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**Telfer School of Management**

**Masters of Science in Management (MSc)**

**AN ANALYSIS OF THE DETERMINANTS OF  
INTERNAL CONTROL DISCLOSURE BY  
MULTINATIONAL CORPORATIONS**

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## **Abstract**

**Purpose:** The objective of this study is to analyze the content of disclosure on internal control in multinational corporations' annual reports and to investigate the determinants of disclosure. The study questions whether there are differences in the content, volume and quality of disclosure between multinational corporations and what factors could explain these differences?

**Methodology:** This research is based on 178 multinational corporations selected from the 2012 ranking of Global 500 published by Fortune Magazine. Content analysis was used to analyze the volume and quality of internal control information disclosed in the multinational corporations' annual reports. The study accommodates for three disclosure measures which are: Disclosure Index (DI), Disclosure Volume (DV) and Disclosure Quality (DQ)

**Findings:** Based on univariate and multivariate analysis, results seem to indicate that national factors are more significant in explaining the differences in disclosure than governance and operational factors. The study also proved that there is at least one significant variable under each category of factors (National, Governance and Operational)

**Implications:** These findings could be relevant to a number of stakeholders concerned with multinational corporations' activities and performances. Stakeholders influenced by the study are top managers of Multinational Corporation, regulatory setters and investors. The research has implications on the accounting literature by shedding light on disclosure on internal control and the internal control factors grouping.

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# **Chapter One**

## **Introduction & Summary**

Internal control is considered as a management tool that serves to achieve performance and profitability targets and prevents loss of resources. It also helps to ensure reliable financial reporting information and that the company complies with laws and regulations. The attention towards internal control disclosure has increased internationally leading more researchers to study all aspects related to internal control disclosure especially by multinational corporations.

### **Role of Internal Control:**

In recent years, internal control and voluntary reporting on internal controls have been receiving considerable attention in the accounting literature and by the accounting profession and regulators. The main reason for the increased attention is to have a better financial reporting quality which will give more certainty to financial statement users. For this purpose, organizations, usually, disclose information on internal control to state management's responsibility towards internal control explicitly or to describe specific methods or instruments that support it. This exercise of disclosing on internal control helps multinational corporations reduce the information asymmetry between the insiders and outsiders. The disclosure on internal control, usually, includes the objectives of the company's internal control and a conclusion about the effectiveness of the internal control disclosure based on an assessment conducted by management.

### **Motivation of the Study:**

Due to the scandals, management, regulators and the public are all aiming towards better internal control disclosures to avoid such issues. Multinational corporations tend to function on a higher level of controls; therefore, the complexity of the current market dictates that those firms should keep these controls maintained and up to date with current risks. An important factor of the study is the importance of internal control disclosure in multinational corporations. Examining the determinants of disclosure on internal control helps investors, management and regulatory regimes understand the differences in reporting between similar and different multinational corporations. A significant amount of research focuses on the role of internal control, the regulations of internal control and disclosure of internal control. Other

research studied the influence of firm characteristics, firm valuation on the quality of disclosure, but yet very little of this literature studied the factors of disclosure on internal control in multinational corporations. The study of these factors will identify the gap and shed light on what influences multinational corporations to disclose on internal control from an international perspective.

### **Research Objectives:**

The Objective of this study is to examine the determinants of disclosure of internal control over financial reporting in multinational corporations. The study questions whether there are differences in disclosure on internal control in multinational corporations. These differences are investigated to see if they are persistent among different regions of multinational corporations. The factors that would explain those differences will be also investigated. The study of these determinants would prove beneficial and add to the literature of internal control disclosure and would help bridge the gap in the literature. The research on internal control disclosure did not consider the influential factors in multinational corporations from an international perspective.

### **Methodology:**

This research will be based on the study of 178 multinational corporations, using multivariate regression analysis on the determinants of disclosure on internal control. The sample of multinational corporations is as per the ranking of Global 500 in 2012. The study will use the content analysis approach to be able to capture disclosed elements on internal control in the annual reports. The use of content analysis will give the study an inside view on the internal control disclosures especially to compare and have an international perspective. Data will be collected from the multinational corporations' annual reports and the Bloomberg Database. This study will be very beneficial for investors, regulatory settings and management of multinational corporations as it will help each of them understand the complicated nature of what to disclose on internal control.

### **Anova Test and Univariate Analysis:**

This research provides the statistics on the sample and the three internal control measures (DI, DV and DQ). The section discusses the differences in reporting of internal control by Multinational Corporation between regions. The chapter proves that the location of internal control information with most elements is the management report and the MD&A being the least. The study then analyses the sub-components of internal control measures and drill down for differences between regions and multinational corporations in our study. The following test was to investigate the distribution of the internal control measures among our sample of the study and among regions. The last section of this chapter was the univariate analysis results of each of the factors included in our study. This analysis helps achieve the objective of our study and more importantly answer our research questions.

### **Multivariate Regression Analysis and Conclusion:**

The multivariate analysis proved to have at least one significant variable in each of the three factors of disclosure of internal control by multinational corporations. Our model had national factors, governance factors and operational factors. Legal origin and board independence and growth seem to have the most impact on the reporting of internal control. On the other hand, board size and profitability seem to have a less significant impact as per our model. Our study concluded that the national factors have the most influence on disclosure of internal control in multinational corporations. The national factors are followed by the governance factors, then the operational factors which seem to not have any significant impact. This might be justified in our opinion that the multinational corporations seem to operate under the same functional determinants.

### **Thesis Structure:**

The rest of the study will be structured as follow: Chapter two will discuss internal control concepts and components to have a better understanding of it as well as its importance. Chapter three will review the previous literature studying the role of internal control, the regulations or

the disclosure of internal control. As well the theoretical framework that the study used included the modern theory of the firm, agency theory, signaling theory and legitimacy theory. Chapter four will summarize the previous research on internal control disclosure by multinational corporations and progress with the hypotheses development. The fifth chapter will be on the research methodology where we consider the sample selection, data collection, the development of the coding sheet, coding procedures and variables definition. The sixth chapter will present the descriptive statistics of the internal control measures and variables included in the study, as well as an ANOVA test to test the significance of these variables. The seventh chapter will discuss the results of the multivariate analysis of our empirical model based on national factors, governance factors and operational factors. The last chapter is a summary and conclusion of our study where we summarize the research and give the results of the study.

## **Chapter Two**

### **Internal Control Foundation**

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## **I. Introduction**

Internal control is an essential element in managing organizations. Therefore, the aim of this chapter is to understand internal control and its main concepts, elements and limitations. Organizations make policies and procedures to achieve objectives, goals and missions as well as supporting management. Internal control first purpose is as a defence mechanism in safeguarding assets, detecting and preventing errors and fraud. Internal control helps managers achieve their goals through effectively managing the resources. This chapter will help to understand the nature of internal control, its main components and its main concepts. Internal control should provide reasonable assurance that the objectives of the entity are being achieved in the following categories:

- Operations efficiency and effectiveness
- Reliability of financial reporting
- Compliance with laws and regulations

A set of those objectives is the safeguarding of assets. Control should be designed to produce reasonable assurance relating to interference of or detection of unauthorized access. This section will define internal control and address its main concepts and explain why companies need control mechanisms. The chapter will also address internal control structure with its five elements, how auditors assess internal control and finally end with some of the internal control limitations.

## **II. Internal Control Definition, Role and Objective:**

Internal control is a general term for all the processes and procedures that management put to work to make sure protection of assets, and that all business activities are in line with those policies and procedures (Grobstein et al., 1985; Radebaugh et al., 2006). An example of an internal control over existence and accuracy would be a periodical count to the warehouse to reconcile to the inventory against what is recorded in the company's books.

The Committee on Sponsoring Organizations of the Treadway Commission (“COSO”), in 1992 as an initiative of several groups with an interest in effective internal control, initiated a framework to guide companies in designing and evaluating control that address a broad range of risks. This framework defines internal control as “a process, effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance.” (Coso, 1992) Thus:

### **1 - Internal Control Is a Continuous Component**

Internal control is a series of systems that keep developing throughout the whole entity’s operations and on an ongoing basis. Internal control should be integrated as part of each system that management uses to regulate and guide its activities rather than as a standalone system within the company (Grobstein et al. 1985). In summary, internal control is a management tool that is built into the entity as a basis of its infrastructure to help managers run the business and achieve the goals and objectives on an ongoing basis.

### **2 - Internal Control Relies on People**

People are an essential part of the success of any internal control. The responsibility for setting up good internal control rests with all managers. Management is responsible for setting the objectives, design control procedures and policies, and evaluate the controls based on their effectiveness. However, all personnel in the organization play important roles in making it happen and follow those policies and procedures.

### **3 – Reasonable Assurance is the Result of Adequate Internal Control**

Management should design and establish internal control relatively to their cost and benefits as well as the organizations objectives. Internal control cannot provide complete assurance that all business goals will be met no matter how well the controls are designed and established. There are outside factors that prevent the company from achieving its goals that are not in the hands of management. A good example would be, human mistakes and judgment errors, which can

influence the achievement of goals. Therefore, internal control provides reasonable, not absolute, assurance of meeting the business goals and objectives.

### **More on the Role of Internal Control:**

Internal control systems are becoming an integral part of any multinational corporation. This necessity is the result of the complexity of the landscape that these organizations operate in globally. Internal control helps multinational corporations to monitor policies and procedures, to enforce them better as well as to help reduce errors and fraud (Arwinge, 2010; Doupnik & Perera, 2012). The role of internal control system can be further explained by:

#### **1 - Accountability**

Senior management is responsible for managing resources provided to them to carry out stakeholders' investments. A key factor in this responsibility is making sure that appropriate controls are put in place. Adequate internal control allow managers to delegate responsibilities to their subordinates and contractors with reasonable assurance that the work will be done as per policies and procedures.

Accountability is an important factor in the governing process of any organization. Management need to know whether departments are achieving the objectives that were set that will influence the overall goals of the company. A critical factor in achieving these goals and minimizing problems and issues is the appropriate implementation of adequate internal control.

#### **2 - Good Management Practices**

Management's role is to provide the leadership, which a company needs to achieve its goals and objectives. Part of that responsibility includes designing and maintaining adequate internal control policies and procedures to safeguard assets, ensure the accuracy and reliability of financial reporting, promote operational efficiency, and encourage policies and compliance with applicable laws and rules. The plan of internal control will depend partly on

management's judgment of the benefits and related costs of controls, as well as on available resources to the company (Grobstein et al. 1985).

Effective internal control helps managers deal with dynamic environments and evolving demands and priorities. With the fast moving technology world in which we are living, management must continually evaluate their internal control to make sure that the control procedures being used are effective and updated as necessary.

### **3 - Facilitate preparation of audits and fraud prevention**

Strong internal control system in place will generally make the auditors' job easier when all regulations, policies and procedures are enforced. With a strong internal control, misappropriation is commonly discovered and corrected internally. A strong internal control system will double-check and cross-reference information that has been transferred to the financial reports. This internal control will give external auditor's more confidence in the accuracy of the company's financial reports. External auditors generally conduct interviews with workers from various departments in an organization. The auditor may need to conduct fewer interviews in an organization that features a robust internal control in place. Internal control sets procedures that are followed by individual employees, reviewed by management and adequately documented.

### **III. Internal Control Components:**

Internal control is a systematic concept and has been defined in different ways in the management control literature. One of the narrower definitions of internal control sees internal control as part of the overall management control system comprising of the measures taken by an organization to avoid errors and irregularities while in operations. Other definitions mentioned that it is not solely a procedure or policy that is performed at a particular point in time but rather a continually operating and integrated system at all levels within an organization. The literature studied identified five components of internal control are essential to have an effective internal control system (Doyle et al., 2007a)

As per the COSO framework, internal control is a five elements mechanism:

- Control Environment
- Risk Assessment
- Control Activities
- Information and Communications
- Monitoring

## **1. Control Environment**

The control environment serves as the backbone of any system of internal control as it sets the tone for the entire company. The control environment is influenced by the upper level of the organization, and by management, which set the tone for the entire company, its structure and its communication of best business practices and policies to employees. The control environment is the tone of an organization and the way it operates. It concerns the establishment of an atmosphere in which people can conduct their activities and carry out their control responsibilities effectively (Beneish et al., 2008). It also establishes necessary control procedures such as authorization of activities, approval of transactions, and review of reconciliations. It also proves the organization's commitment to addressing audit recommendations through timely corrective action. The human resources department within an organization plays a critical role in influencing the control environment directives of management (Horngrén et al. 2012). The concept and realization of a controlled environment are achievable through a focus several attributes such as:

### **a - Ethical Values and integrity**

Integrity and ethical values refer to the professional and personal codes of conduct and standards of behavior in the agenda of the management. These are values established and agreed upon by the management of the organization and then addressed to the staff as acceptable operational behaviors. Codes of conduct should be a source of guidance directing daily behavior and setting the standards for behavior in the company. These

values are significantly crucial for any organization, concerns for an active moral structure that's well established and respected.

#### **b - Commitment to Competence:**

A commitment to competence ensures that employees and external personnel are proficient and educated. It requires sufficient access to adequate on-going training, supervision, and the facilitation of professional memberships and development. Examples of commitment to competence include: Establishing levels of knowledge and skill required for every position; Hiring and promoting only those with the required knowledge and skills; Establishing training programs that help employees increase their knowledge and skills.

#### **c - Organizational Structure**

Organizational structure is the legal and operational structure that management adopts to drive its objectives, financial operations and evaluations of achievement. A well-functioning organizational structure will include; Current and accurate organization chart; Appropriate organizational structure considering the size and complexity of the organization; Formal policies and procedures for all significant operations; Management support for internal control and response to internal and external audit recommendations.

#### **d - Delegation of Authority and Responsibility**

Management must be able to authorize employees to perform activities and execute transactions but only within defined parameters, supervisory review and documentation requirements. Management is responsible for making sure that conditions for authorizations are documented and communicated to ensure that significant transactions are approved and executed only by persons acting within the scope of the authorized responsibility.

### **e - Relationship with Boards of Directors and Audit Committees**

Management's attitude towards Boards of Directors and Audit Committees demonstrate its commitment to the control environment it establishes. A positive relationship, where acceptable corrective actions are implemented in a timely manner enforces the goals and objectives of management and shows to all employees a positive attitude towards internal control policies and procedures.

### **f - Human Resources Policies and Procedures**

Human resources departments play an important role in internal control in regard to areas such as proper recruitment and orientation of new employees, evaluations, and disciplinary actions. As the tone at the top sends a message as to the acceptable behaviors, efficient human resource policies and procedures send a message to employees that management is serious in enforcing its rules starting from hiring.

## **2. Risk Assessment**

Risk assessment is the process of identifying and analyzing relevant risks to the company in order to manage and mitigate their effects on the essential business operations. Primary categories of risk are related to errors, omissions, delays, and fraud. Examples of risk include assets that are not adequately safeguarded, production of unreliable reports, ineffective and inefficient activities, and noncompliance with regulations and laws.

An effective internal control system enables managements to control significant risks and monitor the reliability and integrity of financial information reported to the public (Hornngren et al. 2012). The risk assessment process, usually, includes:

## **a - Risk Identification**

Management must be able to identify, analyze, and manage risks that might negatively affect its goals or objectives in general. Management should perform an evaluation to determine the areas and functions within the organization that has a high probability in a risk of errors, noncompliance, and fraud. Management must then design proper controls to help mitigate the risks identified during the assessment.

Many factors needs to be considered when assessing risk, including change in operating style, new employees, new or enhanced information technology systems and revised laws and regulations. While trying to identify and evaluate risks, management should always ask questions such as what could go wrong, what is the worst case scenario, what would cause us to fail to meet our objectives and in what areas are we weakest (Horngren et al. 2012).

There are many methods of identifying risk including periodic management conferences, executive round tables, forecasting, strategic planning, and consideration of the findings from audits and other assessments.

## **b - Risk Management**

Management should determine what the likelihood is of a particular risk leading to financial loss or a noncompliance with laws and regulations. Once a risk has been identified, management must decide how to manage the risk: accept the risk, share the risk, reduce the risk by introducing controls, or avoid the risk by avoiding the function. Uncontrolled risk can negatively impact the company and prevent it from achieving its goals and objectives. Periodic re-evaluations of risk should be performed by management to ensure continuous assessment of risks around the company's activities.

### **3. Control Activities**

Control activities are the appropriate policies and procedures that are placed in a particular organization to manage the risk of human error, noncompliance to laws and regulations, and fraud. Control activities are also the policies and procedures implemented by an organization to ensure that organizations objectives are carried out. These control activities include different activities such as reconciliations, approvals, verifications, reviews of operative performance, segregation of duties (Shelton & Whittington, 2008). These policies and procedures help to make sure that the company's goals are being achieved. These controls should relate to all levels of the organization and all functions within a particular department. Control activities cover a variety of important functions within the control environment (Hornngren et al. 2012). Examples of such functions include:

#### **a - Security of Assets**

Specific control activities should be designed and put in place in order to minimize the risk of loss or misuse of assets which may include: Utilizing unique user IDs and passwords to avoid unauthorized access; Physical security of tangible and intangible assets; Backup for computer records and programs, utilizing a secure offsite facility; Disaster recovery plans to keep the entity functioning after unexpected events; Performing periodic unannounced verifications of amounts, location, and condition of assets.

#### **b - Segregation of Duties**

Control activities should be able to: Prevent any person from performing incompatible duties; Require that the responsibility for operations is separate from the related record-keeping; Ensure that the three functions of authorizing, recording, and maintaining assets are separated. In smaller organizations, when duties cannot be fully separated, compensating controls should be put in place. Examples of compensating control mechanisms include audit trails, reconciliations, exception reports, and supervisory review.

### **c - Authorization of Activities**

Specific control mechanisms should also be designed and installed to be able to define parameters for the execution of transactions. Examples include requiring authorization from management to the department or employee to execute transactions and requiring signature or electronic approval of the transaction by the employee designated with approval authority. Management should require that appropriate monetary levels be established, and all documentation requirements are followed.

### **d - Approval, Verification and Reconciliation**

Control activities should be put to ensure that a review of supporting documentation will confirm that the transaction is appropriate and reliable, and complies with all applicable laws, regulations, policies and procedures. These control activities should: Require that management specify those activities or transactions that require supervisory approval before they are performed; Requires supervisory support to ensure that the transaction has been validated and conformed to the established policies and procedures. Approval implies that the transaction has been reviewed, with substantive documentation supporting that the transaction is acceptable, accurate, and complies with applicable laws, rules, policies, and procedures of the organization. A review of all supporting documentation, a questioning of any uncommon activities, and assurances that the accessible data supports the transaction.

### **e - Adequate Documentation**

Adequately designed controls should be able to ensure that document exists which support that the transaction specifies all relevant facts related to dates, nature, scope, authorizations and approvals. These specific control activities should: Require that transactions be supported by adequate documentation and that the documentation is as concise and clear as possible so that it is understood by all users; Require the implementation of storage and retention policies that address the need for the secure physical storage of documents and the storage of backed-up

electronic files; Require that the use of documents are periodically verified to ensure accountability and compliance with all pertinent laws and regulations.

#### **f - Information Processing**

Specific control activities should be designed and implemented to ensure that appropriate policies and procedures regarding information technology are in place and followed by all personnel. These specific control activities should require that access within the computing environment be controlled by unique usernames and passwords which are changed on a timely basis.

#### **g - Independent Performance Review**

Specific control activities should be designed and established. These control activities should recognize changes in operations that may influence the controls and identify new risks that may require the need for new controls. These specific control activities should; Require that periodic reconciliations are performed; Require the comparison of different sets of data to identify and investigate differences; Require implementation of necessary corrective actions to ensure the accuracy and completeness of transactions; Require management to review reports, statements, reconciliations and other information to ensure consistency and reasonableness; Require the comparison of information about current performance with budgets, forecasts, and prior periods to measure the extent to which objective goals are being achieved and to identify unexpected results or unusual conditions that require corrective actions.

### **4. Information and Communication**

Organizations need reliable, relevant and timely information related to both internal and external events that can influence the company and its objectives. Information and communication are a key element in the success of an organization. Accurate, current, and reliable information about the company's plans, control environment, risks, control activities,

and performance should be communicated all over the company in a periodic manner (Horngren et al. 2012).

Information and communication help in making sure that employees are aware of the company's goals and objectives, the way they are to be accomplished, and the responsible people for the specific tasks needed to be performed. The information and communication system must also supply managers with reports containing operational, financial, and compliance information to be able to evaluate the progress toward accomplishing established goals and objectives and to making appropriate decisions. Information and communication systems should include:

- Written policies and procedures
- Mission statements, goals and objectives
- Organization charts
- Job descriptions and performance evaluations
- Training materials
- Periodic reports measuring the entity's progress towards accomplishing its goals and objectives
- Internal and external audit reports
- Financial reports

Information and communication systems can be either formal or informal. Formal information and communication systems must provide for feedback related to operations, financial reporting and compliance to regulations objectives. However, informal conversations with clients, suppliers, regulators, and employees often provide critical information needed to identify risks and opportunities in the area of business for the company.

### **a - Information**

Relevant and reliable information from internal and external sources must be identified, processed, and communicated to management who need it in the form and time frame that is useful. Information systems should produce reports containing operational, financial, and

compliance-related information that make decision-making process easier to the company management. The quality of information generated by the system affects management's ability to make appropriate and timely decisions.

### **b - Communication**

Communication facilitates the spread and understanding of individual roles and responsibilities. Communication channels support complete, reliable and timely financial reporting by making all relevant internal process instructions and procedures accessible to all employees. Internal communications may occur in meetings or daily activities such as memos. Regular updates regarding changes in accounting policies and reporting and disclosure requirements are critical to ensuring that everyone in the company works under the same rules and regulations and understands their duties and responsibilities. The following information should be communicated within the company:

- Organizational performance data
- Operational data
- Financial data
- Employee performance data

Communication may take the following forms:

- Performance and management systems
- Information systems
- Policy and procedure manuals
- Management directives
- Memos and e-mails
- Internet and intranet
- Speeches and briefings.

Characteristics of an effective organizational communication include relevant internal and external information on operational performance provided to management. Information

provided is current, accurate, complete and timely, and it is shared with the appropriate staff members at the right time. Management should be receptive to employee suggestions, and there should be appropriate channels to report improprieties

## **5. Monitoring**

Monitoring is the assessment of internal control performance over time and not a snapshot process. It is the process of assessing the quality of the system's performance over time (Jones, 2008) it is accomplished by, self-assessments, peer reviews, and internal audits. It involves the activities and procedures designed to assess the effectiveness of internal control in achieving the organizations financial reporting objectives. This is accomplished through ongoing monitoring activities, periodic evaluations, or better, a combination of the two (COSO, 2004). These activities should be related to the entire organization, at all levels and in all functions. The monitoring primary purpose is to determine whether internal control is properly designed, established and effective. Internal control is considered appropriately designed and maintained if all five internal control components are present and functioning as they should be (Horngren et al. 2012). Internal control is effective if management and stakeholders have a reasonable assurance that:

- Organizations objectives are being met
- Financial reporting is producing reliable statements
- Compliance with laws and regulations

Monitoring helps ensure that control activities that affect internal control are adequately dealt with, effectively and in a timely manner. Continuous monitoring activities include various management and supervisory activities that evaluate and improve the design, establishment and effectiveness of internal control. Separate evaluations, internal audits and periodic evaluations of internal control components that result in a formal report to management addressing the adequacy and effectiveness of internal control are types of monitoring.

Departments, usually, perform self-assessments; internal auditors conduct internal audits and provide an independent appraisal of internal control. Monitoring should include routine

financial inspections such as, continuous supervision, reconciliations, comparisons, performance evaluations, and status reports. Internal control should be designed to ensure that ongoing monitoring is occurring within a typical day of operations. Proper monitoring ensures that the internal control continues to be adequately functioning to continue helping achieve the company goals.

Deficiencies found during ongoing monitoring, or the separate evaluations should be cleared with the individual responsible for the function and also with top level management, the Board of Directors, the Audit Committee. Monitoring of internal control should include policies and procedures for ensuring that the findings of audits and other reviews are resolved. Managers should evaluate findings from audits and other reviews, determine proper actions in response to findings and recommendations from audits and reviews, complete all actions that correct or otherwise resolve the matters brought to management's attention.

Monitoring should focus on the following major areas:

**a - Control Activities**

Control activities are designed executed to prevent or reduce the risk of problems that are highly likely to occur. If these controls fail, the department becomes exposed to risk. Therefore, management should maintain procedures that monitor the effectiveness of control activities. Effective monitoring gives management the opportunity to make decisions and correct any control deficiencies or problems and to minimize the impact of unfavorable events.

**b - Mission**

Monitoring activities must include the development and review of operational data that allow management to determine whether the department is achieving its mission. This can be achieved through a periodic comparison of operational data to the department's strategic plan. These controls would help management achieve the goals and objectives of the company.

### **c - Control Environment**

Senior management must monitor the control environment to make sure that managers at all levels are maintaining ethical standards of behavior and that staff morale is at an appropriate level. Managers should ensure that the employees are competent, that adequate training is provided to them, and that management styles and philosophies help the accomplishment of the department's mission.

### **d - Communication**

Managers should periodically check that employees are sharing and receiving information appropriately and that this information is timely, sufficient and relevant for the user. Management should ensure that there are also open lines of communication, which encourages reporting of both positive and negative information on any aspect.

### **e - Risks and Opportunities**

Managers should also monitor the department's internal and external environment to identify any changes in risks, or maybe some opportunities for improvement. If changes are identified, managers must be able to take the appropriate action to address these new changes. Management should know that delays in responding to risks could result in damaging the department. A slow response to changes in risk may result in lost revenue or unattained cost savings, and therefore influence the achievement of goals and objectives.

## **IV. Effectiveness of Internal Control**

Internal control is a dynamic component of operations, effected by people and driven by the achievement of the entity's objectives. Internal control provides reasonable, but not absolute assurance that company's objectives will be met. Internal control helps guide every aspect of the organization and its operations that have some risk incorporated with it. As the organization grows, the internal control system will change and evolve with it. The degree of control

employed is a management responsibility based on a matter of business judgment (Grobstein et al. 1985). When business controls are found to contain weaknesses, management should consider the following alternatives:

- Increase supervising and monitoring
- Add extra or compensating controls
- Accept the inherent risk coming along with the control weakness

An effective internal control system enables an organization to manage risks and monitor the reliability and relevance of financial and operating information. It also allows the board of directors and the audit committee to act as a powerful and proactive mechanism for organization self-regulation (Grobstein et al. 1985). Therefore, internal control:

- Affects each side of the corporation together with people, processes and operations
- Be integrated into the everyday operations and responsibilities of all workers
- Incorporates the qualities of excellent management
- Requires people attention to either succeed or fail
- Must make sense inside every specific operational unit's distinctive setting

Everyone in the organization has some responsibility for ensuring the internal control system is effective and followed. The strength of the system depends upon employees' attitude toward internal control and their attention to it. Top management has the ultimate responsibility in this regard. Senior management sets the tone at the top and must ensure that all personnel in the organization know their roles and responsibilities. Management is also responsible for developing detailed documented policies, procedures, and practices for their specific departmental operations and mission (Grobstein et al. 1985).

## **V. Assessment of Internal Control**

Internal control is a dynamic system of policies and procedures and in the complex environment that multinational corporations operate it makes assessing internal control a necessity before it becomes regulated. The guidelines for internal auditors state that controls should ensure that processes meet the systems objectives.

The primary objectives of internal control, in line with the rules, are to verify adherence to management policies and directives so as to attain the organisation's objectives, to safeguard assets, to secure the relevancy, reliability and integrity of data. Therefore, making certain the completeness and accuracy of records and verifying compliance with rules and regulations. Thus, once evaluating internal control the internal auditor should take into account the impact that every one of the controls has on one another and overall systems.

As part of the process, the internal auditor should identify the whole range of systems within the organisation. For those systems that the auditor determines to be examined (based on risk or simply the nature of the system and how important it is to the organization) the internal auditor should establish appropriate criteria to determine whether the controls are adequate and assist in achieving the objectives of the system.

The stages of a system audit would usually include identifying the system parameters, determining the control objectives, identifying expected controls to meet control objectives, reviewing the system against expected controls, appraising the controls designed into the system against control objectives, testing the actual controls for effectiveness against control objectives, testing the operation of controls in practice, testing an opinion based on audit objectives as to whether the system provides an adequate basis for effective control and whether it is properly operated in practice.

The effectiveness of internal control is difficult element to measure, which is what the auditors try to do through assessments to arrive at an opinion. According to the American Institute of Certified Public Accountants (AICPA), auditors should carry out an evaluation of the

effectiveness of internal control that would determine the nature of the audit and its scope. Before the Sarbanes–Oxley Act act, no specific guidelines were available for auditors to use in order to have a proper evaluation of the effectiveness of the internal control mechanism. The evaluation process of internal control was rather biased and inaccurate, and the methods were inconsistent and subjective (Yu and Neter, 1973).

## **VI. Limitations of Internal Control**

Effective internal control scales back the likelihood of errors or omissions in organizations operations. However, there might be limitations in the effectiveness of internal control. These limitations might result from system failures, human interactions, or lack of system flexibility. In any system of internal control, there are inherent limitations. For example:

- Human errors and poor judgment might cause mistakes
- Controls might be avoided by collusion of two or more people
- Management might purposely override controls if given a proper motive
- Cost of maintaining and disclosing on internal control might stop management from implementing adequate controls

## **VII. Conclusion**

In the modern business world, corporate objectives and the environment in which companies operate are constantly evolving. As a result, the risks facing companies are continually changing too. A satisfactory system of internal control must, therefore, be responsive to such changes and not a separate, static system. Instead, it should be viewed as a continuous series of actions and activities that are interwoven throughout an organisation’s operations. In a sense, internal control is management control built into the entity as part of its infrastructure to help managers run the entity and achieve their goals on an ongoing basis.

## **Chapter Three**

### **Literature Review on Internal Control**

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## **I. Introduction:**

Significant research has been conducted in the light of the recent public disclosures of internal control. This chapter will shed light on the current research related to internal control. The chapter will start by addressing regulation on internal control related to section 302 and section 404 of Sarbanes-Oxley. The chapter will also discuss the role of internal control in reducing information asymmetry. The chapter will present the different research related to disclosure on internal control such as voluntary disclosure and material weaknesses.

## **II. Regulation on Internal Control:**

### **1. Section 302 of Sarbanes-Oxley:**

Sarbanes-Oxley Act of 2002 was introduced in response to the accounting scandals, which required all public companies to disclose internal control information over financial reporting. Sections 302 and 404 of this Act require companies to maintain, assess, and disclose internal control over financial reporting. The disclosures of internal control intend to provide financial statement users with early warnings about potential future problems that could result from deficiencies in internal control (PCAOB, 2004).

Sarbanes–Oxley Act was initiated in response to the corporate scandals of several prominent firms such as Enron, WorldCom and others. Section 302 of SOX requires that management evaluate the effectiveness of disclosure control and procedures and report results on the evaluation. After the implementation of section 302, section 404 requires the opinion of an external auditor on an annual basis to provide feedback on management assessments on internal control. The framework is found in Internal Control – Integrated Framework, published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

## **2. Section 404 of Sarbanes-Oxley:**

Section 404 of SOX requires the registrants to verify and document the internal control over financial reporting effectiveness. It also requires the firm's external auditor independently to offer a separate opinion on the test and the effectiveness of the internal control. Under section 302, firms have to design and maintain adequate control over financial reporting disclosure. Management has to assess and give an opinion about the effectiveness of internal control in the annual report as well as disclosure of any material weaknesses.

Literature finds evidence of improvements in earnings quality following remediation's of internal control problems for firms disclosing material weaknesses under Section 404 (Bedard, 2006; Ashbaugh-Skaife et al. 2008). This mixed evidence on the relation between internal control and earnings quality could be due to the existence of additional monitoring mechanisms (investors, board of directors and auditors) (Hogan and Wilkins, 2005; Krishnan, 2005; Tang and Xu, 2007). A good example would be the auditors' substantive testing and how it can act as a substitute for many internal control deficiencies, mitigating the adverse effects on earnings quality (Doyle et al., 2007b).

Studies examined further the impact of ineffective internal control on audit cost, such as higher audit fees (e.g., Raghunandan and Rama, 2006; Hoitash et al., 2008), more auditor resignations (Ettredge et al., 2007), and longer audit delays (Ettredge et al., 2006). Research also examined the benefits of effective internal control in terms of the cost of equity and earnings quality. While some studies found a relation between cost of capital and internal control deficiencies in SOX disclosures (Ashbaugh-Skaife et al., 2007b), other studies found that cost of equity and price reactions to disclosures are only significant for Section 302 disclosures but not for Section 404 disclosures (Beneish et al., 2008). Some studies concluded that there was no difference in the cost of equity capital among Section 404 disclosures after controlling for the known determinants of cost of equity capital (Ogneva et al., 2007).

Large number of papers was published in the area of regulation on internal control, especially Sarbanes-Oxley Act sections 302 and 404 related to disclosures on internal control. Researchers have always been interested in the reporting on internal control, but it gained new

interests as a consequence of SOX sections 302 and 404. Studies were conducted such as the study that addresses the fact that managers put their reputation at risk when they made definitive statements about the internal control (Abbott et al. 2000). Other studies managed to explain that a good internal control system is based on adequate and comprehensive analysis of all risks related to the firm, and, to comply adequately with Section 404 of SOX (Shenkir et al., 2003; Lin & Wu, 2006).

### **3. COSO Framework:**

The broader objectives of internal control are not limited to the reliability of financial reporting as required by SOX alone. A number of critical internal control frameworks, such as COSO's Integrated Internal Control Framework (1992) and Turnbull's Guidance on Internal Control (1999), have been developed to guide and harmonize the understanding on internal control. COSO (1992) defined internal control as follows:

*“...a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:*

- \_ Effectiveness and efficiency of operations.*
- \_ Reliability of financial reporting.*
- \_ Compliance with applicable laws and regulations.”*

The COSO (1992) defined internal control concept as a process which may provide reasonable assurance that different objectives, both financial and non-financial, may be met. The traditional methods, where controls are related to the accounting records, have been supplemented by wider plans. Today, the amount of organizational activity that falls under the internal control system is significant (Maijoor, 2000) and, therefore, the concept has broadened. It seems that the internal control has expanded its scope significantly to form an integrated part of the overall management control system, and the corporate governance system

of firms (Maijoor, 2000). Internal control today is, therefore, a tool for the director and manager, as for the accountant and assurance specialist.

#### **4. Turnbull Framework:**

Turnbull (1999) defines internal control the same as COSO (1992) to achieve three objectives in operations, reporting, and compliance. COSO (1992) and Turnbull (1999) both took a broader approach to internal control than SOX, in terms of its scope, the objectives of introducing it, and its approach. They focused on all controls covering the company's entire range of activities and processes, not just the ones related to financial reporting (IFAC, 2006).

Turnbull (1999) defines internal control as a system, which encompasses the policies, processes, tasks, behaviors and other aspects when taken together:

- Facilitate its effective and efficient operation by enabling it to respond appropriately to significant business, operation, financial, compliance and other risks to achieving the company's objectives.
- Help ensure the quality of internal and external reporting.
- Help ensure compliance with applicable laws and regulations, and also with internal policies with respect to the conduct of business.

### **III. Role of Internal Control Literature:**

According to the governance literature, the central internal mechanisms are the board of directors, the ownership structure and the internal control (Gillan, 2006). Internal control plays an important role in protecting investors' wealth, assuring the reliability of financial reporting as well as the real-time identification of relevant risks that the firm would encounter. The spread of internal control, as best practices, is a greater evidence of how important and necessary they are in reducing information asymmetry.

Significant amount of the initial literature in the area of internal control is descriptive such as providing evidence of the types of companies issuing ineffective internal control. These studies proved that smaller, more complex and undergoing changes such as restructuring companies tend to have weaker internal control. Other research have studied the influence on ineffective internal control on the cost of the audit (Ettredge et al., 2006; Raghunandan and Rama, 2006; Hoitash et al., 2008; Ettredge et al., 2011). Recent researchers have started examining the benefits of effective internal control related to cost of equity and quality of earnings.

Internal control is of high importance in business success in reducing asymmetry. It evaluates whether the senior management is given reliable and relevant information in order to help with their decision making. They play a significant role in protecting and safeguarding assets, as well internal policies and procedures that employees, usually, follow (Kinney, 2000). There is the quality factor of the firm's internal control, which is an essential element in the informativeness of the auditors reported annual reports (Pae and Yoo, 2001). Many studies have examined and proven that internal control has a direct influence on the quality of reporting of the firm (Doyle et al., 2007b; Feng, Li and McVay, 2009). Having an ineffective internal control means that the management might be supplied with false information that might lead to a wrong decision.

There have been many studies in the area of internal control since it is a critical area in protecting the firm's assets. The results of some studies suggested that UK firms tend to report positive news of their performance. The study goes further in concluding that the results show that UK companies prefer to take credit for good performance while the blame is put on external factors for inadequate performance (Clatworthy and Jones, 2003).

In an environment where internal control is a top priority it is not surprising that the concept became a managerial object. Managers now pay more attention to the design and operation effectiveness of controls, while directors and audit committee members pay more attention to ensure that managers do so. Failure to do so effectively might affect the firm and have some negative consequences.

In order to have adequate defense of the company's reputation, strategic, operational, compliance and reporting risks need to be managed. In this way company's internal control systems became part of the risk response mechanisms of firms where the internal control system is designed and maintained within a broader framework that focuses on risk from an entity-wide perspective (COSO, 2004).

The main conclusion is that currently, stakeholders have high interest in the functioning and possible malfunctioning, of firms' internal control. Regulators, directors and audit committee members, managers as well as analysts and investors are all most likely to consider internal control much differently than they would have done few years back.

As previously mentioned, and in line with previous literature, COSO defines internal control as a mechanism that is affected by an entity's board of directors, management and various personnel, designed to supply reasonable assurance regarding the achievement of goals related to the effectiveness and efficiency of operations, the reliability of financial reporting and additionally the compliance with applicable laws and rules. Internal control has five interconnected elements; control environment is a space in which individuals handle their activities and conduct their control responsibilities. It is the premise for the other elements. Within this atmosphere, management evaluates risks that may have an adverse consequence on the attainment of specific objectives. Control activities are in place to assist management enforces directives to deal with the risks. Meanwhile, the relevant data on risk and control activities is captured and communicated throughout the firm. The whole process is monitored and modified on a continual basis.

As suggested by COSO, an internal auditing department or internal auditor often plays a major role in the effectiveness of internal control because of its position and authority in the business, and the objectivity with which the department or the auditor conducts its activities. To be more precise, the Institute of Internal Audit states that the internal audit activities should guide the company in maintaining effective adequate controls by evaluating its effectiveness and efficiency through continuous improvement. Since internal control assessment is part of the internal auditing regular duties, the expectation is, in the opposite direction, the internal control

system will affect the internal auditing practices. Internal auditors should also be among the first to identify significant internal control deficiencies and formulate recommendations for reliable improvement. By this, internal auditors are contributing towards a more effective internal control structure that improves the quality of information for decision makers (Bou-Raad, 2000)

If the control environment in general and internal control in particular is weak, there is an excellent chance that material errors or irregularities will not be prevented or detected (Marden et al., 1997). As their mission indicates internal auditing focuses primarily on the development and improvement of the internal control on an ongoing basis by giving advice and recommendations. Internal auditors are likely to be most knowledgeable in controls and can support management with sound recommendations to develop and improve internal control (Bou-Raad and Capitanio, 1999).

#### **IV. Theories of Disclosure:**

##### **1. Modern Theory of the Firm:**

The modern theory of the firm comes from the work produced by Barnard (1938), Simon (1948) and March and Simon (1958). This work focused on the need for collaboration to achieve shared goals, and in this the person is often viewed as being only partly rational. The main point is that a firm is a group of coordinated activities for the accomplishment of common objectives. However, under this definition several implications arise. One bump comes from the fact that organizational effort is composed of more than one person. These participants can achieve more than any individual would alone, provided that their effort is timed so that efforts are performed at the right time and in the right way, and with the right proportions. So the understanding of common goals becomes vitally important.

The view of the modern theory of the firm is that individuals are purposeful participants in organizations. This implies two things: first, a person is rational to a limited extent due to cognitive limitations. Second, differences in personal goals may exist which is why it is

possible that an employee will substitute company objectives with his own goals. The assumption of bounded rationality has been carried forward into areas such as transactional economics (Williamson & Riordan, 1985) which consider human nature as self-interest seeking and where problems of opportunistic behavior may occur. Therefore, in any organization the existence of some form of control system is critical for management to address these issues as they arise, and make sure that individual behaviors are consistent with the established firm goals.

## **2. Agency Theory:**

Jensen and Meckling define the agency relationship as “a contract under which one or more persons (the principal) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent” (Jensen & Meckling, 1976, p. 308). In a contract agreed upon by both parties, all rights and responsibilities such as compensation arrangements, information systems, allocation of duties and ownership rights must be specified explicitly (Baiman, 1990).

If both parties are utility maximizers this is “good reason to believe that the agent will not always act in the best interests of the principal” (Jensen & Meckling, 1976, p. 308). This assumption, that all individuals are considered to be motivated exclusively by self-interest, is common among all agency models (Baiman, 1990). This means that the action taken by the agent may not be in line with the firms’ activities. And instead of taking the action that will maximize the group’s interest, another path will be taken by the agent, and this is where agency problems arise. However, it is important to identify, that even if an agent tries his best to follow the principal’s interests, his actions will always be tempted by his interpretations of them. Therefore, the agent’s interpretation of an individual situation may unintentionally lead to a different action resulting in agency problems. These agency problems must be tackled through contracting arrangements and other control mechanisms. Different agency models focus on different solutions for different agency problems. However, the common factor to all solutions is the trial to help limit the agent’s deviations from the principal’s interest.

Agency costs are acquired because agency contracts are enforced and not free of charge. They result from structuring, monitoring and bonding contracts, between principals and agents with conflicting interests (Fama & Jensen, 1983). Therefore, the principal must implement certain controls that will efficiently and effectively enforce the agency relationship issues. It may however be both difficult and expensive for the principal to verify the agent's action.

As previously mentioned, there are different agency branches and they tend to focus on different areas (Eisenhardt, 1989; Baiman, 1990). The focus of the positivist agency theory is contracting alternatives, often between the owners and managers of big companies. The fundamental question in the area is whether contracts should be based on the agent's behaviour or the output produced by the agent.

Different control mechanisms are designed as a result of the differences in characteristics of the principal-agent situations. One situation occurs when there's information asymmetry between principal and agent, resulting from the principal being unable to observe the agents' performance. This case is related to two specific issues, referred to in the agency literature as moral hazard and adverse selection. Moral hazard refers to a lack of effort by the agent, whereas adverse selection refers to a misrepresentation by the agent, where he claims to have particular skills or abilities (Eisenhardt, 1989).

### **3. Signaling Theory:**

Signaling theory also relates to disclosure, where the theory suggests that high-quality companies should indicate their features to the market (Morris, 1987). This would help investors evaluate the companies and proceed with the decision-making process. This would lead to companies having investors willing to invest and therefore reduce their cost of raising capital. There are a number of actions where companies can indicate their advantages, and voluntary disclosure is one of these tools (Whiting and Miller, 2008). Previous studies provided a comprehensive theoretical framework for voluntary disclosure showing differences in point of view of theories such as agency theory, stakeholder theory, signaling theory and legitimacy theory (Yi An et al., 2011).

According to the signaling theory, good firms' management tries to help investors realize the good from the bad companies (Morris, 1987), If the investor cannot read these signals, he will not be able to differentiate and that might lead to a poor investment. However, the independent auditors report gives an assurance to investors. This gives a confidence about the financials of the firm.

#### **4. Legitimacy theory**

Legitimacy theory suggests that organizations tend to make sure they operate within the norms of the societies they operate in. The legitimacy theory addresses how companies might voluntarily disclose on certain activities if the management realizes that these activities are within the norms of the society the organization operates in. The legitimacy theory works as if there's an agreement on social behaviors between the company and the community the company operates in. This social contract between the company and the community represents the norms and expectations of the society on how the company should conduct their operations. The problem with these expectations is that they change over time, usually, with the society changing views over time. The organization is responsible for responding to these changes to keep operating within norms and expectations (Deegan, 2002)

A study mentions that organizations may use disclosures to demonstrate management's social values, or to divert community attention from the negative impact of the organizations' activities (Lindblom, 1994). A number of prior literatures investigated voluntary annual report disclosures and viewed the reporting of social and environmental information as a method that organizations use to respond to pressure coming from the public (Deegan and Rankin, 1996; Neu et al., 1998).

Legitimacy theory is closely tied to the reporting of intellectual capital and to the use of content analysis methods as a measure of reporting. Firms are likely to report on their internal control if they specifically have a need to do this, either by regulations or by public pressure. The extent of internal control reporting is best-measured using content analysis, due to the fact

that it can capture very detailed information on the annual reports as well as being able to compare them.

## **V. Information Disclosure on Internal Control:**

### **a. Importance of Disclosure on Internal Control:**

The need for disclosure emerges from the global economic crisis after it had put the spotlight on the internal control failures. These scandals raised the bar for more transparency to shareholders with more proactive measures rather than the traditional reactive mechanisms. Pressure is placed from shareholders and investors to access reliable information in sufficient detail to be able to assess the effectiveness of firms' internal control over financial reporting. Information asymmetry and agency conflicts between managers and outside investors are forces driving towards better disclosure. All those factors are influential in how and what companies disclose on their internal control.

The first stream of research in the area of information disclosure on internal control includes research that investigates the market effects of the passage of the SOX 2002 to assess whether the Act and its financial statement certification provisions are actually effective in reducing uncertainty about the quality of firms' reporting. Studies provide evidence on a positive market reaction to the regulatory proposals that concluded with the SOX act, consistent with SOX having a beneficial effect on the quality of reporting (Jain and Rezaee, 2008). Other studies examined and proved that information uncertainty reflected in bid-ask spreads declined subsequent to SOX (Jain et al., 2004). However, others found no change in earnings informativeness following the passage of SOX and no significant market response to the CEO and CFO certification requirement (Cohen et al., 2004).

A second stream of research in the area investigates how auditor characteristics and auditor actions affect the credibility of financial reporting systems. For example, a study finds that firms engaging high-quality auditors have higher earnings response factors (Teoh and Wong,

1993); another study finds that firms employing such auditors have lower discretionary accruals (Becker et al., 1998). Companies with high-quality financial reporting may engage high-quality auditors. On the other hand, high-quality auditors are better in detecting manipulations and their actions will result in higher perceived earnings quality.

For lack of better proxies to capture earnings quality, existing research tend to focus on the quantity of information, rather than the quality. For example, some studies use the level of disclosure as a proxy for earnings quality (Botosan, 1997; Botosan and Plumlee, 2002). The study provides evidence that the negative relationship between the cost of equity capital and increased disclosure in annual reports for firms in the machine industry in 1990 (Botosan, 1997). However, after expanding the sample to firms across industries and time, other studies found that the relationship between disclosure level and cost of capital is rather vague. They show a negative, positive, and no relationship between disclosure level and cost of capital depending on disclosure type (Botosan and Plumlee, 2002).

The literature provides evidence about the association between earnings quality and the cost of capital (Francis et al., 2004). However, the researchers acknowledged that the proxies used for earnings quality cannot separate the effects associated with open choices about reporting quality from the effects arising from different factors associated with each firm's reporting environment. Thus, the cost of capital effects they document cannot be solely attributed to low reporting quality.

#### **b. Voluntary and Mandatory Disclosures:**

Even though section 404 of SOX mandates firms to disclose material weaknesses in internal control, many accounting researchers lean in favor of the free market system and therefore prefer voluntary disclosure as opposed to mandatory ones. On the other hand, the amount of mandatory disclosure regulation is an important question because disclosure regulations are an important regulatory tool. If the costs of these regulations exceed their benefits, as some suggest about the SOX regulations, then perhaps voluntary disclosures remain preferable (Romano, 2005). Other studies concluded that respondents agree about the value of voluntary

management reports on internal control, but are neutral about the role of necessary management reports on internal control in enhancing decision-making (Hermanson, 2000).

In the pre-SOX period, some studies examined the mandatory disclosure of reportable events about internal control issues in Form 8-K following an auditor change. A study was conducted to examine the factors associated with these disclosures and found that they are associated with audit committee independence and financial expertise and firm size (Krishnan, 2005).

Earnings quality research proved that firms that disclose internal control weaknesses tend to have lower earnings quality in the previous years. The literature found that firms disclosing under SOX 302 face larger unexpected accruals and more positive unexpected accruals in the pre-disclosure period (Ashbaugh and Collins, 2007). An interesting study was when 648 SOX 302 and SOX 404 material weaknesses disclosed between August 2002 and October 2005 were examined. It was found that they were associated with lower earnings quality as measured by accruals quality and discretionary accruals (Doyle et al., 2007a).

Audit fees are also a factor where studies found higher audit fees in the disclosure years for SOX 302 IC weaknesses firms (Hogan and Wilkins 2006) and SOX 404 weaknesses firms (Raghunandan and Dasaratha 2006; Hoitash et al. 2008). Results regarding the previous year audit fees for IC weaknesses firms are mixed. For SOX 302 IC weaknesses firms, the literature find that firms had higher audit fees suggesting that auditors appear to increase the level of effort in response to IC weaknesses (Wilkins et al., 2006). For SOX 404 IC weaknesses firms some studies found that no fees difference for a sample manufacturing firms (Raghunandan and Dasaratha, 2006), while others addressed higher costs for a sample of 2,573 firms from all industries (Hoitash et al. 2008)

Some studies were able to identify six disclosure elements to help track internal control information disclosed in annual reports. This study was able to find the highly significant indices associated with disclosure index which were the agency cost of equity and the agency cost of debt (Deumes and Knechel, 2008).

Recent studies such as the one conducted in 2009 explored the use of disclosure as a regulatory tool in the UK. Their results found to be that overall the disclosure is much more complicated than a simple comply or explain dichotomous variable (Spira and Page, 2009). Other studies went further and analyzed the attributes and the quality of risk disclosures and its relationship with the level of the firm. The study which was conducted in 2011 on U.S., Canadian, U.K. and German corporations, found that cross-sectional variation is explained by the disclosure regulations (Zeghal et al. 2011).

### **c. Material Weaknesses and Disclosure on Internal Control:**

Investors need to get information on the design and maintenance of monitoring tools in order to express their concerns. In the cases of mechanisms like board of directors, information concerning structure, composition and type of committees in charge, number of meetings and so on, is available to the public. In other mechanisms like internal control, the enforcement of reporting on internal control weaknesses or material deficiencies provide investors with relevant information. However, specific information on the internal control is more difficult and expensive to gather because of the nature of internal control mechanisms and how complex they are (Bronson et al., 2006; Deumes and Knechel, 2008).

Research related to the particular characteristics and determinants of internal control has been receiving more attention, after the introduction of SOX and the similar requirement for disclosure on internal control deficiencies or material weaknesses (Ashbaugh et al., 2007; Leone, 2007) while only few studies focused on the specific characteristics of internal control disclosure. Results from studies of disclosure determinants show that firms with more complex operations, less investment in their internal control, and less monitoring are more likely to disclose internal control weaknesses (Ge and McVay, 2005; Ashbaugh et al., 2005; Doyle et al., 2007a).

Research on internal control is a rapidly growing area of study within the accounting literature. Most of the studies involving internal control targeted inspecting the characteristics of firms when disclosing material weaknesses in internal control. The literature established that firms

with material weaknesses are typically more complicated, smaller, and less profitable than companies that don't disclose any material weaknesses. Studies confirmed results and found that corporations disclosing material weaknesses are usually younger, growing fast, or undergoing changes of restructuring. A study shows that corporations disclosing control weaknesses have more complex operations, went through recent changes in organizational structure, are at raised exposure to accounting risks and have fewer resources to invest on internal control development (Ashbaugh et al., 2006; Ge and McVay, 2005; Ashbaugh et al., 2005; Doyle et al., 2007a)

## **VI. Conclusion:**

To sum up, there is a considerable amount of research on the role of internal control, the regulations of internal control and disclosure of internal control. This large amount of research studied the influence of firm characteristics on the quality of disclosure but yet very little of this literature studied the factors of disclosure on internal control in multinational corporations. The study of these factors will narrow the gap and shed light on what influence multinational corporations to disclose on internal control.

## **Chapter Four**

### **Research Objectives & Hypotheses Development**

## Chapter Contents

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## **I. Introduction**

This study is developed from the modern theory of the firm, signaling theory, agency theory, and legitimacy theory. Disclosure on internal control is considered a monitoring tool to reduce conflicts between outside shareholders and management. This study investigates the various factors that influence multinational corporations to disclose internal control information. This section will shed a light on the previous research on the four different theories. The chapter will then address the hypothesis development, and the model used as well as the various elements considered according to the literature. The factors will be operational factors, governance factors and national factors.

## **II. Previous Research on Internal Control in Multinational Corporations**

Auditing is an integral part of multinational corporations especially after the scandals. Auditing is expected to improve the quality, and reliability of the information made available to the public, and to enhance investor confidence in such information. Also with the current globalization of most markets, and fast growth in international trade, securing investor confidence is essential for multinational corporations. Some of the specific measures introduced by the Sarbanes-Oxley Act to improve internal control disclosure are related directly to either internal or external auditing, such as requiring external auditors to report to the audit committee, and the prohibition of non-audit services by external auditors as a conflict of interest (Arwinge, 2010; Doupnik and Perera, 2012).

In a global competitive environment, internal auditing has become an integral part of managing multinational corporations. The COSO has issued guidance on monitoring internal control systems. This guide is designed to help firms' better monitor the effectiveness of their internal control and to take corrective actions if needed. There is increasing need for adequate internal control to help minimize the risks or mitigate them in a market that is full of risks. The demand for internal auditing in multinational corporations has been growing in the past years especially due to the regulation requirements in many countries such as the Sarbanes-Oxley Act (Arwinge, 2010; Doupnik and Perera, 2012)

Even with the extensive number of studies in the field of internal control, the motivation behind disclosure on internal control by multinational corporations remains vague. The first step will be to investigate if there are differences in disclosures on internal control by multinational corporations. Further analysis would allow us examine the spread of those differences and the determinants which affect disclosure on internal control from a multinational corporation perspective. Answering those questions would help understand the cross-sectional variation in internal control disclosure.

### **1. Literature on Internal control Disclosure by US Corporations:**

Studies analyzed US corporations that voluntarily disclose on internal control. The study showed that there's an association between the presence of a management report on internal control and therefore the absence of financial reporting issues (McMullen et al., 1996). Others analyzed a sample of 261 companies disclosing a minimum of one material weakness in internal control in their SEC filings after the effective date of the Sarbanes-Oxley Act of 2002. The authors found that poor internal control is typically associated with a weak commitment of resources for accounting controls (Ge and McVay, 2005). Others investigated 397 mid-sized US companies in 1998. The study results give proof on the character of voluntary management reports on internal control before such statement was made obligatory by SOX. The authors analyzed many companies' characteristics and their impact on the extent of voluntary disclosure (Bronson et al., 2006). Some studies examine the increased disclosure for non-U.S. companies when listing shares in the U.S. and conclude that the country factor is a major determinant of increased disclosure. They note the greatest increases are for firms from developed countries (Bailey et al., 2006)

### **2. Literature on Internal control Disclosure in Multinational Corporations:**

Previous general disclosure studies tend to clarify the company's voluntary disclosure methods, such as studies to cut back agency costs. Studies within the area of voluntary disclosure have received a great deal of attention within the context of globalization of the world's business markets (Hossain et al. 1995; Botosan 1997; Lapointe et al. 2006).

Prior studies document the effect of country on disclosure practice Dye (1985), in his analytical model, suggests that voluntary communication is affected by disclosure requirements by the accounting regime. Studies find that country/region is one of the key factors explaining the extent of voluntary disclosure (Meek et al., 1995). Other studies discuss the preferred level of disclosure regarding the issue of differential reporting of small business entities in Singapore and Australia and note that small company managers in those two countries differ in their acceptance of international standards requiring more disclosure requirements than existing domestic standards (Williams and Tower, 1998). Other studies state that the country of reporting is the primary significant factor for the level of IAS compliance in the Asia-Pacific region (Tower et al., 1999).

### **3. More Recent Literature on Internal control Disclosure by Multinational Corporations:**

Recent research in the area of the internal control disclosure by multinational corporations investigated the influence of company governance characteristics on internal control disclosure based on a sample of 1309 Chinese listed non-financial companies in 2010. They designed an internal control disclosure index supported by eight criteria to judge the quality of internal control disclosure, but there was no international setting that would help understand the differences across regions (Leng and Ding, 2011)

Table 4.1 summarizes the ongoing research in the area of voluntary disclosure. This table shows that research in the areas of voluntary disclosure has, usually, been conducted on a national basis. And even when there was an international flavor it failed to consider many of the potential factors. This study uses this perspective as the primary basis for analysis of multinational corporations in a multi-country setting with different economic scenarios.

**Table 4.1 Summary of previous literature on disclosure of internal control information in Multinational Corporations**

<b>Author</b>	<b>Objective</b>	<b>Data</b>	<b>Sample</b>	<b>ICD</b>	<b>Variables</b>	<b>Statistics and Theory</b>	<b>Results</b>
Eng and Mak (2003)	Investigate the impact of ownership structure and board composition (independent directors) on voluntary disclosure	Singapore company's annual report and financial highlights of companies on the stock exchange of Singapore	158 Singaporean companies in 1995	Use Un-weighted disclosure indices	Managerial ownership, block holder ownership, government ownership, and independent directors	Multiple regression Theory: Agency theory	Positive significant associations between managerial ownership, government ownership, and size with voluntary disclosure and also negative significant associations between outside directors and debt with voluntary disclosure.
Lou et al. (2006)	Analyse and discover effect of voluntary disclosure, ownership structure, and proprietary cost on the return future earning relation.	Singaporean company's annual report and <i>data stream</i> database analysis during 1994 – 2000	172 Singaporean public companies in 1994 – 2000	Using un-weighted disclosure index	Current annual return, contemporaneous annual earnings, future earnings, ownership structure, and proprietary cost.	Multiple regression Theory: Agency theory	Positive significant relationship between return earnings and the levels of voluntary disclosure. This positive finding is weaker if there are higher managerial and government ownership, and proprietary cost is present.
Petersen and Plenborg (2006)	Examines the level of voluntary disclosure affects information asymmetry for industrial companies in Denmark.	Denmark company's annual report and <i>data stream</i> database analysis in 1997 – 2000	36 industrial companies listed on the Copenhagen Stock Exchange in 1997 – 2000	Using a disclosure index	Information asymmetry, return on invested capital, systematic risk, size, leverage, solvency, ownership concentration.	Multiple regression Theory: Agency theory	Voluntary disclosure affects information asymmetry shown as a negative coefficient.

Cheng and Courtenay (2006)	Examine the association between board monitoring and the level of voluntary disclosure	Singapore company's annual report in 2000	104 companies listed on the Singapore Stock Exchange in 2000	Using a disclosure index	Board monitoring, corporate governance, and regulatory regime	Multiple regression Theory: Agency theory	Positive significant association between independent directors and voluntary disclosure.
Barako et al. (2006)	Examine voluntary disclosure in Kenya which have economic scenario as developing country	Kenya company's annual report in 1992 – 2001	54 companies listed on the Nairobi Stock Exchange (Kenya) in 1992 - 2001	Using weighted disclosure index method	Non-executive director, dual leadership structure, audit committee, ownership structure, size, leverage, auditor, profitability, liquidity	Multiple regression Theory: Agency theory	Audit committee, is a significant factor associated with the level of voluntary disclosure. Non-executive directors are negatively significant with the extent of voluntary disclosure. Institutional and foreign owners, size and leverage are positively significant associated with voluntary disclosure.
Aripin et al. (2009)	Investigate Australia companies on the relationship between voluntary disclosure of accounting ratios in corporate annual report and factors affecting communication.	Australia company annual report in 2007	40 companies listed on the Australia Stock Exchange in 2007	Using a disclosure index	Board composition, ownership concentration, and firm size	Multiple regression Theory: Agency theory	There is a positive influence between company size and independent directors with company's voluntary disclosure.

Baek et al.(2009)	Examine how managerial ownership and corporate governance impact company's voluntary disclosure level and type.	The standard and poor's (S&P) <i>Transparency and Disclosure Survey</i> data	The S&P data on 374 companies in 2000	Use S&P survey on company disclosure	Managerial ownership, executive compensation, block ownership, institutional ownership, outside director	Multiple regression Theory: Agency theory	Managerial ownership (negative relation) and corporate governance / outside director (positive relation) affect the level and type of voluntary disclosure.
Ho (2009)	Employs agency theory framework to analyze ownership structures and voluntary disclosures. The analysis covers three key time periods that are considered critical in Malaysia in terms of regulatory reforms.	Malaysia company annual report in 1996, 2001 and 2006	100 companies listed on the Malaysia Stock Exchange in 1996, 2001 and 2006	Using un-weighted disclosure index method	Corporate governance, ownership structure,	Multiple regression Theory: Agency theory	Results show that ownership concentration is positively associated with voluntary disclosures.

### **III. Research Objectives:**

As highlighted in table 4.1, a large body of literature was focused on voluntary disclosure in annual reports, the influence of firm characteristics on the volume and quality of disclosure, but very little empirical evidence specifically on the determinants of internal control disclosure by multinational corporations. Another factor is that there was very little research on factors that might affect internal control disclosure in multinational corporations in an international setting. Studying these factors would help understand the determinants that influence the reporting in multinational corporations. This analysis will be very beneficial for investors, regulatory settings and management of multinational corporations as it will help each of them understand the complicated nature of what to disclose on internal control.

The main objective of our study is to analyze the determinants of disclosure on internal control by multinational corporations. Our study questions: 1) if there are differences in the internal control disclosure by multinational corporations. 2) If there are any differences in reporting of internal control by multinational corporations based on region. 3) What are the determinants of disclosure of internal control by multinational corporations that would possibly explain these differences in reporting? The study of these determinants would prove beneficial and add to the literature of internal control disclosure and would help bridge the gap in the literature. Understanding those differences will be a value added for investors trying to understand what determines the reporting of internal control by multinational corporations. Regulatory boards will also need to understand these factors to be able to have more control of the disclosure on internal control by corporations.

Literature on disclosure of internal control was divided into two streams of studies: national setting and multinational setting. In the national setting, studies analyzed the disclosure of internal control based on firm characteristics such as return on assets, systematic risk, size, leverage, potential growth (Street and Gray, 2002; Anderson et al. 2004; Petersen and Plenborg, 2006; Bronson et al., 2006). Or they focused on governance factors such as Managerial ownership, block holder ownership, government ownership, and independent directors (Eng and Mak, 2003; Anderson et al., 2004; Lou et al., 2006; Cheng & Courtenay, 2006; Adams et

Ferreira, 2009; Leung et Horwitz, 2010). The second stream of research analyze the national factors only under a multinational setting such as audit quality, changing auditor, culture (Skinner, 1994; Khanna et al., 2004; Zhang et al., 2007)

#### **IV. Hypotheses To be Tested:**

In this section, we will discuss the development of the hypothesis of our study. The hypotheses are categorized into national factors, governance factors and operational factors.

##### **1. National Factors:**

In this section, we will discuss the first set of factors related to national characteristics. Therefore our hypothesis will be to test if National Factors are influential in disclosure on internal control by multinational corporations. Under this category we included the following variables:

###### **a) Legal origin**

The idea of internal control has spread all over the world but with differences due to the variations between one country, and another. Some studies included the legal origin as a factor that might influence the disclosure on internal control. A variety of frameworks were developed with differences arising from the different legal systems in different countries either common law or civil law (La Porta et. al., 1997).

###### **b) Accounting Standards**

Accounting standards refer to the accounting standards adopted by the company in their annual reports. Studies proved that the adoption of IFRS tends to help for better disclosure on internal control (Leuz, 2003; Chen et al., 2010). This test was used in the literature; the variable is of the dichotomous type. This measure takes a 1 if the firm has IFRS in place and 0 otherwise as used by previous studies (Covrig et al. 2007; Daske et al. 2008, Chen et al. 2010)

###### **c) US Stock Listed**

US Stock Listed refers to if the multinational corporation is listed in the US stock exchange or not. Literature has used this measure as US stock listed corporations tend to follow extra regulations on disclosures. This measure has been used as a dichotomous variable by taking a 1

if the company is listed in the US stock exchange and 0 otherwise (Skinner, 1994; Khanna et al., 2004).

#### **d) Stock Listings**

Stock listing is measured by the number of stock exchanges the multinational corporation is listed in. Previous studies proved that companies tend to operate on a higher level of transparency when they are listed in multiple international stock exchanges (Skinner, 1994; Khanna et al., 2004; Ben Amar et Boujenoui, 2008).

## **2. Governance factors:**

In this section, we will discuss the first set of factors related to governance. Therefore our hypothesis will be to test if Governance Factors are influential in disclosure on internal control by multinational corporations. Under this category we included the following variables:

#### **a) Board Size**

A company's internal control system is the responsibility of the board of directors. Their responsibility is to set appropriate policies on internal control. The board must ensure that the established internal control is effective in managing risks and helping the firm achieve their objectives. This measure has been used in the literature through the calculation of the number of board of directors that are currently on the board. (Wen et al., 2002; Anderson et al., 2004; Zeghal et al., 2011)

#### **b) Board Independence**

This measure has been used by research through checking the portion of independent current board members as a percentage. The independence of the board is, usually, determined by regulation in each country depending on the laws. The measure has been used by various studies in the literature related to internal controls (Anderson et al., 2004; Adams et Ferreira, 2009; Leung et Horwitz, 2010).

### **c) Audit Committee Size**

Audit committee size is a measure of the number of directors that are currently considered as the Audit committee members. This measure has been widely used in the literature which is why it is part of the governance factors of this study (Anderson et al., 2004)

## **3. Operational factors:**

In this section, we will discuss the first set of factors related to operational characteristics. Therefore our hypothesis will be to investigate if Operational Factors are influential in disclosure on internal control by multinational corporations. Under this category we included the following variables:

### **a) Company size**

Studies on internal control disclosures found a good relationship between disclosures on internal control and company size. Based on agency cost theory, the larger the company, the more stakeholders are involved. Companies tend to disclose more information on internal control under these circumstances. Many studies have used the logarithm of total assets to have the company size measure (Street and Gray, 2002; Anderson et al. 2004; Ben Othman and Zeghal, 2010).

### **b) Financial Leverage**

As per the agency, high leveraged companies incur higher agency costs and therefore they need to disclose more information to the creditors. This measure can be obtained either directly or through dividing total debts on total assets. This measure has been used widely in the literature to examine the association of leverage and disclosure on internal control. Firms, usually, use disclosures to reduce the agency costs and information asymmetry (Wen et al. 2002; Ashbaugh et al. 2006; Zeghal et al. 2011)

### **c) Profitability**

Many studies investigated the relation between profitability and internal control disclosure. So studies proved that there is a good relationship between the firm performance and the

profitability (Hermalin and Weisbach, 2012). On the other hand, other studies found that firms with poor performance tend to disclose more on internal control. Profitability is a proxy that has been used in research to measure for financial performance. It is measured by Return on Assets which is calculated by dividing net income on total assets, which has been used in many studies (Wen et al. 2002; Andres et al. 2005; Leung and Horwitz, 2010).

#### **d) Potential Growth**

Market-to-Book-Ratio is a proxy that has been used in research to measure for Growth. Growth is, usually, associated with information asymmetry due to the high agency costs (Smith and Watts, 1992). Companies tend to use the voluntary disclosures to try and reduce the agency costs and therefore reduce the information asymmetry. (Hossain et al. 2005; Zeghal et al., 2007). It is calculated by comparing the book value of the firm to its market value, which has been widely used in the literature (Ashbaugh et al. 2006; Andres et al. 2005; Ben Othman et Zeghal, 2010)

#### **e) Economic Sector**

Industry sector is a factor that could have an influence on the level of disclosure on internal control (Ahmed et Curtis, 1999; Zeghal et al., 2007). As a result of these studies, it is known that some organizations tend to disclose more or less depending on the industry sector that the organization operates in.

#### **f) Degree of the Internationality**

International factor accounts for the spread of the organization in other than the home country. Organizations might take into consideration the foreign countries that they operate in to keep investors informed. The study of such a factor would help understand if corporations tend to disclose more if they are more spread internationally or the other way around. Therefore, they should accommodate for either more or fewer disclosures on internal control depending on the situation. This measure has not been used in respect to internal control disclosure, which makes studying it a potential determinant of complexity.

## **V. Conclusion:**

The aim of this chapter was to theoretically frame the study to build hypotheses. Our empirical study will answer the question we have and will be an excellent addition to bridging the gap in the literature. The study will progress with the investigation on the chosen sample with the abovementioned factors. The factors are the national factors, governance factors and operational factors. The determinants will be empirically tested by using the content analysis and multivariate regression. These will be discussed in the coming chapters.

## **Chapter Five**

### **Methodology**

## **Chapter Contents**

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## **I. Introduction:**

The objective of our study is to analyze the determinants of disclosure of internal control by multinational corporations. The design of our research is a factor of national aspects, governance aspects and operational aspects. This chapter will address the sample selection and data collection as well as the model that the study wants to test. The chapter will start by presenting the sampling procedure, sources of data characteristics of the sample, data collection and describe the measurements of disclosure. This section will also discuss the development of the coding sheet, coding, as well as variables definition. Finally, the chapter discusses the dependent variables and explanatory variables, as well as the model to be tested.

## **II. Model to be tested**

We investigate in our study the determinants of disclosure on internal control in multinational corporations. Our conceptual model is a factor of three different aspects and is a linear regression as follows:

**Measures of Disclosure on Internal Control = f(National factors, Governance factors, Operational factors)**

## **III. Sample Selection:**

The population of the study is top 500 multinational corporations based on the 2012 *Global 500*, published by Fortune Magazine. The magazine publishes a yearly ranking for the top 500 performing multinational corporations based primarily on their revenue. The study excludes 145 financial companies and banks because firms operating in this industry have different financial reporting formats and standards. The financial sector and banks were excluded because this sector has accounting methods that are specifically tailored to the industry. The exclusion of this sector is justified to preserve the homogeneity of the sample. In addition, previous studies proved that the governance of financial companies tends to be different than non-financial ones.

*Table 5.1. Steps in Selecting the Sample starting with Global 500\**

<b>Sample</b>	<b>Number of MNEs</b>
<b>Starting Sample</b>	<b>500</b>
Exclusion of Financial Sector such as Banks and Insurance MNEs	145
Exclusion of Fiscal year different than December 2012	110
Exclusion of MNEs with missing data on Bloomberg	67
<b>Final Sample</b>	<b>178</b>

\*Source: [Http://money.cnn.com/magazines/fortune/global500/2012/full\\_list/](http://money.cnn.com/magazines/fortune/global500/2012/full_list/)

The study excludes 110 companies that have an ending fiscal year different than December 2012, as well as 67 companies that do not have (or missing data) financial and non-financial information on Bloomberg. The exclusion resulted in a final sample of 178 multinational corporations as described in Table 5.1. The full multinational corporations list is found in Appendix 1.

Table 5.2 represents the number of multinational corporations according to the country of origin. The highest percentage based on region was to Europe by 42% followed by North America with 41%, Asia with 13% and lastly South America with 3%. On the other hand, according to the country of origin, USA came first with 68 companies whereas Austria, Turkey, Poland and Hungary had only one company in each country.

Table 5.3 represents the classification of the sample according to the industry that the company operates in. This measure is based on the categorization of the Standard Industrial Classification (SIC) used by the SEC.

*Table 5.2 Analysis of the sample according to Country and Region*

<b>Region</b>	<b>Number of MNEs</b>	<b>Percentage</b>
<b>North America</b>	<b>73</b>	<b>41%</b>
USA	68	
Canada	5	
<b>Europe</b>	<b>75</b>	<b>42%</b>
France	18	
Germany	10	
United Kingdom	10	
Netherlands	6	
Switzerland	6	
Russia	6	
Italy	4	
Spain	3	
Sweden	2	
Ireland	2	
Belgium	2	
Finland	1	
Luxembourg	1	
Austria	1	
Turkey	1	
Poland	1	
Hungary	1	
<b>Asia</b>	<b>24</b>	<b>13%</b>
China	11	
South Korea	6	
Taiwan	4	
Thailand	1	
Singapore	1	
Malaysia	1	
<b>South America</b>	<b>6</b>	<b>3%</b>
Brazil	4	
Mexico	1	
Colombia	1	
<b>Total</b>	<b>178</b>	<b>100%</b>

*Table 5.3. Descriptive of the sample based on Sector according to SICs*

<b>Sector</b>	<b>Number of MNEs</b>	<b>Percentage</b>
Mining (10-14)	23	12.92%
Construction (15-17)	5	2.81%
Manufacturing (20-39)	90	50.56%
Transportation, Communications, Electric, Gas and Sanitary service (40-49)	32	17.98%
Wholesale Trade (50-51)	7	3.93%
Retail Trade (52-59)	13	7.30%
Services (70-89)	8	4.49%
<b>Total</b>	<b>178</b>	<b>100%</b>

#### **IV. Disclosure Measures:**

We have three internal control disclosure measures in our study which are; Disclosure Index (DI), Disclosure Volume (DV) and Disclosure Quality (DQ). More detailed information about these measures will be given in the following section.

##### **1- Disclosure Index (DI):**

The total number of elements disclosed by each firm is very critical to our study. Therefore, the use of this index is widely used in the literature to measure the amount of the element published in the annual reports.

##### **2- Disclosure Volume (DV):**

Studying the changes in the total amount of sentences disclosed on internal control might give this study insight about the variations in reporting of internal control by multinational corporations in terms of volume.

### **3- Disclosure Quality (DQ):**

An important measure is the quality of the disclosure on internal control through assessing the depth of the information disclosed by management on internal control. This measure brings a different dimension to study through studying differences in quality of reporting between firms.

Each coding will give a different measure of disclosure that is: Disclosure Index (DI), Disclosure Volume (DV) and Disclosure Quality (DQ). More details on these measures will be given in Chapter six.

## **V. Explanatory Variables**

In this section, the study will define the explanatory variables included in our study. This section will also address the way each variable was measured according to the literature. Our model is a factor of three factors and is conceptually represented as follows:

**DI, DV, DQ = f(National factors, Governance factors, Operational factors)**

### **1- National Factors**

#### **1.1. Legal origin (LO)**

A variety of frameworks were developed with differences arising from the different legal systems in different countries therefore our study measures it by either 0 for common law or 1 for civil law and their different categories (Appendix 2) (La Porta et. Al., 1997)

#### **1.2. Accounting Standards (AS)**

Accounting standards refer to the accounting standards adopted by the company. This measure was also used in the literature; the variable is dichotomous. This measure takes a 1 if the firm has IFRS in place and 0 otherwise as used by previous studies (Covrig et al. 2007; Daske et al. 2008, Chen et al. 2010)

### **1.3. US Stock Listed (US\_SE)**

This variable is not very common in the literature and it takes into consideration the firms that are listed on the US stock exchange. This measure takes a 1 if the firm is listed in the US stock exchange, 0 otherwise (Skinner, 1994; Khanna et al., 2004)

### **1.4. Stock Listings (SL)**

Stock listings are measured by the number of stock exchanges that the company is listed in (Skinner, 1994; Khanna et al., 2004; Ben Amar et Boujenoui, 2008).

## **2- Governance Factors**

### **1.1. Board Size (B\_SIZ)**

Literature has used this measure through the calculation of the number of board of directors that are currently on the board. Number of Directors on the company's board, as reported by on the companies' annual report. (Wen et al., 2002; Anderson et al., 2004; Zeghal et al., 2011)

### **1.2. Board Independence (B\_IND)**

Literature has used the measure through using the percentage of independent members of the board of directors. Percentage of Independent Directors on the company's board, as reported by the company. Independence is defined according to the company's criteria. (Anderson et al., 2004; Adams et Ferreira, 2009; Leung et Horwitz, 2010)

### **1.3. Audit Committee Size (A\_SIZ)**

This measure has been widely used in the literature as governance factors, through calculating the number of current directors acting as audit committee members. Number of directors on the company's audit committee; includes full-time directors only, deputy members of the committee will not be counted. (Anderson et al., 2004)

### **3- Operational Factors**

#### **3.1. Company size (F\_SIZ)**

Many studies have used the logarithm of total assets to have the company size measure; Total assets are equal to the sum of Cash & near cash items, Short-term investments & securities inventory, Net receivables, Total Long-Term Investments, Net fixed assets, and other assets. (Street and Gray, 2002; Anderson et al. 2004; Ben Othman and Zeghal, 2010).

#### **3.2. Financial Leverage (LEV)**

Debt ratio is a measure that has been used widely in the literature to examine the association of leverage and disclosure on internal control. Debt ratio is equal to (short term loans + long term borrowings + Securities Sold with a Repurchase Agreement) divided by Total Asset (Wen et al. 2002; Ashbaugh et al. 2004b; Zeghal et al. 2011)

#### **3.3. Profitability (PROF)**

It is measured by Return on Assets which is calculated by dividing EBIT on total assets, which has been used in many studies. Return on Assets (ROA, in percentage) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated as (EBIT / Average Total Assets). (Wen et al. 2002; Andres et al. 2005; Leung et Horwitz, 2010).

#### **3.4. Potential Growth (MB)**

It is estimated by comparing the book value of the firm to its market value, which has been widely used in the literature; Measure of the relative value of a company compared to its market value. Calculated as: Market Capitalization/Book Value (Ashbaugh et al. 2004a; Andres et al. 2005; Ben Othman et Zeghal, 2010)

### **3.5. Economic Sector (SECT)**

Sector is measured by SIC, where organizations are spread between different sectors as previously mentioned in Table 5.3. This measure will help us understand if sectors influence the disclosure of internal control by multinational corporations (Meek et al., 1995; Cheung et al., 2006; Zeghal et al., 2007).

### **3.6. Degree of Internationality (M\_INT)**

It is calculated by indicating how many countries does the organization operates in other than the home country. This measure will be manually collected from annual reports and company's websites.

## **VI. Data Collection:**

Data collection for our study will be from two sources:

1. Annual reports of multinational corporations for the internal control information. The reasons why we collect the data from annual reports are: firstly, the disclosure level of internal control information that will be measured is based on an index that is built from elements of internal control that are disclosed in annual reports. Secondly, all companies tend to explain in the annual report about their best practices of corporate governance in their companies therefore we believe that information about internal control practices can easily be obtained from the annual report. The use of annual reports is common in the internal control studies. Many studies relied and still rely on annual reports in investigating organizational behavior and disclosures on internal control and methods (Brennan, 2001; Bozzolan et al., 2003; Lajili and Zeghal, 2005; Dia and Zeghal, 2008).
2. Bloomberg is the source of financial data for our sample of multinational corporations included in our study. Bloomberg financial database consists of financial information such as the information available in income statements and balance sheets on a large number of multinational corporations.

## **VII. Measurements of Disclosure:**

### **1. Content Analysis**

Our study will be based on content analysis of annual reports of multinational corporations. Content analysis will help us measure the internal control information disclosed in annual reports of multinational corporations. Content analysis is widely used in different areas of social studies (Milne and Adler, 1996; Subbarao and Zeghal, 1997; Lajili and Zeghal, 2005; Dia and Zeghal, 2008). This study will adopt the content analysis approach. To measure disclosures a lot of previous studies have made use of content analysis (Beretta and Bozzolan, 2004; Linsley and Shrivess, 2006; Abraham and Cox, 2007). Content analysis is a research technique for making replicable and valid inferences from texts (or another meaningful matter) to the contexts of their use” (Krippendorff, 2004). Content analysis has been an effective analysis for large amounts of qualitative data disclosures where it can be categorized. (Lajilli and Zeghal, 2005)

### **2. Development of the Coding Sheet:**

The coding sheet attached in the Appendix 3 was developed based on an extensive reading of internal control regulation, previous research, concepts and theories on internal control (Eng et Mak, 2003; Ashbaugh et al., 2004; Francis et al., 2008). The coding proved to be helpful with the textual type of data, to represent the large amount of textual data in a more readable way. This analysis will be capturing features that were explicitly mentioned by multinational corporations in their annual reports on their internal control. These elements are categorized under five categories that are as follows:

- 1- Management Roles and Responsibilities:** This category captures the elements where management roles are mentioned in the annual report. Under the management group, the study captures if the annual report mention: board of directors, the audit committee, CEO, CFO or management in general. This section captures sentences that include roles in establishing, maintaining and evaluation internal control. This category also captures if there was a mention on the board or the audit committee independence.

An example from an annual report would be “Management, including Corporation’s chief executive officer, principal financial officer and principal accounting officer, is responsible for establishing and maintaining adequate internal control over Corporation’s financial reporting.” Items in this category are functions of Board of directors, Audit committee, CEO, CFO or Management. Functions such as:

- a. Establishing internal control
- b. Maintaining internal control
- c. Evaluating internal control
- d. Independence of Management

**2- Management Actions:** Under this category, the elements capture where management activities are addressed in the annual report. Under the management group, the study captures if the annual report mentions: board of directors, the audit committee, CEO, CFO or management in general. The elements also try to categorize the type of action as establishing, maintaining or evaluating the internal control of the firm. This category also includes elements about disclosure of how management fulfills their activities if available. An example would be “Management conducted an evaluation of the effectiveness of internal control over financial reporting based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.” This section also includes Board of directors, Audit committee, CEO, CFO or Management.

- a. Establishing internal control
- b. Maintaining internal control
- c. Evaluating internal control
- d. Fulfilment of activities of Management

**3- Controls and procedures:** This section contains the elements where management is involved in establishing, maintaining, evaluating controls and issues a statement on the effectiveness of these controls. The coding sheet also captures if these controls and

procedures and actions were addressed in the annual report under the board of directors, the audit committee, CEO, CFO or management in general. An example of this would be “ Corporation’s chief executive officer, principal financial officer and principal accounting officer have evaluated the Corporation’s disclosure controls and procedures as of December 31, 2012. Based on that evaluation, these officers have concluded that the Corporation’s disclosure controls and procedures are effective.” This section includes Board of directors, Audit committee, CEO, CFO or Management.

- a. Establishing controls and procedures
- b. Maintaining controls and procedures
- c. Evaluating controls and procedures
- d. Effectiveness of controls and procedures

**4- Management Report on the Effectiveness of Internal Control:** This category includes all mandatory disclosures on internal control and some voluntary disclosures. The elements start by capturing the framework of evaluation, either COSO framework or Turnbull Framework. If the annual report addresses any material weaknesses, control deficiencies or any changes in internal control that might lead to material weaknesses. The management report section also has the conclusion on internal control as well as the auditors’ opinion on the assessment by management on internal control. This category also captures if any signature is on the annual report (CEO, CFO or both). As well as if the report addresses the definition, purposes or limitations of internal control. An example of that would be “Management conducted an evaluation of the effectiveness of internal control over financial reporting based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that Exxon Mobil Corporation’s internal control over financial reporting was effective as of December 31, 2012.” This group of coding included:

- a. Framework used in evaluating the internal control
- b. Conclusion on internal controls

- c. Material weaknesses
- d. Control deficiencies
- e. Changes in internal control
- f. Auditors opinion
- g. Signatures on the management report
- h. Internal control definition purpose and limitations.

**5- Additional Internal Control Information:** This section examines the independent accounting firm report on internal control over financial reporting. Elements such as an opinion on the management evaluation, if COSO or Turnbull Framework was used and the conclusion on the effectiveness of internal control over financial reporting. Under the same report, the study captures the mention of definition, purposes and limitations of internal control over financial reporting. This section also captures information related to the code of ethics for executive management if it is specified, available and applied to the company principals. If any changes or waivers were mentioned in the report, they would be also captured by the coding sheet. The financial expert in the audit committee is also an essential element according to the SEC. Therefore, we try to capture if there was a mention of the name of the financial expert or his independence.

- a. Certifications provided by management
- b. Independent auditors report
- c. Code of ethics
- d. Financial expert
- e. Officers certifications

## **VIII. Coding Procedures:**

The developed coding sheet was used for the pre-test on the top 50 American companies by the same ranking. This practice helped the researcher in testing the coding sheet and test how well and effective it is in capturing internal control information. The coding sheet proved to be able to show differences in disclosure of internal control by the 50 American companies.

Content analysis has been widely used in the literature especially when conducting studies that relate to annual reports and information disclosed in them. In our study this means that the coding sheet will be able to represent the textual data of our sample in a more readable way, as well as to be able to explain differences in reporting of multinational corporations if there are any. The coding tool has been used to further study the internal control reporting practices of different organizations (Milne and Adler, 1996; Subbarao and Zeghal, 1997; Lajili and Zeghal, 2005; Dia and Zeghal, 2008). Our test on the performance on the coding sheet was checked by the thesis supervisor for effectiveness. The results of the pretest were encouraging to proceed with the analysis of the study with the primary sample. Three types of codes were used in conducting this study, these codes are:

1. **Availability of Disclosure** (0 if the item is not available, 1 if the item is available) which is justified by being a dichotomous variable (Durnev et Kim, 2005; Ben Othman et Zeghal, 2010). The maximum figure for this measure in our study came out to be 39.
2. **Volume of Disclosure** (Number of sentences for each element in the annual report) although this measure is not assumed to be representative of the quality of disclosure, it is assumed to be indicative of the overall volume of internal control information. (Zeghal and Ahmed, 1990). The maximum score for this measure in our sample was 108.
3. **Quality of Disclosure** (1 for qualitative historical information, 2 for qualitative forward-looking, 3 for quantitative historical, 4 for quantitative forward looking). An example is provided in Appendix 4 for extra details on the quality measure (Leuz et al., 2003). The maximum for the disclosure quality measure in the multinational corporations was 54.

## **IX. Descriptive statistics of the sample:**

This section discusses the characteristics of our sample of 178 multinational corporations. The following table (Table 5.4) will give an idea on the features of the sample based on some key variables like total assets and return on assets.

*Table 5.4 Descriptive Analysis of the sample variables*

*Panel A: Continuous Variables*

<b>Variables</b>	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>
<b>Stock_Listing(SL)</b>	<b>178</b>	0.00	5.00	3.32	3.00	1.17
<b>Board_Size(B_SIZ)</b>	<b>178</b>	7.00	20.00	12.29	12.00	3.11
<b>Board_Independence(B_IND)</b>	<b>178</b>	17%	100%	68%	67%	2.99
<b>Audit_Committee_Size(A_SIZ)</b>	<b>178</b>	0.00	9.00	4.21	4.00	1.21
<b>Log of Total Assets (F_SIZ)</b>	<b>178</b>	-1.98	3.18	1.43	1.56	0.94
<b>Financial Leverage (LEV)</b>	<b>178</b>	0.00	103.05	25.68	22.93	15.23
<b>Return on Assets (ROA)</b>	<b>178</b>	-9.38	24.06	5.08	4.21	4.77
<b>Market to Book Value (MB)</b>	<b>178</b>	-39.79	759.62	6.05	2.02	56.98
<b>Multinationality(M_INT)</b>	<b>178</b>	1.00	225.00	56.65	30.00	60.36

*Table 5.4 Descriptive Analysis of the variables*

*Panel B: Dichotomous Variables*

<b>Legal_Origin(LO)</b>		<b>Frequency</b>	<b>Percentage</b>
<b>Common_Law</b>	<b>0</b>	91	51.12%
<b>Civil_Law</b>	<b>1</b>	87	48.88%
<b>Accounting_Standards(AS)</b>		<b>Frequency</b>	<b>Percentage</b>
<b>Not IFRS</b>	<b>0</b>	87	48.88%
<b>IFRS</b>	<b>1</b>	91	51.12%
<b>US_Stock_Exchange(US_SE)</b>		<b>Frequency</b>	<b>Percentage</b>
<b>Not Listed</b>	<b>0</b>	11	6.18%
<b>Listed</b>	<b>1</b>	167	93.82%

Table 5.4, Panel A presents a descriptive analysis of continuous variables in our study. We can see that most variables appear to have variances such as the Stock Listing, Profitability and Firm Size. These variables appear to have reasonable differences, which mean we do not see any variable with a large gap between the mean and the median. Other variables seem to have significant variations such as Leverage, Growth and Degree of Internationality where we see a higher standard deviation as well as an apparent gap between the mean and the median (example: Mean = 6.05, Median = 2.02).

table 5.4, Panel B addresses the dichotomous variables where we notice the distribution of the sample among the Legal Origin and Accounting Standards where we have almost equally distributed variables. On the other hand, we see that most of our sample is listed in the US stock exchange, which makes the number of multinational corporations that are not listed on the US stock exchange market only 6.18% out of the sample.

## **X. Model to be tested**

We investigate in our study the determinants of disclosure on internal control in multinational corporations. Using the disclosure index (DI), disclosure volume (DV) and disclosure quality (DQ) as dependent variables. Our conceptual model is a linear regression as follows:

**DI, DV, DQ = f(National factors, Governance factors, Operational factors)**

The multivariate model used in this study including the independent variables is as follows:

$$\text{DI, DV, DQ} = \alpha + (\beta_1\text{LO} + \beta_2\text{AS} + \beta_3\text{US\_SE} + \beta_4\text{SL}) + (\beta_5\text{B\_SIZ} + \beta_6\text{B\_IND} + \beta_7\text{A\_SIZ}) + (\beta_8\text{F\_SIZ} + \beta_9\text{LEV} + \beta_{10}\text{PROF} + \beta_{11}\text{MB} + \beta_{12}\text{SECT} + \beta_{13}\text{M\_INT}) + \varepsilon$$

## **XI. Conclusion:**

The aim of this chapter was to present the various aspects of the methodology of our study. The chapter started by showing some descriptive statistics on the sample in different categories. There was also the presentation of the analysis of disclosure on internal control measures. The chapter also discussed the coding procedures and the different variables and their way of measurement. Therefore, the next chapter would be on a descriptive statistical analysis of the variables used in the study.

## **Chapter Six**

### **Descriptive Statistical Analysis of the Variables in the Study and Univariate Analysis**

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## **I. Introduction:**

The previous chapter clarifies the research approach used in this study. This chapter presents the descriptive statistical analysis of the content analysis performed on the internal control information disclosed in the annual reports of the 178 multinational corporations in the sample. The chapter is organized as follows: The chapter starts by presenting the mathematical description of the key variables of our sample as well as the internal control measures (DI, DV and DQ). The chapter moves to discuss the location of internal control information. The next section highlights the key descriptive statistical findings of the sub-components of all three internal control measures (DI, DV and DQ). The last section provides an Anova test and univariate analysis to see the spread of the differences in internal control disclosure and the significance of these differences.

## **II. Descriptive statistics of the Internal Control Measures: What are the descriptive characteristics of the Internal Control Measures?**

As explained in previous chapters, our study consists of three internal control measures; Disclosure Index (DI), Disclosure Volume (DV) and Disclosure Quality (DQ). Table 6.1 shows the characteristics of these three measures based on the content analysis conducted on the sample of multinational corporations.

The objective of this analysis is to have an idea on the descriptive statistics of the three internal control measures (DI, DV and DQ) such as the Min, Max, Mean and Standard Deviation. As Table 6.1 Panel A shows that the DI seems to have a range of results from a minimum of 0 to a maximum of 39 and a mean of 12.3596. This proves that there are differences in internal control information published by multinational corporations. DV seems to have a minimum of 0 to a maximum of 108 and a mean of 30.4888. This shows that there are differences in the volume of internal control information published by multinational corporations. The last measure is DQ where it has results from a minimum of 0 to a maximum of 54 and a mean of 18.4494. This tells that there are also differences in the quality of internal control information published by multinational corporations. All these differences need to be investigated further to have a better understanding of the internal control disclosure in multinational corporations.

**Table 6.1 Descriptive Statistics of the Measure of Internal Control Information Disclosure DI, DV, DQ  
Panel A**

Measure	N	Min	Max	Median	Mean	Standard Deviation
<b>Disclosure Index (DI)</b>	178	0	39	7.00	12.359	11.229
<b>Disclosure Volume (DV)</b>	178	0	108	14.00	30.488	32.103
<b>Disclosure Quality (DQ)</b>	178	0	54	12.00	18.449	15.870

DI is measured by the availability of the disclosed items about Internal Control by either 1 for available and 0 for not available

DV is measured by the number of sentences disclosed about Internal Control

DQ is measured by summation of quality of the Internal Control Information disclosed under each element by 1 for qualitative historical information, 2 for qualitative forward-looking information, 3 for quantitative historical information and 4 for quantitative forward-looking information.

**Table 6.1 Descriptive Statistics of the Measure of Internal Control Information Disclosure DI, DV, DQ  
based on Region  
Panel B**

Regions	North America	Europe	Asia	South America	Total
<b>n</b>	<b>73</b>	<b>75</b>	<b>24</b>	<b>6</b>	<b>178</b>
<b>Disclosure Index (DI)</b>					
<b>Mean</b>	20.57	7.1	3.33	7.83	12.359
<b>Standard Deviation</b>	(9.47)	(8.38)	(3.46)	(15.32)	(11.229)
<b>Disclosure Volume (DV)</b>					
<b>Mean</b>	54.72	14.14	7.00	16.83	30.488
<b>Standard Deviation</b>	(32.33)	(16.5)	(7.5)	(35.87)	(32.103)
<b>Disclosure Quality (DQ)</b>					
<b>Mean</b>	29.74	11.25	6.38	10.66	18.449
<b>Standard Deviation</b>	(14.92)	(10.76)	(6.18)	(18.48)	(15.870)

DI is measured by the availability of the disclosed items about Internal Control by either 1 for available and 0 for not available

DV is measured by the number of sentences disclosed about Internal Control

DQ is measured by summation of quality of the Internal Control Information disclosed under each element by 1 for qualitative historical information, 2 for qualitative forward-looking information, 3 for quantitative historical information and 4 for quantitative forward-looking information.

While Table 6.1 Panel B, proves that there are differences in disclosure on internal control by multinational corporations, we can clearly notice that the North American corporations have a higher disclosure index average than the rest of the regions (20.57) of which Asia had the lowest

with only 3.33. This observation is true with the other two measures of disclosure on internal control which are the disclosure volume and the disclosure quality.

### **III. Location of the Internal Control: Where are the elements of Internal Control disclosed?**

The location of the internal control information is an important factor that this study takes into consideration. Since the annual reports are, usually, lengthy, this study investigated the location that multinational corporations tend to use more in disclosing their internal control information. This exercise will help locate the internal control information disclosed by multinational corporations.

Table 6.2 panel A indicated the location of internal control information (where it was disclosed). It is immediately noticeable that most of the information on internal control is disclosed in the other section with a percentage of 66.29% and this is due to the factor that most firms tend to include internal control information all over the annual statements. Auditor's report is also a place where a lot of information on internal control is disclosed with a 57.87%. Management discussions and analysis (MD&A) was a section with the least internal control information over the entire sample with only one company that mentioned any information regarding internal control. Therefore, we can notice that the most spread section after other locations is the auditor's report on internal controls. This section was used by most multinational corporations with a 57.87% of the whole sample. The section with the largest number of elements was the management report with a mean of 4.1685. The management report section included a lot of internal control information when used.

In Table 6.2 Panel B, we can notice that more than 80% of the North American corporations tend to use the management report the auditor report and the control and procedures section to disclose internal control information. 52 % of European corporation tend to use the auditor reports to disclose internal control information. Under the other section we notice that most corporations tend to disclose some internal control information over all the annual report. We can notice under the other section that 83.33% of South American corporations, 68% of

European corporations, 65.75% of North American corporation and 58.33% of Asian corporations tend to use this section to report on various internal control issues.

**Table 6.2 Location of Internal Control Information and the mean number of elements disclosed**  
**Panel A**

#	Location	N (178)	%*	Mean**	Standard Deviation
1	Management Report On Internal Controls	77	43.26%	4.168	5.212
2	Auditor Report On Internal Controls	103	57.87%	2.522	2.689
3	Controls & Procedures	74	41.57%	2.421	3.151
4	MD&A	1	0.56%	0.039	0.524
5	Other Locations	118	66.29%	3.168	3.761

\* N/178\*100

\*\* Mean is measured by the average number of internal control elements disclosed

**Table 6.2 Location of Internal Control Information and the mean number of elements disclosed based on Region**  
**Panel B**

Location	Management Report	Auditor Report	Controls & Procedures	MD&A	Other
<b>North America (73)</b>					
% of MNEs	87.67%	82.19%	83.56%	1.37%	65.75%
Mean of DI	8.3	4.64	4.91	0.09	2.57
Standard Deviation	(4.25)	(2.46)	(2.75)	(0.81)	(2.36)
<b>Europe (75)</b>					
% of MNEs	16.00%	52.00%	14.67%	0.00%	68.00%
Mean of DI	1.37	1.21	0.55	0.00	3.95
Standard Deviation	(3.66)	(1.66)	(1.54)	(0.00)	(4.91)
<b>Asia (24)</b>					
% of MNEs	0.00%	12.50%	4.17%	0.00%	58.33%
Mean of DI	0.00	0.19	0.62	0.00	2.52
Standard Deviation	(0.00)	(0.51)	(2.84)	(0.00)	(2.56)
<b>South America (6)</b>					
% of MNEs	16.67%	16.67%	16.67%	0.00%	83.33%
Mean of DI	2.66	0.83	1.33	0.00	3.00
Standard Deviation	(6.53)	(2.04)	(3.26)	(0.00)	(3.69)
<b>Total (N = 178)</b>	<b>77</b> 4.17 (5.21)	<b>103</b> 2.52 (2.69)	<b>74</b> 2.42 (3.15)	<b>1</b> 0.039 (0.52)	<b>118</b> 3.168 (3.76)

#### **IV. Analysis of the sub-components of the Internal Control Disclosure Measures: What are the major sub-components in internal control disclosure measures?**

In this section, we try to understand the differences in reporting by investigating the sub-components of the Disclosure Index measure (DI). The sub-components are the integral part of the design of the coding sheet. This exercise will also help us understand which type internal control information is disclosed in the annual report of the multinational corporations.

##### **1 - What are the major sub-components in Disclosure Index (DI)?**

Table 6.3 panel A highlights the sub-components of the disclosure index (DI). The content analysis results revealed that most information on internal control are the management roles in maintaining adequate internal controls with 141 multinational corporation followed by the management report section where management disclose the information regarding the evaluation of internal control, the framework as well as any related information with the understanding of the internal controls. The management report had 122 multinational corporations whereas management actions had 109.

The additional IC information and the controls and procedures were the least disclosed information by 69 and 68 multinational corporations from the whole sample respectively. The additional information is justified by the fact that North American multinational corporations tend to disclose the officer's certification, as well as the lengthy independent report by the auditors, were the controls and procedures are due to the regulations in that region.

In Table 6.3 Panel B, we can notice that the disclosure index measure has a very close distribution in the case of North American Corporations. We see that the highest section with elements was management report followed by management roles then management actions. In the cases of Europe, Asia and South America the highest section was the management roles then management report then management actions.

**Table 6.3 Analysis of the Components of Internal Control According to Disclosure Index (DI)  
Panel A**

#	DI Sub-Components	N (178)	%*	Mean**	Standard Deviation
1	Management Roles	141	79.21%	2.162	1.701
2	Management Actions	109	61.24%	2.494	2.754
3	Controls & Procedures	68	38.20%	0.943	1.821
4	Management Report	122	68.54%	3.325	3.048
5	Extra IC info	69	38.76%	3.432	4.651

\* N/178\*100

\*\* Mean is measured by the average number of internal control elements disclosed

**Table 6.3 Analysis of the Components of Internal Control According to Disclosure Index (DI) based  
on Region  
Panel B**

Location/ Region	Management Roles	Management Actions	Controls & Procedures	Management Report	Extra Info
<b>North America (73)</b>					
% of MNEs	36.50%	33.70%	33.14%	39.30%	32.00%
Mean	2.27	3.95	1.63	5.68	7.05
Standard Deviation	(1.3)	(2.37)	(1.77)	(2.64)	(4.44)
<b>Europe (75)</b>					
% of MNEs	33.14%	22.47%	3.93%	23.59%	5.61%
Mean	2.25	1.66	0.37	1.89	0.93
Standard Deviation	(1.9)	(2.73)	(1.3)	(2.08)	(2.76)
<b>Asia (24)</b>					
% of MNEs	6.74%	3.37%	0.56%	4.49%	0.56%
Mean	1.43	0.57	0.57	0.71	0.04
Standard Deviation	(1.57)	(1.07)	(2.61)	(1.23)	(0.22)
<b>South America (6)</b>					
% of MNEs	2.81%	1.69%	0.56%	1.12%	0.56%
Mean	2.33	1.67	1.00	1.17	1.67
Standard Deviation	(3.32)	(3.14)	(2.45)	(2.4)	(4.08)
<b>Total (N = 178)</b>	<b>141</b> <b>2.162</b> <b>(1.701)</b>	<b>109</b> <b>2.494</b> <b>(2.754)</b>	<b>68</b> <b>0.943</b> <b>(1.821)</b>	<b>122</b> <b>3.325</b> <b>(3.048)</b>	<b>69</b> <b>3.432</b> <b>(4.651)</b>

## **2 - What are the major components in Disclosure Volume (DV)?**

In this section, we try to understand the differences in reporting by investigating the sub-components of the Disclosure Volume measure (DV). The sub-components are the integral part of the design of the coding sheet. This exercise will also help us understand the volume of internal control information is disclosed in the annual report of the multinational corporations.

This section investigates the internal control information disclosed in relation with the volume of disclosure (number of sentences). Table 6.4 panel A indicates that a good amount of information is found in the extra IC information with a mean of 11.81 higher than any other part; this is justified by the lengthy Auditors report as well as the Officers certifications in the North American multinational corporations.

Table 6.4 panel A indicates that a great amount of information regarding internal controls and especially the one under management report has a mean of 7.44, which indicates that MNEs prefer to discuss these issues with the investors in the management report section and management roles and actions with a lower percentage (controls and procedures was the lowest with 1.92).

In Table 6.4 panel B, presents the data of the disclosure volume measure. We can clearly notice that the section with the highest percentage is the management report section of the North American corporations with an average of 12.45. However, the lowest section was the controls and procedures in the Asian multinational corporations. This might be justified by the fact that North American corporations especially US corporations tend to face extra regulations and filing rules one of which the certifying officers have to issue a report on the internal control specifically.

**Table 6.4 Analysis of the Components of Internal Control According to Disclosure Volume (DV)**  
**Panel A**

#	DV Sub-Components	N (178)	%*	Mean**	Standard Deviation
1	Management Roles	141	79.21%	3.702	4.081
2	Management Actions	109	61.24%	5.606	6.868
3	Controls & Procedures	68	38.20%	1.921	3.600
4	Management Report	122	68.54%	7.443	7.606
5	Extra IC info	69	38.76%	11.814	19.704

\* N/178\*100

\*\* Mean is measured by the average number of sentences

**Table 6.4 Analysis of the Components of Internal Control According to Disclosure Volume (DV) based on Region**  
**Panel B**

Location/ Region	Management Roles	Management Actions	Controls & Procedures	Management Report	Extra Info
<b>North America (73)</b>					
% of MNEs	36.50%	33.70%	33.14%	39.30%	32.00%
Mean	3.59	9.40	3.49	12.45	25.79
Standard Deviation	(3.59)	7.16	(4.03)	(7.4)	(23.37)
<b>Europe (75)</b>					
% of MNEs	33.14%	22.47%	3.93%	23.59%	5.61%
Mean	3.87	3.34	0.74	4.30	1.92
Standard Deviation	(3.91)	(5.6)	(2.59)	(5.42)	(5.83)
<b>Asia (24)</b>					
% of MNEs	6.74%	3.37%	0.56%	4.49%	0.56%
Mean	3.00	1.19	0.57	2.14	0.09
Standard Deviation	(3.9)	(2.85)	(2.61)	(4.15)	(4.36)
<b>South America (6)</b>					
% of MNEs	2.81%	1.69%	0.56%	1.12%	0.56%
Mean	5.5	2.33	1.00	3.50	3.50
Standard Deviation	(10.07)	(4.32)	(4.9)	(8.09)	(8.57)
<b>Total (N = 178)</b>	<b>141</b> <b>3.702</b> <b>(4.081)</b>	<b>109</b> <b>5.606</b> <b>(6.868)</b>	<b>68</b> <b>1.921</b> <b>(3.600)</b>	<b>122</b> <b>7.443</b> <b>(7.606)</b>	<b>69</b> <b>11.814</b> <b>(19.704)</b>

### 3 - What are the major components in Disclosure Quality (DQ)?

In this section, we try to understand the differences in reporting by investigating the sub-components of the Disclosure Quality measure (DQ). The sub-components are the integral part of the design of the coding sheet. This exercise will also help us understand the quality of internal control information disclosed in the annual report of the multinational corporations.

Table 6.5 panel A proves that the information provided in the extra IC information is of a percentage of 38.76% (the lowest with the control and procedures with 38.20%). This is justified by the fact that this part is only filled by auditors when they publish their long report which is the same for the officers' certification (lengthy too). However we can see that the quality of information in management report is somehow good and higher than the numbers resulting in management roles and actions which indicates that multinational corporations use this section to inform investors with enough quality information.

Table 6.5 panel B, proves the differences of quality in reporting internal control information by multinational corporations. Again the highest score was by the North American corporations (management report followed by management roles followed by management actions). Next was Europe then Asia by using the management roles then management report then management actions. While the South American corporations used the management roles then the management actions then the management report.

*Table 6.5 Analysis of the Components of Internal Control Information According to Disclosure Quality (DQ) Panel A*

#	DQ Sub-Components	N (178)	%*	Mean**	Standard Deviation
1	Management Roles	141	79.21%	3.236	2.540
2	Management Actions	109	61.24%	3.005	3.372
3	Controls & Procedures	68	38.20%	1.213	2.726
4	Management Report	122	68.54%	5.365	5.335
5	Extra IC info	69	38.76%	5.629	8.661

\*  $N/178*100$

\*\* Mean is measured by the average quality score

**Table 6.5 Analysis of the Components of Internal Control According to Disclosure Quality (DQ) based on Region**  
**Panel B**

<b>Location/ Region</b>	<b>Management Roles</b>	<b>Management Actions</b>	<b>Controls &amp; Procedures</b>	<b>Management Report</b>	<b>Extra Info</b>
<b>North America (73)</b>					
<b>% of MNEs</b>	36.50%	33.70%	33.14%	39.30%	32.00%
<b>Mean</b>	2.55	4.05	1.97	9.00	12.17
<b>Standard Deviation</b>	(1.43)	(2.60)	(2.66)	(5.43)	(9.72)
<b>Europe (75)</b>					
<b>% of MNEs</b>	33.14%	22.47%	3.93%	23.59%	5.61%
<b>Mean</b>	3.98	2.54	0.58	3.14	1.00
<b>Standard Deviation</b>	(2.88)	(3.95)	(2.23)	(3.47)	(2.85)
<b>Asia (24)</b>					
<b>% of MNEs</b>	6.74%	3.37%	0.56%	4.49%	0.56%
<b>Mean</b>	2.85	1.14	0.86	1.43	0.09
<b>Standard Deviation</b>	(3.13)	(2.15)	(3.92)	(2.46)	(0.43)
<b>South America (6)</b>					
<b>% of MNEs</b>	2.81%	1.69%	0.56%	1.12%	0.56%
<b>Mean</b>	3.67	2.33	1.00	1.83	1.83
<b>Standard Deviation</b>	(4.27)	(3.88)	(2.45)	(3.60)	(4.49)
<b>Total (N = 178)</b>	<b>141</b> <b>3.246</b> <b>(2.540)</b>	<b>109</b> <b>3.005</b> <b>(3.372)</b>	<b>68</b> <b>1.213</b> <b>(2.736)</b>	<b>122</b> <b>5.365</b> <b>(5.335)</b>	<b>69</b> <b>5.629</b> <b>(8.661)</b>

## **V. Statistical Analysis of the Distribution of Internal Control Measures: How are the DI, DV & DQ Measures distributed?**

In the last section of the descriptive statistics on the internal control measures, we try further to investigate the within-group distribution of the sample. The grouping helps us understand the spread of these differences between the multinational corporations. We want to be sure that the differences are across the whole sample of multinational corporations in order to justify the analysis of the determinants of disclosure on internal control. This process started by ranking the multinational corporations based on the three internal control measures. Dividing the whole

sample into four quartiles and then proceed with the Anova test. The last step was to get the F-test and the significance of the differences distribution.

**Table 6.6 Statistical Analysis of the distribution of DI, DV & DQ**

	<b>Number of Firms</b>	<b>DI</b>	<b>DV</b>	<b>DQ</b>
<b>1st Quartile</b>	<b>45</b>	0.95	1.24	1.89
		(0.93)	(1.25)	(1.81)
<b>2nd Quartile</b>	<b>45</b>	4.78	9.04	8.82
		(1.29)	(3.10)	(1.95)
<b>3rd Quartile</b>	<b>44</b>	16.09	33.11	21.90
		(6.55)	(13.08)	(6.57)
<b>4th Quartile</b>	<b>44</b>	28.61	81.06	42.50
		(3.36)	(14.06)	(5.78)
<b>Total</b>	<b>178</b>	12.35	30.48	18.44
		(11.22)	(32.10)	(15.87)
<b>F Test</b>	<b>178</b>	39.128	42.403	35.524
<b>Level of Significance</b>	<b>178</b>	0.000	0.000	0.000

Table 6.6 proves the variations of internal control information reporting within the sample. We can clearly notice the differences in reporting showing from the first quartile to the fourth one in all three measures (DI, DV, DQ). The disclosure index (DI) varies from 0.95 to 28.61 with a mean of 12.35 and a standard deviation of 11.22. The F-test of the DI measure was 39.128 and with a p-value that is less than 0.01. The disclosure volume (DV) also had clear differences varying from 1.24 to 81.06 with a mean of 30.48 and a standard deviation of 32.1. An F-test was also carried out of the DV measure with a score result of 42.4 and with a significance of 0.000. The last measure being disclosure quality (DQ), this measure has a range from 1.89 to 42.50 with a mean of 18.44 and a standard deviation of 15.87. The DQ measure had a very significant P-value that is less than 0.01 and an F-test of 35.52. These results give the study the confidence

needed to assume that the differences in our sample are very significant to study. Therefore, the next step in our analysis would be to run an Anova test to each variable according to the three internal control disclosure measures (DI, DV and DQ)

Now that our tests fulfilled the two first objectives of our study being:

- a. To investigate if there are any differences in disclosure on internal control by multinational corporations. (YES)
- b. To analyze if there are any differences of reporting among different regions of multinational corporations. (YES)

Answers to both questions were positive, which let us move to the univariate and Anova test of our sample.

## **VI. Univariate Analysis and Hypotheses Testing:**

In this section, we will analyze the effect of the internal control measures on each of our explanatory variables. This exercise will help us understand which variables have significance with our three measures of internal control disclosure.

Our study analyzes the determinants of internal control disclosure by multinational corporations. Using three measures: disclosure index (DI), disclosure volume (DV) and disclosure quality (DQ) as our disclosure measures.

Our conceptual model is a linear regression as follows:

**DI, DV, DQ = f(National factors, Governance factors, Operational factors)**

The multivariate model used in this study including the independent variables is as follows:

**DI, DV, DQ =  $\alpha$  + ( $\beta_1$ LO +  $\beta_2$ AS +  $\beta_3$ US\_SE +  $\beta_4$ SL) + ( $\beta_5$ B\_SIZ +  $\beta_6$ B\_IND +  $\beta_7$ A\_SIZ) + ( $\beta_8$ F\_SIZ +  $\beta_9$ LEV +  $\beta_{10}$ PROF +  $\beta_{11}$ MB +  $\beta_{12}$ SECT +  $\beta_{13}$ M\_INT) +  $\epsilon$**

However, before proceeding with the multivariate regression analysis, we will run an Anova analysis for each selected variable in the study.

## 1. Analysis of the Effect of National Factors on Internal Control Measures:

### 1.1 Effect of Legal Origin on Internal Control Measures:

The objective of this analysis is to investigate the legal origin variable based on the three measures of disclosures. This analysis will proceed with an Anova test to determine the significance of the differences between both groups

*Table 6.7 Anova Test for the effect of Legal Origin (LO) on the Internal Control Measures (DI, DV & DQ)*

Groups	Number of Firms	DI	DV	DQ
Common Law	91	16.736 (11.06)	42.769 (34.38)	24.319 (15.87)
Civil Law	87	7.782 (9.49)	17.644 (23.61)	12.310 (13.42)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		24.598	25.925	28.682
Level of Significance		0.000	0.000	0.000

La Porta et. Al (1997) "Legal determinants of external finance." Journal of Finance, 52, 1131-1150

Table 6.7 represents the Anova test of the legal origin variable on the three disclosure measures of our study. We can see that the distribution of the sample is almost equal between the common and the civil law multinational corporations. We can clearly notice differences in reporting over the three internal control disclosure measures (DI, DV, DQ) and these differences seem to be very significant with a p-value less than 0.01. This means that the legal origin is an influential factor in determining the disclosure of internal control.

## 1.2 Effect of Accounting Standards on Internal Control Measures:

This section will analyze the variable accounting standards based on the internal control measures. The variable has two categories which are either IFRS or not IFRS. This table will help us understand if the variable is significant after the Anova test is carried out.

*Table 6.8 Anova Test for the effect of Accounting Standards (AS) on the Internal Control Measures (DI, DV & DQ)*

Groups	Number of Firms	DI	DV	DQ
Not IFRS	87	16.448 (11.30)	43.06 (34.96)	24.184 (16.51)
IFRS	91	8.451 (9.71)	18.473 (23.67)	12.967 (13.12)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		22.826	27.476	20.115
Level of Significance		0.000	0.000	0.000

Table 6.8 shows that the accounting standard is a significant variable with a p-value that is less than 0.01. The differences among the variable by either IFRS or not IFRS are crucial among all three internal control measures. This means that the accounting standards variable is a determinant of disclosure on internal control by multinational corporations.

## 1.3 Effect of US Listed on Internal Control Measures:

In this part of our study, we investigate the variable US Listed corporations. This variable has both categories of corporations listed in the US stock exchange and corporations that are not listed. The listed corporations had a majority of the sample with 167 being listed against only 11 corporations that are not listed. An Anova test of significance was also used to test the significance of this variable based on the three internal control measures.

**Table 6.9 Anova Test for the effect of US Listed Firm (US\_SE) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Not Listed on US Stock Exchange	11	9.364 (13.83)	27.00 (42.91)	14.727 (20.81)
Listed on US Stock Exchange	167	12.557 (11.06)	30.719 (31.49)	18.695 (15.54)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		1.342	2.886	0.191
<b>Level of Significance</b>		0.249	0.091	0.663

Table 6.9 shows that the variable US-listed firm is significant in the case of disclosure volume and not the other two measures. The differences among the other two measures are not of any significance; this can be justified by the fact that a small number of multinational corporations are not listed (6% of the sample).

#### **1.4 Effect of Stock Listings on Internal Control Measures:**

The last explanatory variable in the national factors is the number of stock listings. This measure was categorized by either less than 3 listings or more than 3 listings; this was based on the median. Anova test is carried out in this analysis to know if the variable stock listing is or is not of an important significance in our model.

Numbers of stock listings results are presented in Table 6.10 which addresses the significance of the differences in reporting among multinational corporations that are listed in less than three countries or the ones more. As per our univariate testing of the national factors, only the legal system and the accounting standards are significant in explaining the differences among reporting of internal control by multinational corporations in the national factors part of our model.

**Table 6.10 Anova Test for the effect of the Number Stock Exchange Listings (SL) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Less than 3 Listings	98	11.32 (11.52)	26.08 (29.97)	16.71 (15.57)
More than 3 Listings	80	13.64 (10.79)	35.89 (33.95)	20.58 (16.07)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		0.541	1.832	1.070
Level of Significance		0.463	0.178	0.303

## 2. Analysis of the Effect of Governance Factors on Internal Control Measures:

### 2.1 Effect of Board Size on Internal Control Measures:

In this section, we are going to discuss the governance factors Anova test results to be able to point out variables are of important significance in explaining the differences in disclosure of internal control by multinational corporations. Table 6.11 represents the distribution of the internal control measures based on the board size. An Anova test was also included to understand the nature of significance of the variable board size.

**Table 6.11 Anova Test for the effect of Board Size (B\_SIZ) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Smaller Board (< 12)	78	12.12 (11.56)	29.95 (32.62)	18.26 (16.49)
Larger Board (>= 12)	100	12.55 (11.02)	30.91 (31.85)	18.60 (15.45)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		2.155	1.703	0.722
Level of Significance		0.144	0.194	0.397

\* Board Size is measured by the number of members on the board

Looking at Table 6.11 below, we can see that the differences in disclosure of internal control by multinational corporations that have a board of directors less than 12 individuals and the multinational corporations with the board of directors more than 12 individuals are not very large. This can be seen in all our three internal control measures (DI, DV and DQ). Therefore, the variable came out to be not significant in our model.

## 2.2 Effect of Board Independence on Internal Control Measures:

The board independence is the second governance factor in our model. It is measured by the percentage of independent members in the group of board of directors. This analysis will help the study investigate if the variable is a determinant of disclosure on internal control by multinational corporations. As Table 6.12 shows, the distribution of the differences in reporting on internal control by multinational corporations ranged from 10.10 for less independent boards to 14.78 in the more independent boards. The differences are also apparent in the other two internal control disclosure measures which are disclosure volume and disclosure quality. The Anova test revealed that the variable is significant on all three measures by a p-value that is less than 0.01.

*Table 6.12 Anova Test for the effect of Board Independence (B\_IND) on the Internal Control Measures (DI, DV & DQ)*

Groups	Number of Firms	DI	DV	DQ
Independent Directors (< 8)	92	10.10 (10.84)	24.73 (30.35)	15.66 (15.06)
Independent Directors (>= 8)	86	14.78 (11.19)	37.79 (33.93)	21.58 (16.46)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		6.991	9.078	10.852
Level of Significance		0.009	0.003	0.001

\*Board independence is measured by the percentage of independent directors on the board

## 2.3 Effect of Audit Committee Size on Internal Control Measures:

Audit committee size is the last governance factor in our study. Based on the median, we were able to categorize the sample of multinational corporations into less than 5 members and more

than 5 members on the audit committee. An Anova test of significance is also present to indicate the degree of significance of this explanatory variable in our model.

**Table 6.13 Anova Test for the effect of Audit Committee Size (A\_SIZ) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Smaller AC (< 5)	107	11.94 (11.58)	28.91 (32.07)	18.09 (16.32)
Larger AC (>= 5)	71	12.99 (10.72)	32.87 (32.24)	18.99 (15.26)
Total	178	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
F Test		0.051	0.099	0.391
Level of Significance		0.822	0.754	0.533

\* Audit Committee Size is measured by the number of Members in the committee

Table 6.13 represents the Anova test results of the audit committee size variable. We can see that the differences in reporting among the sample are minimal and therefore the F test resulting from the Anova analysis is not significant. The variable audit committee size proves to be not significant among all the three internal control disclosure measures.

### **3. Analysis of the Effect of Operational Factors on Internal Control Measures:**

#### **3.1 Effect of Firm Size on Internal Control Measures:**

This section will address the operational factors of our model such as company size, leverage, growth, profitability, sector and degree of internationality. Table 6.14 discuss the firm size variable as did previous literature. An Anova test was also carried out to understand the significance of the variable according to the three measures of internal control disclosure.

Table 6.14 shows that company size is not a significant variable, which is noticed by the very minimal changes in disclosure measures that maybe be justified by the regulations on disclosure on internal control. This might be justified by the fact that most multinational corporations are

listed in the US stock market which, usually, tends to have regulations that apply to all firms listed in the stock market.

**Table 6.14 Anova Test for the effect of Firm Size (FSIZ) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Smaller MNEs ( < 10.48)	59	13.83 (11.21)	33.34 (32.61)	20.97 (15.85)
Medium MNEs ( 10.48-11.52 )	60	12.18 (10.94)	30.53 (31.89)	17.83 (15.53)
Larger MNEs ( > 11.52 )	59	11.07 (11.55)	27.59 (32.09)	16.56 (16.17)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		0.357	0.070	0.835
<b>Level of Significance</b>		0.551	0.792	0.362

\* Firm Size is measured by the logarithm of the Total Assets

## 1.2 Effect of Financial Leverage on Internal Control Measures:

Financial leverage is a measure and a variable of the operational factors. The following table (Table 6.15) will discuss the differences in reporting by multinational corporations categorized by their financial leverage. This exercise will help us understand the nature of the disclosure based on the financial leverage of the multinational corporations. An Anova test in Table 6.15 is about the significance of this variable according to the three disclosure measures. We can clearly see that there is no sign (either positive or negative) to associate the leverage with the disclosure measures of internal control (DI, DV and DQ). The significance test proves that the variable leverage is not significant as it had a p-value greater than 0.1.

**Table 6.15 Anova Test for the effect of Financial Leverage (LEV) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Less Leveraged (<18)	59	15.24 (11.69)	38.76 (33.86)	22.69 (16.55)
Medium Leveraged (20-35)	60	9.92 (9.90)	22.92 (27.15)	15.07 (13.98)
More Leveraged (>35)	59	11.97 (11.57)	29.92 (33.46)	17.64 (16.29)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		0.059	0.085	0.152
<b>Level of Significance</b>		0.808	0.771	0.697

\* Financial Leverage is Measured by Debt Ratio

### 1.3 Effect of Profitability on Internal Control Measures:

Profitability is the next explanatory variable in the national factors of our model. Table 6.16 shows the differences in disclosure of internal control of multinational corporations based on their profitability. Following the distribution of the three measures, an Anova test of the variable profitability to be able to determine if the variable has differences of disclosure on internal control by multinational corporations.

**Table 6.16 Anova Test for the effect of Profitability (PROF) on the Internal Control Measures (DI, DV & DQ)**

Groups	Number of Firms	DI	DV	DQ
Less Profitable (< 2.85)	59	9.53 (9.24)	22.54 (26.57)	14.51 (12.78)
Medium Profitable ( 2.85- 6.53)	60	13.35 (11.98)	32.08 (32.14)	19.72 (16.30)
More Profitable (>6.53)	59	14.19 (11.87)	36.81 (35.78)	21.10 (17.62)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		6.599	5.909	4.689
<b>Level of Significance</b>		0.011	0.016	0.032

\* Profitability is Measured by the Return on Assets (ROA)

The abovementioned Table 6.16 is the results of the Anova test of the Profitability variable against the internal control measures. The results show that there is a positive association between the profitability and each of the internal control measures. We can clearly see the increase in disclosure when the multinational corporation is more profitable. The significance of this variable is of a p-value that is less than 0.05.

#### 1.4 Effect of Potential Growth on Internal Control Measures:

Table 6.17 is related to potential growth. The table presents the disclosure measures results based on the potential growth of the multinational corporations. This would give us an idea on the distribution of these differences among our sample. An Anova test will also help determine the significance of these differences to determine if the variable is significant for our model. The Table 6.17 proves that the potential growth is a significant determinant of disclosure in the case of disclosure index (DI). The variable has a p-value which is less than 0.05 and is negatively associated with the disclosure index and not the other two measures.

*Table 6.17 Anova Test for the effect of Potential Growth (MB) on the Internal Control Measures (DI, DV & DQ)*

Groups	Number of Firms	DI	DV	DQ
Less Growth MNEs (< 1.42)	59	13.78 (11.77)	33.39 (33.34)	20.36 (16.73)
Medium Growth MNEs ( 1.42 - 2.45 )	60	11.97 (11.39)	30.55 (32.55)	18.33 (16.43)
More Growth MNEs (> 2.45 )	59	11.34 (10.54)	27.53 (30.64)	16.66 (14.39)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		4.382	2.512	1.859
<b>Level of Significance</b>		0.038	0.115	0.175

\* Growth is measured by the Market Capitalization to Book Value

### 3.5 Effect of Economic Sector on Internal Control Measures:

The sector of the multinational corporations is an important variable to study. This will help us understand if there are significant differences in reporting of different industries of multinational corporations. Table 6.18 presents the differences in disclosure of internal control among different sectors. We can clearly notice in the Table 6.19 that the construction sector has the lowest disclosure results on internal control with 7.8 for DI, 18.6 for DV and 13.2 for DQ. Whereas the sector with the highest scores was the retail trade with a score of 16.69 for DI, 40.23 for DV and 23.23 for DQ. However, the significance test in Table 6.19 shows that the sector is not a significant determinant of disclosure with a very high p-value.

*Table 6.18 Anova Test for the effect of the Economic Sector (SECT) on the Internal Control Measures (DI, DV & DQ)*

Groups	Number of Firms	DI	DV	DQ
<b>Mining (10-14)</b>	<b>23</b>	12.174 (13.22)	26.913 (31.558)	17.217 (16.88)
<b>Construction (15-17)</b>	<b>5</b>	7.8 (10.08)	18.6 (26.72)	13.2 (16.42)
<b>Manufacturing (20-39)</b>	<b>90</b>	12.544 (10.91)	32.633 (33.67)	19.43333 (16.38)
<b>Transportation, Communications, Electric, Gas and Sanitary service (40-49)</b>	<b>32</b>	10.625 (11.34)	25.875 (31.89)	15.15625 (15.07)
<b>Wholesale Trade (50-51)</b>	<b>7</b>	10.571 (11.80)	24.5714 (30.09)	17.28571 (16.96)
<b>Retail Trade (52-59)</b>	<b>13</b>	16.692 (10.73)	40.23 (29.91)	23.23077 (14.65)
<b>Services (70-89)</b>	<b>8</b>	15.125 (10.31)	31.875 (27.96)	20.625 (12.34)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		0.076	0.000	0.130
<b>Level of Significance</b>		0.784	0.984	0.719

\* Sector is categorized based on the Standard Industrial Classification (SIC)

### 1.5 Effect of Degree of Internationality on Internal Control Measures:

The last measure in the operational factors is the degree of internationality. Table 6.19 discuss the differences in disclosures on internal control by different multinational corporations. In this analysis, we try to understand if the spread of the company is a factor that would influence the

disclosure of internal control. The Anova test will help determine the significance of the variable in our study according to the three measures we have (DI, DV and DQ). The first thing that is noticeable in the Table 6.19 is very minimal difference in reporting among the three groups of analysis. This means that the degree of internationality is not an influential factor in determining the disclosure on internal control by multinational corporations. The significance test also revealed that the variable degree of internationality is not significant as Table 6.20 shows.

**Table 6.19 Anova Test for the effect of Degree of Internationality (M\_INT) on the Internal Control Measures (DI, DV & DQ)**

<b>Groups</b>	<b>Number of Firms</b>	<b>DI</b>	<b>DV</b>	<b>DQ</b>
<b>Less Spread (&lt; 15)</b>	<b>59</b>	12.53 (11.48)	29.47 (31.04)	18.39 (16.28)
<b>Medium Spread ( 15 - 65)</b>	<b>60</b>	12.35 (10.99)	31.47 (32.45)	19.03 (15.46)
<b>More Spread (&gt; 65)</b>	<b>59</b>	12.20 (11.41)	30.51 (33.30)	17.92 (16.11)
<b>Total</b>	<b>178</b>	12.359 (11.23)	30.488 (32.10)	18.449 (15.87)
<b>F Test</b>		0.452	1.783	0.727
<b>Level of Significance</b>		0.502	0.184	0.395

\* Degree of Internationality is Measured by the Number of countries the firm operates in.

## **VII. Conclusion**

At the end of our Anova analysis, we can say that there are few variables that seem to have significance in explaining the differences in disclosure on internal control in multinational corporations. These variables are Legal Origin, Accounting Standards, Board Independence, Profitability and Growth. In the next section, a multivariate analysis will be performed to see how the model and the variables react and see from there what variables are significant. As it was previously mentioned that there are three main categories of factors (National Factors, Governance Factors and Operational Factors), by running a multivariate analysis we would be able to see if any of those factors have an influence in the differences in reporting. The study will also examine and compare the differences in between regions such as North and South America, Asia and Europe.

## **Chapter Seven**

# **Multivariate Regression Analysis of the Determinants of Internal Control Disclosure**

## **Chapter Contents**

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## **I. Introduction:**

In this chapter, the study will discuss the results of the investigation on the determinants of disclosure on internal control in multinational corporations. The results are collected with the help of SPSS in order to be able to achieve the needed results. The chapter will start by the descriptive statistics of all variables categorised into continuous and dichotomous variables. The next section is related to the correlation among all variables to be able to seek any multicollinearity that might affect our model. The last section would be the multivariate analysis of the model where we will discuss the significance of the model as well as variables significance and hypothesis acceptance.

## **II. Correlation Matrix:**

This section is related with investigating the correlation among all variables. The correlation gives the study an idea about which variables might be highly correlated and if there is a presence of multicollinearity. As Table 7.2 shows, all correlation coefficients are less than 0.8, which is the limit as per Kennedy (1985) of which multicollinearity happens. Table 7.16 includes the VIF measure which is another measure of multicollinearity.

**Table 7.1 Pearson Correlations Analysis of the Variables in the Study**

	LO	AS	US_SE	SL	B_SIZ	B_IND	A_SIZ	F_SIZ	LEV	PROF	MB	SECT	M_INT
N	178	178	178	178	178	178	178	178	178	178	178	178	178
LO	1												
AS	<b>.551**</b> (.000)	1											
US_SE	-.029 (0.7)	.029 (0.7)	1										
SL	-.143 (0.06)	<b>-.175*</b> (0.02)	<b>.470**</b> (.000)	1									
B_SIZ	.049 (0.5)	<b>.218**</b> (0.003)	.017 (0.82)	.070 (0.35)	1								
B_IND	<b>-.287**</b> (.001)	-.131 (0.08)	<b>.156*</b> (0.03)	<b>.295**</b> (.000)	<b>.537**</b> (.000)	1							
A_SIZ	-.126 (0.09)	-.013 (0.86)	.142 (0.05)	.131 (0.08)	<b>.372**</b> (.000)	<b>.407**</b> (.000)	1						
F_SIZ	<b>.306**</b> (.000)	.113 (0.13)	-.052 (0.49)	.119 (0.11)	.035 (0.63)	<b>-.158*</b> (0.03)	<b>-.166*</b> (0.02)	1					
LEV	-.041 (0.58)	.085 (0.26)	<b>-.140</b> (0.06)	-.067 (0.37)	<b>.249**</b> (0.001)	.060 (0.42)	.019 (0.80)	-.089 (0.23)	1				
PROF	-.079 (0.29)	<b>-.237**</b> (0.001)	.054 (0.47)	.064 (0.39)	<b>-.162*</b> (0.03)	.005 (0.94)	-.035 (0.64)	.130 (0.08)	<b>-.184*</b> (0.01)	1			
MB	.075 (0.31)	-.072 (0.34)	.018 (0.80)	.045 (0.54)	-.081 (0.28)	-.130 (0.08)	-.079 (0.29)	.071 (0.34)	-.032 (0.66)	.090 (0.23)	1		
SECT	-.080 (0.29)	.015 (0.83)	.068 (0.36)	-.033 (0.66)	-.090 (0.23)	-.103 (0.17)	-.091 (0.22)	<b>-.245**</b> (0.001)	<b>.206**</b> (0.005)	-.013 (0.86)	-.109 (0.14)	1	
M_INT	-.028 (0.71)	.087 (0.24)	.122 (0.10)	<b>.232**</b> (0.008)	<b>.162*</b> (0.03)	<b>.335**</b> (.000)	<b>.174*</b> (0.02)	-.052 (0.48)	.063 (0.40)	-.037 (0.62)	-.067 (0.37)	-.081 (0.28)	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

### III. Single Factor Multivariate Regression Analysis Results:

In this section, we will run the multivariate analysis of our model by factors. The model will include only the variables under one category of factors (National, Governance or Operational).

#### 1. National Factors Model:

Under the national factors model we have the following variables: Legal Origin (LO), Accounting Standards (AS), US Stock Listing (US\_SE) and the number of Stock Listings (SL). Table 7.2 addresses the results of our first model to help us understand how influential the national factors are. Our national factors model is as follows:

$$DI, DV, DQ = \alpha + (\beta_1LO + \beta_2AS + \beta_3US\_SE + \beta_4SL) + \epsilon$$

*Table 7.2 Results of the Multivariate Analysis based on the National Factors Model\**

Variables (N = 178)	Expected Sign	DI			DV			DQ		
		$\beta$	Sign	VIF	$\beta$	Sign	VIF	$\beta$	Sign	VIF
<b>Constant</b>		28.732	.000	-	80.989	.000	-	39.048	.000	-
<b>Legal_Origin(LO)</b>	+/-	-5.521	0.007	1.498	-14.96	0.01	1.5	-9.253	0.001	1.449
<b>Accounting_Standards(AS)</b>	+	-4.557	0.025	1.534	-14.562	0.013	1.542	-5.131	0.064	1.501
<b>US_Stock_Listing(US_SE)</b>	+/-	-4.468	0.379	1.257	-25.596	0.083	1.248	-2.811	0.654	1.316
<b>#_Stock_Listing(SL)</b>	+/-	0.135	0.868	1.285	2.334	0.311	1.285	0.119	0.915	1.356
<b>Adjusted R-Squared</b>		0.159			0.186			0.156		
<b>F Test Value</b>		7.996			9.713			8.275		
<b>Level of Significance</b>		.000			.000			.000		

\*  $DI, DV, DQ = \alpha + (\beta_1LO + \beta_2AS + \beta_3US\_SE + \beta_4SL) + \epsilon$

Table 7.2 shows the results of the multivariate analysis for our national factors model. The two significant variables in the model are the legal origin (LO) and accounting standards (AS). Legal origin (LO) has significance with a p value less than 0.01 while p value of the accounting standards variable (AS) is less than 0.05. The significance of the overall model seems to be significant with a p value less than 0.01 over all three internal control measures (DI, DV and

DQ). The adjusted R-square for DI is 0.159, DV is 0.186 and DQ is 0.156. This helps us understand that these two variables are factors in determining the disclosure on internal control in multinational corporations.

## 2. Governance Factors Model:

Under the governance factors model we have the following variables: Board Size (B\_SIZ), Board Independence (B\_IND) and Audit Committee Size (A\_SIZ). Table 7.3 presents the results of the second model to help us understand how influential the governance factors are. Our governance factors model is as follows:

$$DI, DV, DQ = \alpha + (\beta_5 B\_SIZ + \beta_6 B\_IND + \beta_7 A\_SIZ) + \varepsilon$$

*Table 7.2 Results of the Multivariate Analysis based on the Governance Factors Model\**

Variables (N = 178)	Expected Sign	DI			DV			DQ		
		$\beta$	Sign	VIF	$\beta$	Sign	VIF	$\beta$	Sign	VIF
<b>Constant</b>		17.012	.000	-	40.655	0.001	-	21.296	.000	-
<b>Board_Size(B_SIZ)</b>	+	1.035	0.002	1.329	3.063	0.002	1.342	1.329	0.005	1.364
<b>Board_Independence (B_IND)</b>	+	1.375	.000	1.397	4.291	.000	1.404	2.042	.000	1.441
<b>Audit_Committee_Size (A_SIZ)</b>	+	-0.248	0.745	1.197	-0.77	0.729	1.198	-0.251	0.814	1.215
<b>Adjusted R-Squared</b>		0.091			0.102			0.098		
<b>F Test Value</b>		5.952			6.823			6.707		
<b>Level of Significance</b>		0.001			.000			.000		

\*  $DI, DV, DQ = \alpha + (\beta_5 B\_SIZ + \beta_6 B\_IND + \beta_7 A\_SIZ) + \varepsilon$

Table 7.3 addresses the multivariate analysis for the governance factors model. There are also two significant variables in this model which are the board size (B\_SIZ) and the board independence (B\_IND). Both variables are positively associated with the internal control disclosure measures with a p value less than 0.01. The significance of the overall model is significant with a p value less than 0.01 over all three internal control measures (DI, DV and DQ). The adjusted R-square for DI is 0.091, DV is 0.102 and DQ is 0.098. These results indicate

that the mentioned two variables are factors in determining the disclosure on internal control in multinational corporations.

### 3. Operational Factors Model:

Under the operational factors model we have the following variables: Firm Size (F\_SIZ), Financial Leverage (LEV), Profitability (PROF), Growth (MB) Economic Sector (SECT) and Degree of Internationality (M\_INT). Table 7.4 represents the results of the third model to help us understand how influential the operational factors are. Our operational factors model is as follows:

$$DI, DV, DQ = \alpha + (\beta_8 F\_SIZ + \beta_9 LEV + \beta_{10} PROF + \beta_{11} MB + \beta_{12} SECT + \beta_{13} M\_INT) + \varepsilon$$

*Table 7.4 Results of the Multivariate Analysis based on the Operational Factors Model\**

Variables (N = 178)	Expected Sign	DI			DV			DQ		
		$\beta$	Sign	VIF	$\beta$	Sign	VIF	$\beta$	Sign	VIF
<b>Constant</b>		15.559	0.03	-	30.575	0.148	-	24.724	0.015	-
<b>Firm_Size (F_SIZ)</b>	+	-0.355	0.499	1.065	-0.45	0.773	1.067	-0.701	0.343	1.087
<b>Leverage(LEV)</b>	+	-0.011	0.850	1.086	-0.03	0.86	1.085	-0.016	0.843	1.075
<b>Profitability(PROF)</b>	+/-	0.438	0.020	1.06	1.231	0.026	1.057	0.614	0.019	1.046
<b>Growth(MB)</b>	+	-0.335	0.070	1.038	-0.742	0.174	1.037	-0.029	0.154	1.03
<b>Sector(SEC)</b>	+/-	0.22	0.698	1.121	0.421	0.802	1.125	0.098	0.902	1.131
<b>Degree Internationality (M_INT)</b>	+/-	0.014	0.368	1.041	0.066	0.136	1.041	0.016	0.443	1.04
<b>Adjusted R-Squared</b>		0.035			0.026			0.018		
<b>F Test Value</b>		1.895			1.673			1.492		
<b>Level of Significance</b>		0.086			0.131			0.184		

\*  $DI, DV, DQ = \alpha + (\beta_8 F\_SIZ + \beta_9 LEV + \beta_{10} PROF + \beta_{11} MB + \beta_{12} SECT + \beta_{13} M\_INT) + \varepsilon$

Table 7.4 presents the results of the multivariate analysis for our operational factors model. The two significant variables in the model are profitability (PROF) and growth (MB). Profitability has significance with a p value less than 0.05 and is positively associated with the three internal control measures (DI, DV and DQ). However, growth has significance with a p value that is less

than 0.1, but only with DI. The significance of the overall model is 0.086, 0.131 and 0.184 for the three internal control disclosure measures respectively. The adjusted R-square for DI is 0.035, DV is 0.026 and DQ is 0.018.

#### **IV. Multi-Factors Multivariate Regression Analysis**

Under the multi-factors model we have the following variables: Legal Origin (LO), Accounting Standards (AS), US Stock Listing (US\_SE), number of Stock Listings (SL), Board Size (B\_SIZ), Board Independence (B\_IND), Audit Committee Size (A\_SIZ), Firm Size (F\_SIZ), Financial Leverage (LEV), Profitability (PROF), Growth (MB) Economic Sector (SECT) and Degree of Internationality (M\_INT). Our multivariate model is as follows:

$$\mathbf{DI, DV, DQ = \alpha + (\beta_1LO + \beta_2AS + \beta_3US\_SE + \beta_4SL) + (\beta_5B\_SIZ + \beta_6B\_IND + \beta_7A\_SIZ) + (\beta_8F\_SIZ + \beta_9LEV + \beta_{10}PROF + \beta_{11}MB + \beta_{12}SECT + \beta_{13}M\_INT) + \varepsilon}$$

Table 7.5 represents the results of the third model to help us understand which variables are influential in our model.

*Table 7.5 Results of the Multivariate Analysis Based on the Multi-Factor Model\**

Variables (N = 178)	Expected Sign	DI			DV			DQ		
		$\beta$	Sign	VIF	$\beta$	Sign	VIF	$\beta$	Sign	VIF
<b>Constant</b>		24.827	.000	-	80.989	.000	-	39.048	.000	-
<b>National Factors</b>										
Legal_Origin(LO)	+/-	-6.073	0.004	1.709	-15.99	0.009	1.731	-8.385	0.005	1.744
Accounting_Standards(AS)	+	-2.046	0.339	1.836	-8.275	0.182	1.842	-3.231	0.285	1.844
US_Stock_Listing(US_SE)	+/-	-6.987	0.176	1.382	-32.074	0.034	1.366	-5.679	0.382	1.436
#_Stock_Listing(SL)	+/-	-0.426	0.611	1.47	0.308	0.898	1.476	-0.542	0.647	1.551
<b>Governance Factors</b>										
Board_Size(B_SIZ)	+	0.619	0.082	1.748	1.764	0.09	1.786	0.688	0.179	1.812
Board_Independence(B_IND)	+	0.996	0.009	1.806	2.72	0.014	1.883	1.335	0.014	1.975
Audit_Committee_Size(A_SIZ)	+	-0.273	0.71	1.284	-0.464	0.828	1.284	-0.311	0.769	1.311
<b>Operational Factors</b>										
Firm_Size (F_SIZ)	+	0.527	0.317	1.31	2.02	0.191	1.316	0.487	0.519	1.349
Leverage(LEV)	+	-0.019	0.737	1.248	-0.065	0.69	1.251	-0.023	0.776	1.209
Profitability(PROF)	+/-	0.292	0.1	1.164	0.691	0.178	1.161	0.375	0.135	1.158
Growth(MB)	+	-0.394	0.02	1.049	-0.907	0.065	1.049	-0.021	0.278	1.073
Sector(SEC)	+/-	0.318	0.547	1.193	0.879	0.569	1.194	0.203	0.787	1.195
Degree of Internationality (M_INT)	+/-	0.01	0.486	1.186	0.049	0.245	1.2	0.005	0.800	1.218
<b>Adjusted R-Squared</b>		<b>0.212</b>			<b>0.226</b>			<b>0.174</b>		
<b>F Test Value</b>		<b>4.072</b>			<b>4.431</b>			<b>3.557</b>		
<b>Level of Significance</b>		<b>.000</b>			<b>.000</b>			<b>.000</b>		

\*  $DI, DV, DQ = \alpha + (\beta_1 LO + \beta_2 AS + \beta_3 US\_SE + \beta_4 SL) + (\beta_5 B\_SIZ + \beta_6 B\_IND + \beta_7 A\_SIZ) + (\beta_8 F\_SIZ + \beta_9 LEV + \beta_{10} PROF + \beta_{11} MB + \beta_{12} SECT + \beta_{13} M\_INT) + \epsilon$

Table 7.5 represents all the three factors included in our study which are the national factors, governance factors and operational factors. Our multivariate analysis proved to have at least one significant variable from each category. Our overall model had an adjusted R-square of 0.212 for DI, 0.226 for DV and 0.174 for DQ. For a sample of 178 multinational corporations, our model has an f score of between 3.5 and 4.5 over the three disclosure measures. The significance of our multi-factors model had a p-value less than 0.01 over the three internal disclosure measures.

Under the national factors, the legal origin proves to be very significant with a -6.073 coefficient. The negative sign is due to common law taking 0 versus 1 for the civil law. The results indicate that companies with a common law legal origin tend to disclose more about internal control than civil law legal origin companies.

In the category related with the governance factors, it is clear that the board independence is a significant variable in the model with a p-value less than 0.01. The coefficient of this variable is of positive sign that is in line with the previous literature. On another hand, board size seems to be significant in a multivariate regression setting with a p-value less than 0.1 and with a sign that matches the research findings.

Under the last category, which is the operational factors we notice that growth is significant with a p-value that is less than 0.01. However, the sign of the coefficient of this variable is negative; this means that companies with less growth (market capitalization to book value) tend to disclose more on internal control. This result comes in the opposite sign of the literature that expected it to be positive. The results might be affected by the nature of the sample and the spread of the growth variable. In the same category, we can see that the profitability variable is important and significant but with a p-value that is 0.1. The profitability variable is measured by the return on assets (ROA), and the sign of the coefficient is in line with previous research. The variable doesn't seem to be as significant when it comes to the disclosure quality.

Table 7.5 also presents the VIF values of multicollinearity. The values are all less than 2 which is a good indication that there is no multicollinearity between variables in the model used in

our study. This measure is a different measure than the correlation matrix, but it leads us to the same results.

Comparing the contribution in the percentage explaining the differences in reporting of each model used in our study as table 7.6 will represent. We find out that the national factors model contributes by 15.6% to 18.6%, the governance factors model by 9.1% to 10.2%, while the operational factors model by 1.8% to 3.5%. The overall multivariate model of our study was able to explain 21.2% of the DI variations, 22.6% of DV variations and 17.4% of DQ variations in disclosures on internal control by multinational corporations. The determinants of disclosure in our multivariate model are Legal origin (LO), Board size (B\_SIZ), Board independence (B\_IND), Profitability (PROF) and Growth (MB).

***Table 7.6 Explanatory power (%) of the four multivariate models used in this study***

(N = 178)	Models	DI	DV	DQ
1	<b>National Factors</b>	15.90%	18.60%	15.60%
2	<b>Governance Factors</b>	9.10%	10.20%	9.80%
3	<b>Operational Factors</b>	3.50%	2.60%	1.80%
4	<b>Overall</b>	21.20%	22.60%	17.40%

## **V. Conclusion:**

To sum up, our multivariate analysis proved to have at least one significant variable in each of the three factors of disclosure of internal control by multinational corporations. Our model had national factors, governance factors and operational factors. Legal origin and board independence and growth seem to have the most influence on the reporting of internal control. On the other hand, board size and profitability seem to have a less significant influence as per our model. Our analysis concluded that the national factors have the most influence on disclosure of internal control in multinational corporations. The national factors are followed by the governance factors then the operational factors which seem to have a less significant influence.

## **Chapter Eight**

### **Summary & Conclusion**

Organizations should become aware that problems can occur with internal control. Therefore, organizations must have certain controls in place to prevent or reduce the risks. With the current complexity of the business environment, the importance of adequate, well maintained internal control is increasing in order to cope with the needs of the market. It is the role of internal control as being an important element of an organization's governance system and decision making and is essential to ensure the achievement of objectives.

This study started by introducing the internal control foundation. The chapter defined the internal control and addressed its objectives. The chapter proceeded into the role of internal control in safeguarding assets and minimizing fraud and errors. The next section addressed the five components of internal control which are: control environment, risk assessment, control activities, information and communication and monitoring. The chapter then explained the facts on the assessment and effectiveness of internal control. The last section of this chapter on internal control foundations explained the limitations of the internal control.

### **Literature on Internal Control:**

This chapter was related to the literature review on internal control. The chapter started by the regulation on internal control especially Sarbanes-Oxley (SOX) and the SEC regulations. The SOX regulation related to internal control were section 302 and section 404. Other literature related to the COSO and Turnbull framework we discussed in this section. The chapter also addressed the literature related to the role of internal control and the theories related to internal control; Modern theory of the firm, Agency theory, Signaling theory and Legitimacy theory. Following to that were the disclosure of internal control literature, which included; the importance of disclosure on internal control, voluntary and mandatory disclosure on internal control and material weaknesses and disclosure on internal control.

### **Research Objectives and Hypotheses Development:**

The study moves to the following chapter on research objectives and hypotheses. The chapter starts by the previous literature on internal control disclosure by multinational corporations.

The following section is related to the research objective which is to analyze the determinants of disclosure on internal control by multinational corporations. The study questions: 1) if there are differences in the internal control disclosure by multinational corporations. 2) If any differences in reporting of internal control by multinational corporations based on region. 3) What are the determinants of disclosure of internal control by multinational corporations that would possibly explain these differences in reporting? The chapter then moves to the hypotheses to be tested which are related to our theoretical model. The main three categories of factors in our study are national factors, governance factors and operational factors.

### **Methodology:**

The next chapter of our study is related to the methodology adopted. The first section of the chapter addressed the conceptual model of our study made of three categories of factors which are the national factors, governance factors and operational factors. The chapter moves into the sample selection of our sample which consists of 178 multinational corporations from the global 500 ranking of fortune magazine. The section provides an analysis of the sample based on country and region as well as industries based on the SIC codes. The next section is related to the data collection methods used in our research which is the annual reports of the multinational corporations and Bloomberg database for the financial data of our sample. Measurement of disclosure and coding procedures were also discussed in the chapter to understand the content analysis used in the study. The chapter then presents the variables definition starting by the measures of disclosure being the disclosure index (DI), disclosure volume (DV) and disclosure quality (DQ). Explanatory variables in the study were categorized into national factors: legal origin (LO), accounting standards (AS), US stock listed (US\_SE) and the number of stock listings (SL). Governance factors: board size (B\_SIZ), board independence (B\_IND) and audit committee size (A\_SIZ). Operational factors were: firm size (F\_SIZ), financial leverage (LEV), profitability (PROF), growth (MB), economic sector (SECT) and degree of internationality (M\_INT). The chapter ends by describing the empirical model of our study of determinants of disclosure on internal control by multinational corporations.

### **Anova Test and Univariate Analysis:**

The study then progresses into the descriptive analysis of the variables in the study and the Anova test. The chapter starts by the statistics on the sample and the three internal control measures (DI, DV and DQ). The section discusses the differences in reporting of internal control by Multinational Corporation between regions. The chapter proves that the location of internal control information with most elements is the management report and the MD&A being the least. The study then analyses the sub-components of internal control measures and drills down for differences between regions and multinational corporations in our study. The following test was to investigate the distribution of the internal control measures among our sample of the study and among regions in which the test of significance proved to have a p value less than 0.01. The last section of this chapter was the univariate analysis results of each of the factors included in our study. This analysis proved to have two significant variables in the national factors which are the legal origin (LO) and the accounting standards (AS), two significant variables in the governance factors which are the board size (B\_SIZ) and board independence (B\_IND). The operational factors also had two significant variables which are the profitability measured (PROF) by the ROA and the growth (MB) measured by the market to book value.

### **Multivariate Analysis and Findings:**

The last chapter in our study is related to the multivariate regression analysis of our empirical model. The chapter starts by presenting the correlation matrix of the variables included in the study. This section enables the researcher to detect any significant correlations among the variables of our model. The results of the correlation matrix indicated that no significant correlation is available among all variables included in our model. The chapter proceeds to a single category factor multivariate analysis being either national factors, governance factors or operational factors. The national factors models revealed that two variables are important; the legal origin (LO) and the accounting standards (AS). The governance factors model also had two significant variables which are the board size (B\_SIZ) and board independence (B\_IND). The operational factors model had the profitability (PROF) and the growth (MB) as significant

variables of determining disclosure on internal control by multinational corporations. The last section in the multivariate regression chapter is the results of our multi-factors regression model which contains the national factors, the governance factors and the operational factors. This last model revealed that five variables are significant in our study: legal origin (LO), board size (B\_SIZ), board independence (B\_IND) profitability (PROF) and the growth (MB). This means that in a multinational corporations setting, disclosure on internal control is based on national factors, governance factors and operational factors.

### **Conclusion:**

In the end, our study proved to have at least one significant variable in each of the three factors of disclosure of internal control by multinational corporations. Our model had national factors, governance factors and operational factors. Legal origin and board independence and growth seem to have the most influence on the reporting of internal control. On the other hand, board size and profitability seem to have a less significant influence as per our model. Our analysis concluded that the national factors have the most influence on disclosure of internal control in multinational corporations. The national factors are followed by the governance factors then the operational factors which seem to have less significant influence.

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## **Appendices**

## Appendix 1: List of Multinational Corporations in the sample Regrouped According to Country of Origin

<b><u>Austria</u></b>	Schneider	<b><u>Russia</u></b>	AstraZeneca	DuPont Fabros
OMV	Del Haize	Gazprom	BAE	Google
<b><u>Belgium</u></b>	L'Oreal	Statoil	Danone	Hess Corporation
Anheuser-Busch	Lafarge	Lukoil	British American	United Continent
Delta Air Lines	<b><u>Germany</u></b>	Rosneft	International Ai	Honeywell Intern
<b><u>Brazil</u></b>	Volkswagen	TNK Internati	Anglo American	Ingram Micro Inc
PetroBras	Diamler	Surgutneftegas	<b><u>USA</u></b>	World Fuel Servi
Vale	Basf	<b><u>Singapore</u></b>	Exxon	Plains All Ameri
JBS	BMW	Wilmar	Chevron	Sprint
Ultrapar	Deutsche Telekom	<b><u>South Korea</u></b>	ConocoPhillips	General Dymanics
<b><u>Canada</u></b>	RWE	Samsung	General Motors	HCA Holdings
Suncor Energy	Bayer	SK Holding	General Electric	Murphy Oil Corp.
George Weston	Lufthansa	Hyundai	Ford Motor	Philip Morris
Magna	Fresenius	Posco	AT&T	Tesoro
Onex	Bertelsmann	Korea Electric	Valero Energy	3M
Husky Energy	<b><u>Hong Kong</u></b>	KIA	Verizon Communic	Time Warner
<b><u>China</u></b>	Noble Group	<b><u>Spain</u></b>	CVS Caremark Cor	Michelin
China Mobile Lim	Jardine Matheson	Telefonica	International Bu	Northrop
China National R	Hutchison	Repsol	Archer Daniels	DirecTv
China Railway Gr	<b><u>Hungary</u></b>	Iberdrola	Deutsche Post	Publix
Dongfeng	Mol	<b><u>Sweden</u></b>	Marathon Petrole	McDonald's
China Communicat	<b><u>Ireland</u></b>	Volvo	Boeing	International Pa
Shenhua Group	Roche	L.M. Ericsson	Pfizer Inc.	Alcoa
China National B	CRH	<b><u>Switzerland</u></b>	Pepsi	Raytheon
Sinomach	<b><u>Italy</u></b>	Glencore	Johnson & Johnso	Halliburton
<b><u>Colombia</u></b>	ENI	Nestle	Caterpillar	Eli Lilly
Ecopetrol	Enel	Novartis	Dow Chemical Co.	Occidental
<b><u>Finland</u></b>	Telecom Italia	ABB	Bunge	Fluor
Nokia	Finmeccanica	Adecco	United Technolog	Goodyear
<b><u>France</u></b>	<b><u>Luxembourg</u></b>	Holcim	Comcast Corp.	Xerox
Total	ArcelorMittal	<b><u>Taiwan</u></b>	Kraft	Manpower
GDF Suez	<b><u>Malaysia</u></b>	Hon Hai	Intel	
Carrefour	Petronas	Quanta Computer	United Parcel Se	
Electricite de F	<b><u>Mexico</u></b>	Formosa	Lyondell Basell	
Peugeot	American Movil	Wistron	Amazon.com	
Eads	<b><u>Netherlands</u></b>	<b><u>Thailand</u></b>	Merck & Co.	
Renault	Royal Dutch Shel	PTT	Lockheed Martin	
Saint-Gobain	Unilever	<b><u>Turkey</u></b>	Coca Cola	
Vinci	Royal Ahold	Koc Holdings	Express Scripts	
Sanofi	Royal Philips El	<b><u>UK</u></b>	Sunoco	
Veolia	Caltex	BP	Enterprise Produ	
Bouygues	Randstad	Rio Tinto	Safeway Inc.	
Vivendi	<b><u>Poland</u></b>	Glaxo Smith Klin	Schlumberger	
Air France	PKN	Centrica	Abbott Laborator	

## Appendix 2:

### *Descriptive of the sample based on country and legal origin*

<b>Legal origin/ Country</b>	<b>Number of MNEs</b>	<b>Percentage</b>
<b><i>Common Law Countries</i></b>	<b>88</b>	<b>49.44%</b>
United States of America	68	
Canada	5	
United Kingdom	10	
Malaysia	1	
Singapore	1	
Ireland	2	
Thailand	1	
<b><i>Civil Law Countries</i></b>	<b>90</b>	<b>50.56%</b>
<b><i>French Civil Law</i></b>	<b>50</b>	<b>28.08%</b>
France	18	
Italy	4	
Netherlands	6	
Spain	3	
Brazil	4	
Mexico	1	
Turkey	1	
Luxembourg	1	
Austria	1	
Belgium	2	
Columbia	1	
Poland	1	
Hungary	1	
Russia	6	
<b><i>German Civil Law</i></b>	<b>37</b>	<b>20.78%</b>
Germany	10	
Switzerland	6	
Taiwan	4	
South Korea	6	
China	11	
<b><i>Scandinavian Civil Law</i></b>	<b>3</b>	<b>1.68%</b>
Sweden	2	
Finland	1	
<b>Total</b>	<b>178</b>	<b>100%</b>

Source of legal origin: La Porta et. Al (1997) "Legal determinants of external finance." Journal of Finance, 52, 1131-1150

### Appendix 3: Coding Sheet used in the study

<b>I</b>	<b>Management Roles &amp; Responsibilities</b>	<b>Availability (DI)</b>	<b># of Sentences (DV)</b>	<b>Quality (DQ)</b>
<b>A</b>	<b>Board of Directors</b>			
1	Statement on Independence			
2	Statement on Establishing IC			
3	Statement on Maintaining IC			
4	Statement on Evaluating IC			
<b>B</b>	<b>Audit Committee</b>			
5	Statement on Independence			
6	Statement on Establishing IC			
7	Statement on Maintaining IC			
8	Statement on Evaluating IC			
<b>C</b>	<b>CEO</b>			
9	Statement on Establishing IC			
10	Statement on Maintaining IC			
11	Statement on Evaluating IC			
<b>D</b>	<b>CFO</b>			
12	Statement on Establishing IC			
13	Statement on Maintaining IC			
14	Statement on Evaluating IC			
<b>E</b>	<b>Management</b>			
15	Statement on Establishing IC			
16	Statement on Maintaining IC			

17	Statement on Evaluating IC			
<b>II</b>	<b>Management Actions</b>			
<b>A</b>	<b>Board of Directors</b>			
18	Statement on Actions in Establishing IC			
19	Statement on Actions in Maintaining IC			
20	Statement on Actions in Evaluating IC			
21	Statement on Fulfillment of activities			
<b>B</b>	<b>Audit Committee</b>			
22	Statement on Actions in Establishing IC			
23	Statement on Actions in Maintaining IC			
24	Statement on Actions in Evaluating IC			
25	Statement on Fulfillment of activities			
<b>C</b>	<b>CEO</b>			
26	Statement on Actions in Establishing IC			
27	Statement on Actions in Maintaining IC			
28	Statement on Actions in Evaluating IC			
29	Statement on Fulfillment of activities			
<b>D</b>	<b>CFO</b>			
30	Statement on Actions in Establishing IC			
31	Statement on Actions in Maintaining IC			
32	Statement on Actions in Evaluating IC			
33	Statement on Fulfillment of activities			
<b>E</b>	<b>Management</b>			

34	Statement on Actions in Establishing IC			
35	Statement on Actions in Maintaining IC			
36	Statement on Actions in Evaluating IC			
37	Statement on Fulfillment of activities			
<b>III</b>	<b>Controls and Procedures</b>			
<b>A</b>	<b>Board of Directors</b>			
40	Statement on Establishing Control			
41	Statement on Maintaining Control			
42	Statement on Evaluating Control			
43	Statement on the Effectiveness of Control			
<b>B</b>	<b>Audit Committee</b>			
44	Statement on Establishing Control			
45	Statement on Maintaining Control			
46	Statement on Evaluating Control			
47	Statement on the Effectiveness of Control			
<b>C</b>	<b>CEO</b>			
48	Statement on Establishing Control			
49	Statement on Maintaining Control			
50	Statement on Evaluating Control			
51	Statement on the Effectiveness of Control			
<b>D</b>	<b>CFO</b>			
52	Statement on Establishing Controls			
53	Statement on Maintaining Controls			

54	Statement on Evaluating Controls			
55	Statement on the Effectiveness of Controls			
<b>E</b>	<b>Management</b>			
56	Statement on Establishing Controls			
57	Statement on Maintaining Controls			
58	Statement on Evaluating Controls			
59	Statement on the Effectiveness of Controls			
<b>IV</b>	<b>Management Report on the Effectiveness of IC</b>			
<b>A</b>	<b>IC Evaluation Framework</b>			
60	COSO			
61	Turnbull			
<b>B</b>	<b>Conclusion on IC</b>			
62	Effective			
63	Ineffective			
<b>C</b>	<b>Material Weaknesses</b>			
64	Account Specific			
65	Training			
66	Account Policies			
67	Revenue Recognition			
68	Segregation of Duties			
69	Account Reconciliation			
70	Subsidiary Specific			
71	Senior Management			

72	Technology Issues			
<b>D</b>	<b>Control deficiencies</b>			
73	Yes			
74	No			
<b>E</b>	<b>Changes in IC</b>			
75	Yes			
76	No			
<b>F</b>	<b>Auditors Opinion</b>			
77	Effective			
78	Ineffective			
79	Statement on Management assessment of IC			
<b>G</b>	<b>Signatures on The Management Report</b>			
80	CEO			
81	CFO			
82	PAO			
<b>H</b>	<b>Internal Control over financial Reporting</b>			
83	Statement on Definition of IC			
84	Statement on the Purpose of IC			
85	Statement on the Limitations of IC			
<b>V</b>	<b>Additional Internal Control Disclosure</b>			
<b>A</b>	<b>Accounting Firm Report</b>			
86	Opinion on management Evaluation			
87	Framework used for Evaluation			

88	Conclusion on the effectiveness of IC			
89	Statement on Definition of IC			
90	Statement on the purpose of IC			
91	Statement on Limitations of IC			
<b>B</b>	<b>Code of Ethics</b>			
92	Available			
93	Not available			
94	Applied to Company's principals			
95	Changes to the code of ethics			
96	Waivers from, the code of ethics			
<b>C</b>	<b>Financial Expert</b>			
97	Statement on the financial expert			
98	The name of the financial expert in the Audit Committee			
99	The financial expert Independence			
<b>D</b>	<b>Officers Certifications</b>			
100	CEO			
101	CFO			
102	PAO			

## Appendix 4: Coding Procedure example

### Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining effective internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. This system is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with U.S. GAAP. Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, misstatements due to error or fraud may not be prevented or detected on a timely basis.

Our management performed an assessment of the effectiveness of our internal control over financial reporting at December 31, 2012, utilizing the criteria discussed in the "Internal Control - Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission. The objective of this assessment was to determine whether our internal control over financial reporting was effective at December 31, 2012. Based on management's assessment, we have concluded that our internal control over financial reporting was effective at December 31, 2012.

The effectiveness of our internal control over financial reporting has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in its report which is included herein.

### Changes in Internal Controls

There have not been any changes in our internal control over financial reporting during the three months ended December 31, 2012 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

/s/ DANIEL F. AKERSON  
Daniel F. Akerson  
Chairman and Chief Executive Officer  
February 15, 2013

/s/ DANIEL AMMANN  
Daniel Ammann  
Senior Vice President and Chief Financial Officer  
February 15, 2013

\* \* \* \* \*

**1 Management Roles:**

<b>Availability (DI):</b>	1 point for establishing effective internal control 1 point for maintaining effective internal control
<b>Disclosure Volume (DV):</b>	1 line for establishing effective internal control 1 line for maintaining effective internal control
<b>Disclosure Quality (DQ):</b>	1 for historic qualitative information 1 for historic qualitative information

**2 – Management Actions:**

<b>Availability (DI):</b>	1 point for evaluating internal control
<b>Disclosure Volume (DV):</b>	1 line for evaluating effective internal control
<b>Disclosure Quality (DQ):</b>	1 for historic qualitative information

**3 – Controls and Procedures:**

**Not Available**

**4 – Management Report:**

- Availability (DI):**
- 1 point for purpose of internal control
  - 1 point for limitations of internal control
  - 1 point for the framework utilized
  - 1 point for the conclusion on the effectiveness of internal control evaluation
  - 1 point on the changes of internal control
- Disclosure Volume (DV):**
- 2 lines for the purpose of internal control
  - 2 lines for limitations of internal control
  - 1 line for the framework utilized
  - 2 lines for the conclusion on the effectiveness of internal control evaluation
  - 2 lines on the changes of internal control
- Disclosure Quality (DQ):**
- 1 for historic qualitative information
  - 1 for historic qualitative information
  - 1 for historic qualitative information
  - 1 for historic qualitative information
  - 1 for historic qualitative information

**5 – Extra Internal Control Information:**

**Availability (DI):** 1 point for CEO signature

1 point for CFO signature

**Disclosure Volume (DV):** 1 line for CEO signature

1 line for CFO signature

**Disclosure Quality (DQ):** 1 for historic qualitative information

1 for historic qualitative information

**Total DI Score: 10**

**Total DV Score: 14**

**Total DQ Score: 10**