subjected to a PCA.

Table 8

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.912
Bartlett's Test of Sphericity Approx. Chi-Square	6210.458
df	253
Sig.	.000

As seen in Table 8, the prerequisite to conducting the PCA is encouraging. The PCA results themselves are detailed in Table 9.

Table 9

Communalities

	Initial	Extraction
FMCS2	1.000	.634
FMCS3	1.000	.865
FMCS4	1.000	.699
FMCS5	1.000	.825
FMCS6	1.000	.833
FMCS7	1.000	.861
FMCS8	1.000	.854
FMCS9	1.000	.810
FMCS10	1.000	.800
FMCS11	1.000	.769
FMCS12	1.000	.754
FMCS13	1.000	.883
FMCS14	1.000	.890
FMCS15	1.000	.893
FMCS16	1.000	.759
FMCS17	1.000	.787
FMCS18	1.000	.732
FMCS19	1.000	.881
FMCS20	1.000	.837
FMCS21	1.000	.846
FMCS22	1.000	.882
FMCS23	1.000	.817
FMCS24	1.000	.882

Note: Extraction method: principal component analysis.

In Table 9, the PCA extraction appears to be encouraging, with the smallest loading being 0.634 after FMCS1 was dropped because its communality was less than 0.5 (Dinev & Hart, 2004; Matheson, Rimmer, & Tinsley, 2014).

Following the PCA extraction results in Table 9, Table 10 details the factorial solution.

Table 10

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	9.957	43.292	43.292	9.957	43.292	43.292
2	6.220	27.045	70.337	6.220	27.045	70.337
3	1.477	6.421	76.758	1.477	6.421	76.758
4	1.139	4.951	81.709	1.139	4.951	81.709
5	.938	4.079	85.788			
6	.420	1.827	87.616			
7	.354	1.538	89.154			
8	.302	1.311	90.465			
9	.266	1.156	91.622			
10	.251	1.093	92.715			
11	.224	.975	93.689			
12	.208	.906	94.595			
13	.162	.705	95.301			
14	.157	.683	95.983			
15	.141	.612	96.595			
16	.132	.576	97.171			
17	.128	.558	97.729			
18	.118	.512	98.242			
19	.109	.472	98.714			
20	.092	.399	99.112			
21	.075	.327	99.440			
22	.068	.297	99.737			
23	.061	.263	100.000			

Note. Cronbach's Alpha = 0.93; Determinant = 3.049*E*-13.

Table 10 used the criteria of a varimax rotation and Eigenvalue greater than 1.00, a 4-factor solution that explained 81.7 % of the variance in the NFMCS data set (α = .93) emerged from the PCA.

It has become a standard procedure to use the scree plot to substantiate the number of factorial components in a PCA (Dinev & Hart, 2004; Matheson et al. 2014), this has been done and can been seen in Figure 11 below.

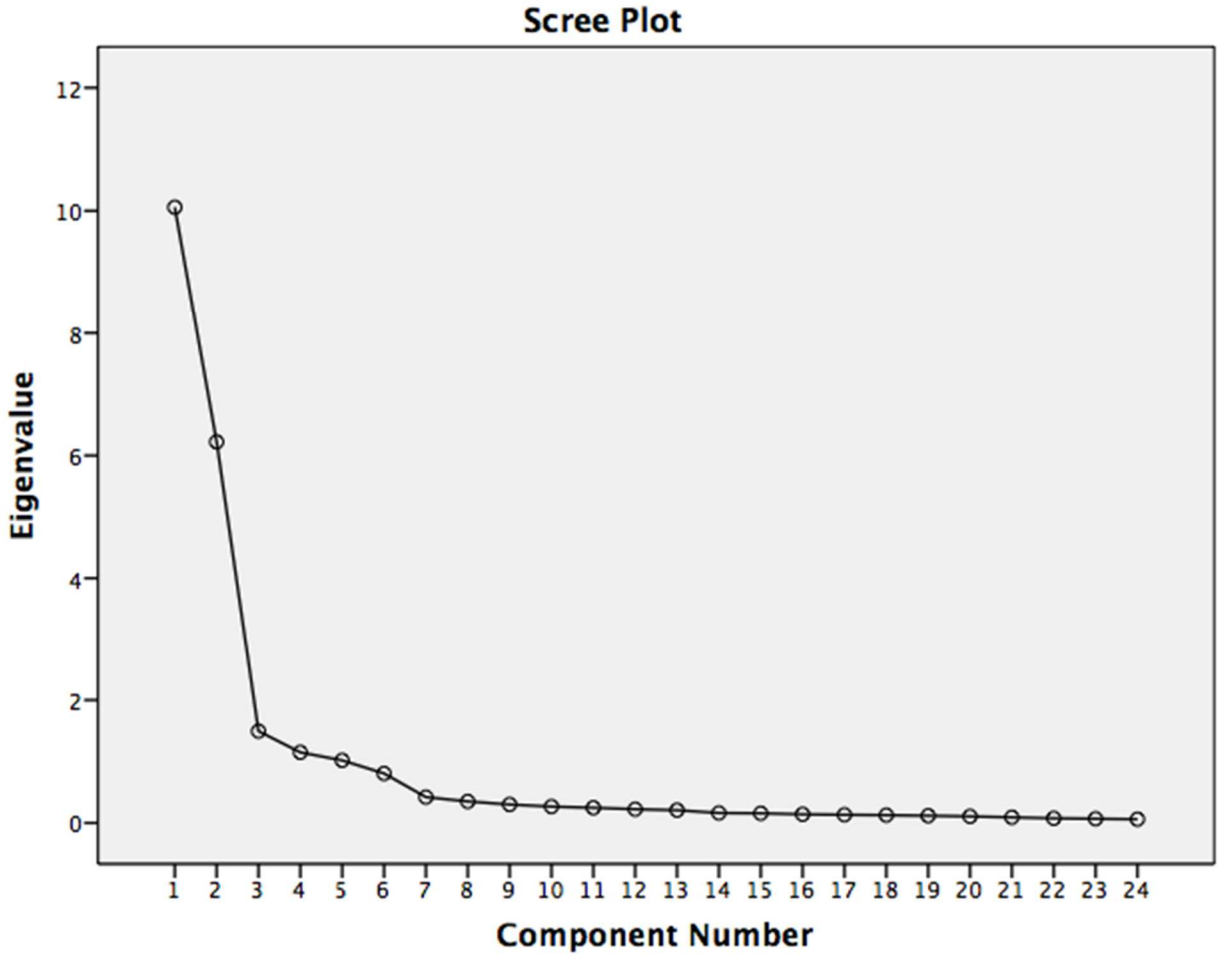

Figure 11: Scree plot of the principal component analysis

As can be seen in Figure 11 above, the elbow of the scree plot of the PCA showed a distinct and clear break at the 4-factor point, confirming indeed that the NFMCS raw data set has a 4-factor solution. Further, for a clear presentation of the 4-factor solution, a rotated component matrix is shown in Table 11.

Table 11

Rotated Component Matrix[a]

	Component			
	1	2	3	4
FMCS10	.863			
FMCS11	.850			
FMCS12	.831			
FMCS17	.827			
FMCS16	.822			
FMCS18	.805			
FMCS4	.803			
FMCS2	.792			
FMCS8		.900		
FMCS22		.895		
FMCS7		.893		
FMCS24		.886		
FMCS6		.875		
FMCS9		.871		
FMCS23		.845		
FMCS19			.844	
FMCS21			.818	
FMCS20			.818	
FMCS5			.805	
FMCS15				.798
FMCS14				.781
FMCS13				.779
FMCS3				.772

Note. Extraction method: principal component analysis. Rotation method: varimax with Kaiser Normalization. a. Rotation converged in 7 iterations.

Research Questions and Results

Research Question 1 and Hypothesis 1

Research question 1: Is financial management control systems (FMCS) positively related to organizational performance?

To examine Research question 1, the raw data on FMCS was subjected to principal component analysis (PCA). This was done for two reasons- first, to extract the factor scores from the PCA and replace the raw data on FMCS, and second, to ensure that the factors scores were free of multicollinearity artifacts (Eyduran et al. 2010; Sakar et al. 2011). Following this procedure, Research question 1 and hypothesis 1 were jointly examined in the framework of multiple regression Equation 7 restated with the four scores as predictors.

$$OP = \beta_0 + \beta_1 FS_1 + \beta_2 FS_2 + \beta_3 FS_3 + \beta_4 FS_4 + \varepsilon \qquad (7)$$

Where:

OP = organizational performance (the dependent variable)

β_0 = constant term

FS = factor scores

β_1 = coefficient on FS_1

β_2 = coefficient on FS_2

β_3 = coefficient on FS_3

β_4 = coefficient on FS_4

ε = error term

Table 12 shows the results of multiple regression on this equation.

Table 12

Multiple Regression Results of Financial and Non-Financial Management on Organizational Performance

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	2.578	.165	.	15.644	.000
Factor score1	.322	.021	.561	15.396	.000
Factor score2	.109	.020	.189	5.421	.000
Factor score3	.097	.020	.169	4.874	.000
Factor score4	.082	.020	.142	4.072	.000
NFMC	.401	.036	.410	11.088	.000

Note. Factor Score 1-4 = financial management control. NFMC = non-financial management control.

In Table 12, each of the four factor scores representing the 24-item 5-point Likert-type scale for the FMCS is highly statistically significant ($p = 0.000$). Therefore, based on the evidence in Table 12, the null of Hypothesis 1 was not upheld so that the alternative hypothesis was upheld. The FMCS is positively related to organizational performance, since each of the *t*-ratios on Table 12 is positive.

Multiple Regression Assumptions Checked

Regression is among the most commonly used statistical analysis methods (Ozlem, 2011). In multiple regression, estimating the regression weights is often affected by the presence of outliers, normality of residuals, multicollinearity, heteroscedasticity, autocorrelation, and linearity. This study is checked against the above listed assumptions of multiple regression.

Outliers: According to Barnett and Lewis (1994), outliers refer to an observation point that is not consistent with the rest of the data sets. The data sets for this study were checked for outliers, and no influential outliers were found among the values of the

variables in the regression analysis for both the dependent variable (organizational performance) and the independent variables (financial management control system and nonfinancial management control system).

Normality of Residuals: It has been well established that only the observed residual and not the unobserved errors should be checked to assure it is normally distributed (Francis, 2013; Field, 2013). In SPSS, normality of the residuals were assessed using a histogram and p-p plot of standardized residuals plots (Francis, 2013; Field, 2013), as shown in Figure 12.

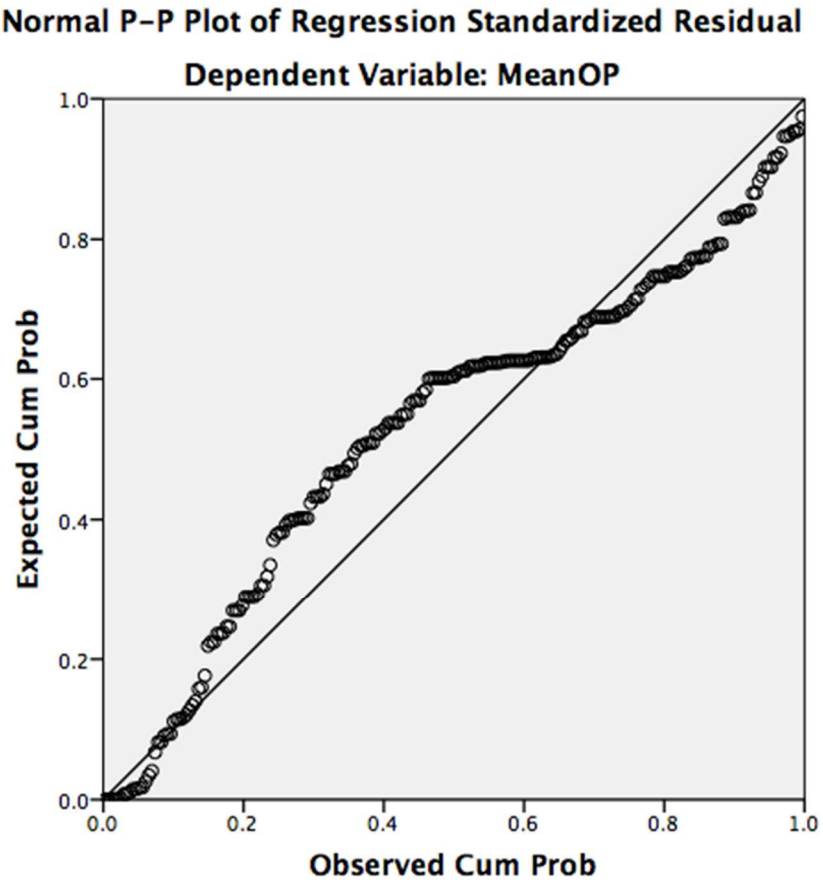

Figure 12. Normal P-P plot of regression standardized residual dependent variable: organizational performance

Likewise, the histogram is shown in Figure 13, below.

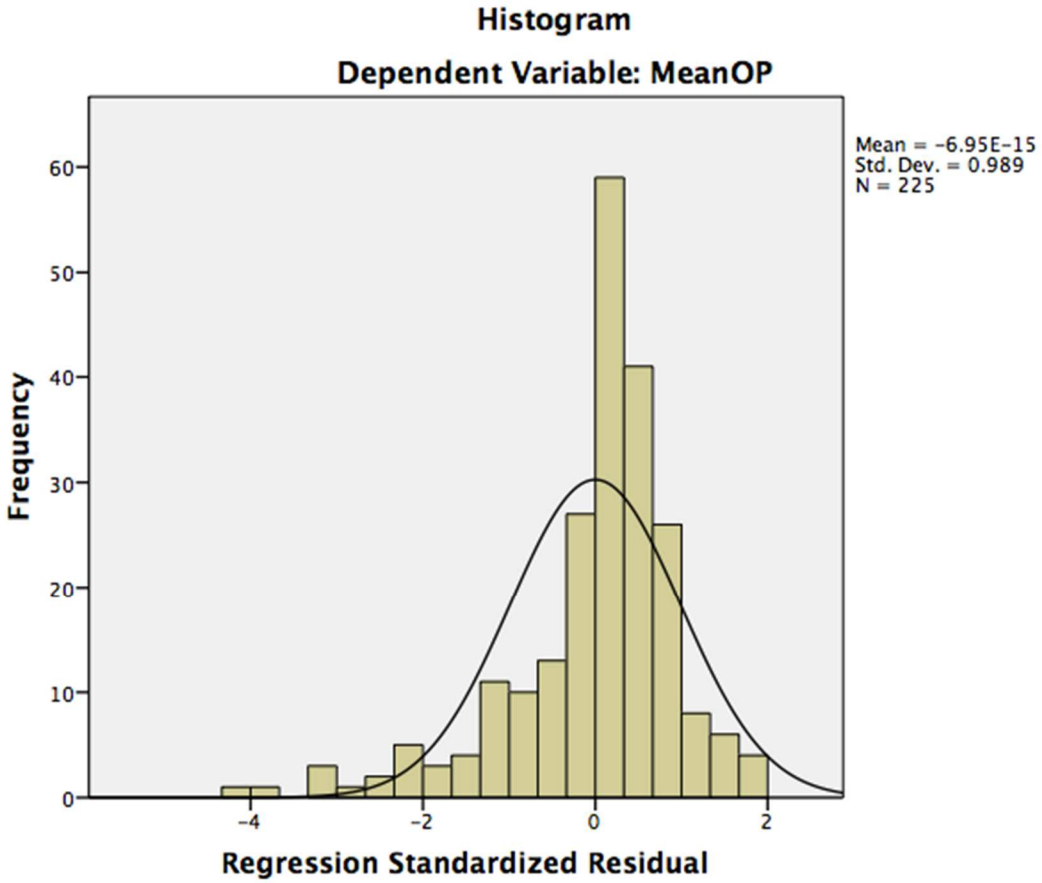

Figure 13. Histogram of dependent variable: organizational performance

The normal P-P Plot of regression standardized residual of the dependent variable and the accompanying histogram, appears to be a slight departure from normality. Consequently, non-normality was not serious enough to cast doubt on the regression coefficients shown in multiple regression Table 12. The multiple regression is robust to a fairly large sample used in the study (Lin et al. 2013). If the slight violation of normality was serious enough to undermine the regression results, then there would be a need to transform the data (Field, 2013). Log and square root transformations are rampant (Francis, 2013). However, it is breathtaking to read the famous statement by Box (1976), one of the foremost

statisticians, that undermines the foundation of statistical science as a discipline:

> "…the statistician knows…that in nature there never was a normal distribution, there never was a straight line, yet with normal and linear assumptions, known to be false, he can often derive results which match, to a useful approximation, those found in the real world" (pp. 791-799).

Multicollinearity: Multicollinearity is present where and when a number of independent variables correlate at higher levels with each other (Keith, 2014). At low levels of collinearity, researchers tend to see regression coefficients as effects of independent variables on the dependent variable (Keith, 2014). As stated by Keith (2014), multicollinearity assumption means that the independent variables are uncorrelated. Hoyt, Leierer, and Millington (2006) noted that the more variables correlate or overlap, the more difficult it becomes for researchers to separate the effects of the variables. I checked for the evidence of multicollinearity and found no multicollinearity among the independent variables as confirmed by: (1) examination of bivariate correlations and scatterplots between each pair of the independent variables, (2) the SPSS output on the variance inflation factor (VIF) was within the acceptable range (Field, 2005), and (3) because factor scores of financial management control systems (FMCS) were used rather than the raw scores, the statistical artifact associated with multicollinearity was thus mitigated.

Homoscedasticity: Multiple regression analysis is modeled with an assumption of constant variance of errors within all the independent variables (Keith, 2014; Osborne & Walters, 2002; Safi, 2013). Homoscedasticity is indicated where the variance within the

line of regression is the same for all the values of the predictor variable (Keith, 2014). Heteroscedasticity is indicated if the variance of the errors is not the same at different values of the independent variable (Keith, 2014; Osborne & Walters, 2002). Heteroscedasticity was checked and confirmed to be absent, as the bivariate distribution of the data was reasonably and evenly spread within the regression line of best fit. Additional confirmation was checked by scatterplots between the dependent variable and each of the independent variables.

Autocorrelation: Autocorrelation is an important problem that could ruin the application of regression models (Siray, Kaciranlar, & Sakallioglu, 2014). Safi (2013) documented that autocorrelation is indicated if the residuals are not independent of one another. No autocorrelation was dictated in the data primarily because the data for the study were not time series data known to be prone to autocorrelation (Francis, 2013).

Linearity: The linearity assumption is important to multiple regression because it relates to the bias of the results of the analysis (Keith, 2014). In support of this, Osborne and Walters (2002) added that relationship between dependent and independent variables can be estimated by multiple regression if the relationship is linear. In addition, Osborne and Walters (2002) suggested the examination of multiple regression analyses for linearity to check for the high incidence of nonlinear relationships. The pivotal assumption of multiple regression is that the variables are linear as checked by scatterplots and correlation between the dependent variable and each of the independent variables. Additionally, this linearity assumption was checked and was also supported by the absence of bivariate outliers in the data set (Francis, 2013; Field, 2013).

Research Question 2 and Hypothesis 2

Research question 2: Is non-financial management control system (NFMCS) positively related to organizational performance? This research question was examined along with research question 1 as NFMCS was entered in the same multiple regression equation 7. Result in Table 12 indicated that the coefficient on NFMCS was highly statistically significant ($p < 0.001$), and the *t*-ratio was positive (11.08). Therefore, NFMCS is positively related to organizational performance. The null of hypothesis 2 was not upheld so that the alternative hypothesis was upheld.

Before examining research questions 3 and 4, I will briefly explain how Tsamenyi et al. (2011) dichotomized competitive strategy (CS) into differentiation strategy and low-cost strategy. This is necessary as I followed this same approach to examine research questions 3 and 4. Tsamenyi et al. did the following:

(1) each firm's scores on the 9-item 5-point Likert scale on competitive strategy (CS) construct were summed, and the mean scores were then computed.
(2) firms with mean scores less than 3 were classified as pursuing low-cost strategy (LC).
(3) firms whose mean scores were 3 and above were classified as pursuing differentiation strategy (DS).

Some firms in their research could not fit into either LC strategy or DS strategy, thus they followed Porter (1980) to classify these hybrid firms as "stuck-in-the-middle" firms, and these firms were removed from further analysis. I followed the same procedure as

Tsamenyi et al. to construct the responses for both differentiation strategy and low-cost strategy to examine research questions 3 and research question 4.

Research Question 3 and Hypothesis 3

Research question 3: Is differentiation strategy positively related to organizational performance? In research question 3, a simple regression analysis was conducted in which the dependent variable was organizational performance (OP), and the independent variable was differentiation strategy (CS_DS). The outcome of this simple regression is detailed in Table 13.

Table 13

Simple Regression of Competitive Strategy of Differentiation on Organizational Performance

Coefficients

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	2.639	.495		5.327	.000
CS_DS	.384	.106	.320	3.617	.000

Model	95.0% Confidence Interval for B Lower Bound	Upper Bound
(Constant)	1.658	3.621
CS_DS	.174	.594

Note. CS_DS = competitive strategy of differentiation.

As stated in Table 13 and because of the high statistical significance of *CS_DS* ($p < 0.001$), the null of Hypothesis 3 was not upheld; thus the alternative was upheld. The differentiation strategy was positively ($t = 3.617$) related to organizational performance. I

conducted a complementary statistical test to examine research question 3. A simple Pearson correlation coefficient between *CS_DS* and *OP* was computed and detailed results of this analysis is shown in Table 14.

Table 14

Pearson's zero-order correlation between competitive strategy of differentiation and organizational performance

Correlation

		CS_DS	OP
CS_DS	Pearson Correlation	1	.320**
	Sig. (2-tailed)		.000
	N	117	117
OP	Pearson Correlation	.320**	1
	Sig. (2-tailed)	.000	
	N	117	225

Note. CS_DS = competitive strategy of differentiation. OP = organizational performance. ** = Statistical significance at $p < 0.001$.

Results shown in Table 14 indicated that *CS_DS* is positively related to *OP*. Evidence from Tables 13 and 14 indicated that differentiation strategy was positively related to organizational performance.

Research Question 4 and Hypothesis 4

Research question 4: Is competitive strategy of low-cost (*CS_LC*) positively related to organizational performance (OP)? To examine research question 4, a simple regression analysis was conducted in which the dependent variable was OP, and the independent variable was *CS_LC*. The outcome of this simple regression analysis is detailed in Table 15.

Table 15

Simple Regression of Competitive Strategy of Low Cost on Organizational Performance

Coefficients

Model	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	4.838	.353		13.698	.000
CS_LC	.231	.185	.122	1.247	.215

Model	95.0% Confidence Interval for B Lower Bound	Upper Bound
(Constant)	4.138	5.539
CS_LC	.599	.136

Note. CS_LC =competitive strategy of low cost.

Based on evidence in Table 15, CS_LC was positively related to OP ($t = 1.247$), but this finding was not statistically significant at the conventional levels ($p > 0.05$). Thus, research question 4 was partially supported. Furthermore, a complementary statistical approach was used to reexamine research question 4 by use of a simple bivariate Pearson correlation coefficient between CS_LC and OP. Table 16 details the results of this complementary analysis.

Table 16

Pearson's zero-order correlation between competitive strategy of low cost and organizational performance

Correlation

		OP	CS_LC
OP	Pearson correlation	1	.122
	Sig. (2-tailed)		.215 ns
	N	225	105
CS_LC	Pearson correlation	.122	1
	Sig. (2-tailed)	.215 ns	
	N	105	105

Note. ns = non-significant. OP = organizational performance.

Overall, both statistical approaches (simple regression analysis and simple bivariate Pearson correlation coefficient analysis) point to the same conclusion that low-cost strategy and organizational performance are positively related. However, the relationship was not statistically significant at the conventional levels ($p > 0.05$).

Summary

In summary, this study examined four key research questions as follows. Research question 1 asked if financial management control (FMCS) is positively related to organizational performance (OP). Empirical evidence was found in support of this research question. Research question 2 asked if nonfinancial management control system (NFMCS) is positively related to organizational performance (OP). Empirical evidence was found in support of this question. Research question 3 asked if differentiation strategy (CS_DS) is positively related to organizational performance (OP). Solid empirical evidence from two complementary tests supported the affirmation of this question. Research question 4 asked if competitive strategy of low-cost (CS_LC) is

positively related to organizational performance (OP). This questions was partially affirmatively supported in that, while a positive relationship was found between *CS_LC* and *OP,* this finding was not statistically significant at the conventional 5% level as $p > 0.05$ was found.

The preceding empirical evidence in this chapter will provide the basis for discussion, conclusions, and recommendations in Chapter 5 of this study. Specifically, the findings of this study as discussed in Chapter 4 will provide the materials that will inform the presentations in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative, survey-based correlational/predictive study was to use the theoretical framework of contingency theory to empirically investigate the relationships among three key variables: (a) organizational performance (dependent variable), (b) management control systems (independent variable), and (c) business strategy (independent variable). I conducted this study to fill current research gaps in the management control systems (MCS) literature. These current research gaps were identified through research on MCS done by Tsamenyi et al. (2011). However, even though Tsamenyi et al. broadened the current knowledge on MCS literature, their research revealed some significant gaps that the present study aimed to fill. Tsamenyi et al. investigated the nature of the linkages among three key variables in MCS, namely: organizational performance, management control systems, and business strategy.

Even though Tsamenyi et al. (2011) investigated the nature of the relationship among the three variables, their research had the following gaps. First, their study was not designed to examine the relationship among these three variables within a population of minority-owned business organizations. Instead, Tsamenyi et al. gathered data from a population of respondents "chosen from the yellow pages of the telephone directory of Urumuchi in Xinjiang, China" (p. 197). This source of data clearly indicated that Tsamenyi et al.'s research was not by design positioned in minority-owned business organizations.

Second, Tsamenyi et al. (2011) conducted their research in China. In contrast, the study for this dissertation was conducted in the United States. To the degree that China

and the United States differ in their business environments, it was expected that there would be different outcomes from the same study. Third, the present study was positioned in a target population designated as "manufacturing business organizations" within minority-owned businesses. Prior to this study, no MCS empirical research had been done within the minority-owned manufacturing business organization, to the best of my knowledge.

Interpretation of Findings

The interpretation of the study findings would benefit from a description of Porter's (1980, 1985) theory of generic strategy. Porter (1980) suggested that a firm implementing a cost-leadership strategy (or low-cost strategy) should engage in "aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D, service, sales force, advertising, and so on" (p. 35). On the other hand, a firm implementing the differentiation strategy should focus on developing products or services that are unique, where uniqueness is in the eyes of the consumer. That is, uniqueness dwells in the eyes of the beholder of the firm's products or services. As customers perceive the firm's products or services to be unique, they will be willing to pay abnormal prices for the products and services. A firm generates these perceptions through advertising programs and marketing techniques, offering products with greater reliability, durability, features, aesthetics, and performance compared to their competitors (Porter, 1985). Thus, differentiation strategy is typically buttressed by substantial investments in research and development (R&D), marketing activities, and

product and service innovation. This way, firms gain competitive advantage and create wealth for the stakeholders. With this background in mind, a discussion of four key findings of this study is now presented.

Key Findings and Interpretation

Overall, there were four key findings in this study. First, the evidence appeared to be strong that financial management control systems (FMCS) were positively related to organizational performance. Second, the nonfinancial management control systems (NFMCS) were strongly and positively related to organizational performance. Thus, both components of the management control systems (MCS) were positively related to organizational performance. This finding is in line with current research on management control systems (Acquaah, 2013; Tsamenyi et al. 2011). Third, the empirical evidence was strong that differentiation strategy was positively related to organizational performance. The finding that differentiation strategy is positively related to organizational performance is corroborated by current research in MCS (Acquaah, 2013; Chenhall, 2003; Tsamenyi et al. 2011). Fourth, the competitive strategy of low-cost was positively related to organizational performance but not statistically significant. This finding contrasts with current research in MCS (Acquaah, 2013; Tsamenyi et al. 2011). I now present the four key findings in the context of the study's research questions.

Research Question 1 and Hypothesis 1

RQ1: Is financial MCS positively related to organizational performance?

H_0: Financial MCS is not positively related to organizational performance.

H_1: Financial MCS is positively related to organizational performance.

Research Question 1 and Hypothesis 1 were addressed by first conducting a principal component analysis (PCA) on the raw data on the FMCS so that the factor scores derived from the PCA were used as independent variables for FMCS instead of the raw FMCS data, as shown in equation 7.

$$OP = \beta_0 + \beta_1 FS_1 + \beta_2 FS_2 + \beta_3 FS_3 + \beta_4 FS_4 + NFMCS + \varepsilon \quad (7)$$

Where:

OP = organizational performance (the dependent variable)

β_0 = constant term

FS = factor scores

β = coefficient on FS_1

β_2 = coefficient on FS_2

β_3 = coefficient on FS_3

β_3 = coefficient on FS_4

β_4 = coefficient on NFMC (nonfinancial management control)

ε = error term

This approach served two key purposes: (a) it allowed a robust test of Hypothesis 1, and (b) it mitigated the potential artifacts of multicollinearity in the framework of the multiple regression analysis in equation 7.

Research Question 1 and Hypothesis 1 were examined in the framework of multiple regression equation 7 restated with four factor scores in place of FMCS;

NFMCS raw data were also in equation 7 as one of the independent variables. Consequently, each of the coefficients on the four factor scores for FMCS was statistically significant. This evidence suggests that the null of Hypothesis 1 should not be upheld and that the alternative of Hypothesis 1 should be upheld. The evidence appeared to be strong that financial management control systems were positively related to organizational performance.

The next question about this finding is this: Does this finding corroborate or contradict previous research on MCS and its relationship with organization performance? The answer is the affirmative as there are examples in the literature in support of the direct and the indirect effects of MCS on organizational performance. For example, Tsamenyi et al. (2011) found that both financial and nonfinancial MCS positively strengthened the relationship between business strategy and organizational performance. The positive moderation effect of MCS on the relationship between business strategy and organizational performance was statistically significant and strong enough to compel Tsamenyi et al. to conclude as follows:

> In the case of firms following a differentiation strategy, for those firms that have adopted high levels of non-financial based MCS; there is a stronger relationship between levels of differentiation and performance than in the case of firms that have adopted lower levels of non-financial based MCS. This supports our hypothesis that a differentiation strategy should be combined with non-financial based MCS for better results. (p. 200)

Likewise, Acquaah (2013) investigated the relationship between family and nonfamily

businesses in terms of the relationships that exist between MCS (operationalized by diagnostic control systems [DCS], interactive control systems [ICS], and dynamic tension) and business strategy and performance. Acquaah found that a key function of MCS in both family and nonfamily businesses was to support the implementation of business strategies, and for MCS to effectively accomplish this role, it must be positively related to firm performance.

Research Question 2 and Hypothesis 2

RQ2: Is nonfinancial MCS positively related to organizational performance?

H_0: Nonfinancial MCS is not positively related to organizational performance.

H_1: Nonfinancial MCS is positively related to organizational performance.

Research Question 2 and Hypothesis 2 were also examined in the framework of Equation 7. Importantly, NFMCS was entered as the last variable in equation 7. Both components of MCS (financial management control systems and nonfinancial management control systems) were positively related to organizational performance. This finding is also in line with current research on MCS (Acquaah, 2013; Tsamenyi et al. 2011).

Research Question 3 and Hypothesis 3

RQ3: Is differentiation strategy positively related to organizational performance?

H_0: Differentiation strategy is not positively related to organizational performance.

H_1: Differentiation strategy is positively related to organizational performance.

Research Question 3 and Hypothesis 3 were examined in the framework of a simple regression model as well as a Pearson's correlation coefficient. The evidence indicated that differentiation strategy was positively related to organizational performance. This

finding is also corroborated by current research on MCS (Acquaah, 2013; Tsamenyi et al. 2011).

Research Question 4 and Hypothesis 4

RQ4: Is low-cost leadership strategy positively related to organizational performance?

H_0: Low-cost leadership strategy is not positively related to organizational performance.

H_1: Low-cost leadership strategy is positively related to organizational performance.

Research Question 4 and Hypothesis 4 were jointly examined in the framework of a simple regression model as well as a Pearson's correlation coefficient. Even though evidence indicated that competitive strategy of low-cost (*CS_LC*) was positively related to organizational performance, the finding was not statistically significant. Therefore, Hypothesis 4 was partially supported. This finding contrasts with current research on MCS (Acquaah, 2013; Tsamenyi et al. 2011).

Statistical Insignificance of Competitive Strategy Low Cost

Porter (1980, 1985) propounded the theory of generic strategy. Porter proposed that generic strategy has two mutually exclusive components: differentiation strategy and low-cost strategy. Porter assumed that a firm could pursue either strategy but not both, and that both types were mutually exclusive. However, critics argued that some firms pursue a combination of both strategy types (Cooper, 1996). Morschett, Bernhard, and Schramm-Klein (2006) argued against Porter's (1980) generic strategy as follows: "While it is commonly accepted that the (basic) concept of competitive advantage and

competitive strategy is applicable across different industries, researchers have criticized Porter's concept in several respects, including the allegedly oversimplified dichotomy of cost leadership vs. differentiation" (p. 276). Even though there is evidence that some firms pursue both types of Porter's generic strategy, researchers still operationalize Porter's generic strategy as two mutually exclusive strategy typologies. For example, Tsamenyi et al. (2011) constructed the index for competitive strategy of differentiation and low-cost using the follow steps: (a) each firm's scores on the 9-item 5-point Likert-type scale on competitive strategy (CS) construct was summed and the mean scores were then computed. (b) Firms with mean scores less than 3 were classified as pursuing low-cost strategy (LC). (c) Firms whose mean scores were 3 and more were classified as pursuing differentiation strategy (DS). (d) Some firms could not fit into this mutually exclusive dichotomy (a criticism of Porter), and were then removed as "stuck-in-the-middle" firms. (e) It could be that those firms in (a) above were combining both DS and LC (p. 198). It is possible that the above-mentioned steps used to construct the indices for DS and LC might have caused the statistical insignificance of the competitive strategy of low cost. This is possible because the above-mentioned procedure used to operationalize the two types of Porter's generic strategy had proven to be problematic to other researchers. For example, even though Tsamenyi et al. (2011) used the procedure discussed above to construct the index for the competitive strategy of low-cost, they later stated that:

> In the cost leadership group, a firm's strategy value was subtracted by 3 and the absolute value of the resulting score was considered as the strategy value for the

> firm. This was because, in the strategy variable, lower values meant greater reliance on cost leadership strategy, with value nearing 3, showing a minimal reliance on cost leadership strategy. (p. 198)

After computing the mean value of the competitive strategy as 3, and then classifying those firms whose scores were less than 3 as firms pursuing low-cost strategy, they subtracted 3 from the scores of those firms. Mathematically, they inevitably ended up with negative values because subtracting 3 from values less than 3 results in negative numbers. Since they cannot work with negative numbers, they changed those negative numbers to be positive numbers. That is what they meant by "a firm's strategy value was subtracted by 3 and the absolute value of the resulting score was considered as the strategy value for the firm" (p. 198). These problematic procedures in constructing Porter's low-cost strategy from the competitive strategy variable were the probable cause of the statistical insignificance of the coefficient on low-cost strategy. Therefore, it appears plausible and defensible to conclude that competitive strategy of low-cost should be positively and statistically related to organizational performance in the population as well as in the sample if the measurement problems discussed above did not occur. As I discuss further in the section for future research, this measurement problem associated with Porter's competitive strategy of low-cost is a gap in the literature. This gap is the burden of future researchers in MCS and strategic management.

Limitations of the Study

First, as in other empirical or quantitative studies, subjective measures instead of objective measures of organizational performance were used following current research

on management control systems (MCS) (Acquaah, 2013; Tsamenyi et al. 2011). In the absence of objective measures of organizational performance, researchers have used subjective measures of organizational performance (Chenhall, 2003). Moreover, many empirical studies have demonstrated that objective and subjective measures of organizational performance are highly correlated. For example, the validity of subjective measures of organizational performance as a surrogate for objective measures of organizational performance has been established (Wall, Michie, Patterson, Wood, Sheehan, & Clegg, 2004). Future research should use firms that lend themselves to the use of objectives measures of organizational performance. This way, future researchers will make scholarly contributions that would enhance current scholarly knowledge of MCS.

Second, only formal control systems were examined in this study. The use of informal control systems such as those grounded in organizational culture (shared beliefs, normative behaviors, and values), social ties, socialization processes, and the reliance on self-regulation (Malmi & Brown, 2008), demand greater empirical research that deepen scholarly knowledge of MCS.

Third, this study followed current empirical research on MCS to gather data using a cross-sectional research design (Acquaah, 2013; Chenhall, 2003; Tsamenyi et al. 2011). However, a longitudinal research design would be more robust and capable of uncovering the relationship among these three key variables in MCS investigated in the present study, namely: organizational performance, management control systems, and business strategy.

Fourth and finally, the present study focused on minority-owned manufacturing businesses. It could be that a comparison of both minority-owned and non-minority-owned manufacturing businesses would likely be relatively more informative than the outcome of the present study. However, this will be a fruitful suggestion for future research. In such future study, researchers would be encouraged to replicate the present study with focus on comparing a U.S.-based study population with a non-U.S.-based population.

Recommendations

As in any other scholarly empirical research, recommendations are drawn heavily from the limitations of the focal study as well as current gaps in the literature (Chenhall, 2003; Creswell, 2014). With this statement in mind, the results of the present study suggest some managerial implications to guide managers in their use of management control systems (MCS) to achieve sustainable competitive advantage, as the essence of organizational strategy (Porter, 1980, 1985). Specifically, sustainable competitive advantage deals with the development of attributes that characterize a company and thus differentiates the value it creates and offers to consumers in comparison to its competitors as the ‘‘core idea about how the firm can best compete in the market place” (Porter, 1980, p. 71).

In pursuit of this strategic objective, the present study recommends that managers be aware of the strategic importance of MCS, both formal and informal MCS. For example, building trust among business partners is a critical informal MCS, as some scholars have demonstrated (Chenhall, 2003).

In crafting and implementing their business strategies with MCS, business managers should be encouraged to use a combination of Porter' generic strategy rather than employing one or the other because researchers have criticized Porter's concept in several respects, including the apparent oversimplification in a dichotomy of cost leadership versus differentiation (Miller & Dees, 1993). As discussed above, it is assumed in the Porter framework that a company can only be successful by clearly deciding in favor of one of the generic strategies, not two. Porter characterizes companies that try to follow several generic strategies at the same time as ''stuck in the middle'' since he has assumed that those companies fail to achieve any of the generic strategies (1985, p. 16). However, Porter's defense for the "stuck-in-the-middle" position is buttressed by the economic assumptions of limited scarce resource availability to managers (1985). Evidently, the assumption of limited scarce resources does not appear to be adequate justification for managers not to implement a juxtaposition of more than one of generic strategies (Miller & Dees, 1993).

Implications

The mission statement of Walden University rests on delivering social change to the stakeholders of the university. To attain this strategic intent, research and learning activities at Walden University are driven by the overall objective of continuous improvement in the pursuit of best practices as well as delivering those best practices to all stakeholders (members of the society). In accordance with this strategic intent, the objective of the present study centers on ensuring that the findings of this study will make a positive contribution towards social change as it benefits the societal stakeholders.

Specifically, as business managers and policy makers glean information from the outcome of this research, chances are that they will be empowered to allocate society's scarce and limited resources optimally in the production of goods and services for benefit of the society. This way, the outcome of this study contributes to social change.

Understandably, the study aimed at ensuring that the findings will make a positive contribution towards social change at all levels of the society. Thus, the present study has social change implications at these levels as discussed below.

At the organizational level, armed with the research information that management control systems (MCS) are strategy variables that synergistically blend with business strategy to strategically improve organizational sustainable competitive advantage for superior organizational performance, managers will then deploy their organizational resources towards improvement in the implementation of a blend of business strategy and MCS. This way, optimal resource allocation will usher in above-normal profit margins and return on investment to the organizations.

At the national level, as the firms in the industry reap economies of scale emanating from strategically optimal resource allocation by combining MCS with business-level strategy, there will likely be a decline in the average cost of production across the industry. This efficacy-induced decrease in the cost of production will likely translate into a drop in product and service prices passed on to the consumer. As this trend perpetuates across industries, especially the manufacturing industry, consumer welfare gains will likely increase.

At the international level, it is easy to imagine that net gains in the gross domestic product (GDP) rooted in efficient combination of business strategy and MCS, will spill over to exports and foreign direct investments (FDI) through a greater deployment of factors of production including labor as more people are hired. This process translates into benefits to the society and thus brings a social change.

In pursuit of this, research and learning activities at Walden University are driven by the overall objective of continuous improvement in the pursuit of best practices as well as delivering those best practices to all university stakeholders (members of the society). In accordance with this strategic intent, the objective of the present study centers on ensuring that the findings of this study will make a positive contribution towards social change as it benefits the societal stakeholders.

Future Research

The present study has revealed several suggestions for future research. For example, the measurement problem associated with the operationalization of Porter's (1980) competitive strategy of low-cost is evidently a gap in the literature to be filled by future research. This gap would be the burden of future researchers in management control systems and strategic management.

Future research should explore the possible effects of informal controls on organizational performance. It has been well established that formal management controls are established explicitly to coordinate inter-organizational relationships related to outcome and behavior controls in business operations, and this has been widely researched (Chenhall, 2003). In contrast, informal controls are not designed outright, but

instead they originate from shared norms and values pertinent to building trust (Pernot & Roodhooft, 2014).

Future research should investigate the possible effects of size on minority-owned manufacturing businesses. The cost implication of the implementation of management control systems could be a drag on the resources of minority-owned businesses. Thus, there is need to research on the possible effects of the implementation of MCS on organizations of different sizes.

Interaction effects are contained in equation 13 and is outside the scope of this study. Instead, a test of interaction effects is suggested for further research.

The use of hierarchical regression to compute the explanatory effects of MCS on organizational performance, holding constant the explanatory effects due to business strategy is suggested for further study.

Replication of current study using longitudinal data is suggested as it may yield a more robust results than this study.

Equally important, managers should prepare for the potential attacks on industrial production systems because of the massive proliferation of information and communications technologies (hardware and software) into the heart of modern critical infrastructures, which have given birth to a unique technological ecosystem. Despite the many advantages brought about by modern information and communications technologies, the shift from isolated environments to “systems-of-systems” interconnected information and communications infrastructures (the internet in particular), has exposed critical infrastructures to significant cyber threats. This problem is real, and

future research should take this into account.

Conclusions

According to Porter (1985), competitive strategy can be understood as the activities a company undertakes to gain sustainable competitive advantage in a particular industry. These activities are determined by the strategic decision on the particular competitive advantage an organization is attempting to achieve. This competitive advantage should fulfill certain criteria:

- Relate to an attribute with value and relevance to the targeted customer segment.
- Be perceived by the customer.
- Be sustainable, i.e., not easily imitated by competitors.

Evidently, management control systems (MCS) play a critical role as one of the major organizational enablers for the attainment of sustainable competitive advantage. Prior studies have examined the relationships between MCS and business strategy and how these jointly impact organizational performance (Acquaah, 2013; Chenhall, 2003; Tsamenyi et al. 2011). To the best of my knowledge, no research on MCS has accomplished the research objective of the present study, which was to use a quantitative survey-based correlational/predictive study underpinned in the theoretical platform of contingency theory to empirically investigate the contingent relationships among three key variables: (a) organizational performance (dependent variable), (b) management control systems (independent variable), and (c) business strategy (independent variable).

Consequently, of all the four hypotheses tested, all suggested that: (a) management control systems (independent variable) and (b) business strategy (independent variable) were positively related to organizational performance as the criterion variable of interest. Finally, the managerial policy significance of the study eloquently spells out positive social change at: (a) the organizational level, (b) the national level, and (c) the international level, as well as avenues for future research.

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Appendix A: Questionnaire Scales

Appendix A1: Performance

Compare the following aspects of your company's performance to that of your biggest competitor and express the extent to which they are similar on the scale provided against each aspect.

	(1) 0-20% Significantly below Average	(2) 21-40% Less Significantly below average	(3) 41-60% Average	(4) 61-80% Slightly above Average	(5) 81-100% Significantly above Average
(1) ROI					
(2) Profitability					
(3) Cash flow from operation					
(4) Cost control					
(5) New Product Development					
(6) Sales turnover					
(7) Market share					
(8) Market Development					
(9) Human Resource Management					

Note. Adapted from Tsamenyi et al. (2011).

Appendix A2: Non-financial Based Management Controls

Express the extent to which the following methods are used in your company for management control on the scale given against each of the methods. The scale varies from ‘used less often’ to ‘used more often’.

	(1) Used Significantly Less Often	(2) Used Less Often	(3) Average Use	(4) Used More Often	(5) Used Significantly More Often
(1) Measures of customer satisfaction					
(2) Timely delivery					
(3) Reliable delivery					
(4) Measures of key production activities					
(5) Quality					
(6) Benchmarking					
(7) Employee-based measures					
(8) Strategic planning					

Note. Adapted from Tsamenyi et al. (2011).

Appendix A3: Financial Based Management Controls

Express the extent to which the following aspects are used in your management control system using the scale provided against each item. The scale varies from ‘used more often’ to ‘used less often’.

	(1) Used Significantly Less Often	(2) Used Less Often	(3) Average Use	(4) Used More Often	(5) Used Significantly More Often
(1) Budgetary performance measures					
(2) Variance analysis					
(3) Activity based costing					
(4) Variable costing					
(5) Absorption costing					
(6) Multiple overhead cost pools					
(7) Multiple activity bases to allocate overheads					
(8) Use of activity bases other than direct labor (money, direct labor hours, direct machine hours, units of output)					
(9) Multiple service cost pools					
(10) Multiple activity bases to allocate service cost pools					
(11) If standard costing in place,					

	(1) Used Significantly Less Often	(2) Used Less Often	(3) Average Use	(4) Used More Often	(5) Used Significantly More Often
then used for control purposes					
(12) If standard costing in place, then used for control purposes					
(13) Standard cost variances calculated					
(14) All variances reported to management					
(15) Cash/working capital budget					
(16) Sales budget					
(17) Profits budget					
(18) Production budget					
(19) Participative budgeting at lower management and workers					
(20) Production costs used for decision making					
(21) Product costs used for inventory valuation					
(22) Product costs used in setting process					
(23) Use of variable cost					
(24) Use of absorption cost					

Note. Adapted from Tsamenyi et al. (2011).

Appendix A4: Strategy Position

Compare the following aspects of your company to that of your biggest competitor and express the extent to which they are similar on the scale provided against each aspect.

	(1) Significantly Lower	(2) Lower	(3) Almost the same	(4) Higher	(5) Significantly Higher
(1) Product price					
(2) R&D over sales					
(3) Brand equity of your company					
(4) Product development activities					
(5) Rate of change of designs					
(6) Product delivery standards					
(7) Product quality					
(8) After sales service					
(9) Product features					

Note. Adapted from Tsamenyi et al. (2011).

Appendix B: Instrument-Use Permission Letter from Tsamenyi, Sahadev, & Qiao (2011)

From: Raymond Obinozie <raymondobinozie@yahoo.com>

To: m.tsamenyi@bham.ac.uk

Sent: Friday, August 22, 2014 8:19 AM

Subject: Permission to use study instruments.

Dear Professor Tsamenyi:

I am a doctoral student of Walden University, USA. I'm required by the university to obtain the consent of any author(s) I intend to adopt his/her instruments for use in my dissertation. For this purpose, I am writing to ask for your consent to use instruments in an excellent research you and your colleagues published in the outlet stated below:

Tsamenyi, M., Sahadev, S., Qiao, Z.S. (2011). The relationship between business strategy, management control systems and performance: Evidence from China. *Advances in Accounting, Incorporating Advances in International Accounting,* 27(1) 139-203.

I thank you for your understanding and assistance.

Raymond Obinozie

----- Forwarded Message -----

From: Mathew Tsamenyi <mtsamenyi@ceibs.edu>

To: 'Raymond Obinozie' <raymondobinozie@yahoo.com>

Sent: Friday, September 5, 2014 12:58 AM

Subject: Re: Dr. Mathew Tsamenyi

Raymond

In fact I did receive your request through my Birmingham email and I did reply you some time ago that you have my permission to use the instruments. The instruments are in the paper so I do not have anything separate to send you. Again, you have my permission to use the instruments from my article for your dissertation.

Mathew