Author: Hutaibat, Khaled Abed
Title: Management accounting practices in Jordan: a contingency approach

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Management Accounting Practices in Jordan –
A Contingency Approach

By
Khaled Abed Hutaibat

A thesis submitted to the University of Bristol in accordance with the requirements of the degree of Doctor of Philosophy in the Faculty of Social Sciences and Law

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Abstract

This exploratory study aims to investigate the state of management accounting practices within Jordan's industrial companies and identify the internal and external contingent factors that influence these practices. The main objectives of the study are: firstly, to investigate the extent of using traditional and recently developed management accounting techniques; secondly, to examine the relationship between selected contingent variables and the extent of using these techniques; thirdly, to reveal the reasons for the use or non-use of these practices and techniques.

In order to accomplish these objectives, a questionnaire survey and interviews were conducted to collect the necessary data. In total 133 completed questionnaires were received, which consisted of 103 postal questionnaire and 30 semi-structured interviews. Those completed responses were analysed using multiple statistical analyses, namely, descriptive, bivariate, and multivariate statistical tests.

The study showed that industrial companies in Jordan are facing challenges in the business environment, high global competition, regional political unrest, and lack of natural resources. It was found that they are still using traditional rather than new management accounting techniques. The study revealed that there were significant associations between certain management accounting practices and four explanatory variables, namely, company size (measured by sales), competition (both domestic and international), industry type (chemical and pharmaceutical industry), and foreign ownership. The analyses also confirmed that there was no significant association between management accounting practices and either company age or government ownership at the 5% significant level.

The interviewees emphasised the important effect of the following factors upon the adoption of management accounting practices and techniques: top managerial support, accounting education, management accounting training programmes, incentive systems, professional accounting bodies, lack of management accounting journals, management accounting research and the lack of doctoral degrees and the co-operation between the universities and companies. Moreover, the interview results highlighted the important effect of, government ownership, foreign ownership and global and national competition. Other factors revealed during the interviews were the relevance of accountant’s qualifications and skills, the contributions of external consultants, work pressures and the lack of conferences and seminars in up-to-date accounting issues.

The study's findings provide an overview of the state of management accounting practices within industrial companies in Jordan. Such an overview is necessary in order to conduct meaningful improvements to the current management accounting practices. Both academics and practitioners in Jordanian companies may benefit from the results. They demonstrate the importance of co-operation to improve the country's management accounting practices. Finally, it is vital that Jordanian companies recognise the impact of the current global environment and improve their management accounting practices in order to maintain and improve their competitive edge.
TO MY

MOTHER, FATHER, BROTHERS AND SISTERS
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Last but not least, my sincere thanks and gratitude are due to my family, especially my mother and father, for their support, care, patience and encouragement throughout this time.
Author’s Declaration

I declare that the work in this dissertation was carried out in accordance with the Regulations of the University of Bristol. The work is original, except where indicated by special reference in the text, and no part of the dissertation has been submitted for any other academic award. Any views expressed in the dissertation are those of the author.

SIGNED: [Signature] DATE: 20/07/2005
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<tbody>
<tr>
<td>AIIE</td>
<td>Aqaba International Industrial Estate</td>
</tr>
<tr>
<td>AFTA</td>
<td>Arab Free Trade Agreement</td>
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<tr>
<td>ASE</td>
<td>Amman Stock Exchange</td>
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<td>ASEZ</td>
<td>Aqaba Special Economic Zone</td>
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<td>CBJ</td>
<td>Central Bank of Jordan</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<td>Jordanian Dinar</td>
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<td>Jordan Free Zones Corporation</td>
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Chapter One
Introduction and Research Area
1 Introduction and Research Area

This first chapter introduces the research topic, provides background details, explains the study’s purpose, presents the research methodology, emphasises the study’s significance and need, outlines its scope and limitations, and describes its organisation.

1.1 Introduction and background

Nowadays, the possession of accurate accounting information is vital, especially in circumstances of intense global competition, scarce resources, and accelerating technological changes. Making good decisions on time is the most important objective of management accounting information. Maximising revenue and minimising costs are other essential objectives to secure and maintain a successful business. To increase a company’s profits, managers need to boost revenues and/or reduce their spending on resources (Cooper and Kaplan, 1991, p. 131). Therefore, companies need to improve their accounting information systems from time to time to meet new challenges and remain in the market.

Although management accounting information is no less important than financial accounting information, generally, the latter is more popular in practice and the literature. In practice, financial accounting terminology is more commonly used and understood among accounting information users, probably because financial accounting information is for both internal and external users. External users (such as
potential investors, creditors, consultants, customers, competitors, government, suppliers, and others) are likely to be more familiar with financial accounting concepts than management accounting concepts since the former enable them to understand and clarify the financial situation of companies they are interested in and the financial information is available in companies’ financial reports. These financial reports are required by law for certain company types.

Management accounting information is limited to internal users, especially managers and accountants. External users, mentioned above, are not primarily interested in this information and do not have access to it. Further, companies are not obligated to follow certain management accounting practices by law whereas certain financial accounting practices have to be followed.¹

The greater popularity of financial accounting over management accounting is reflected in academic research, especially within the empirical studies. A major part of the accounting literature is devoted to financial accounting issues while a smaller part is devoted to management accounting issues. This phenomenon strongly exists in many developing countries, such as Jordan.

According to Drury (2000b), the management accounting field can be classified mainly into the following four streams:

1. Cost information and information for decision-making.

2. Planning

3. Control

4. Performance evaluation

¹ More details about the differences between management accounting and financial accounting are presented in chapter 3 (see Table 3.1).
Within the literature on management accounting, a small number of empirical studies have been devoted to discussing management accounting practices in general (for example, Drury et al., 1993; Drury and Tayles, 1994). Even fewer have discussed the factors that might influence management accounting practices in general (for example, Firth, 1996; Longden et al., 2001; Haldma and Lääts, 2002). The current study is an attempt to remedy the shortage and fill the gap in the management accounting literature, especially in developing countries, such as Jordan.

In the modern and increasingly complex business environment, current and relevant accounting information is vitally needed for management to make effective decisions if companies plan to compete, grow, or even to survive.

As a developing country, which continues to experience difficulties, Jordan has nevertheless been developing in many areas, such as its education system, health services, public services, industry, and tourism (see chapter two for more details).

The Jordanian business environment is also changing, becoming more competitive and global, a situation greatly different from that of two decades ago. Thus, two questions need to be asked. Is Jordanian companies' awareness of this change reflected in their management accounting practices? To what extent do Jordanian companies utilise management accounting techniques, especially modern ones? This study will attempt to answer these questions in its exploration of management accounting practices in Jordan.
1.2 The purpose of the study

Most research in management accounting practices in developing countries has been undertaken for one general purpose, that is, understanding and revealing management accounting practices within these countries. Similarly, this is the main reason for conducting this empirical study in Jordan. The study aims to obtain a broad overview of management accounting practices within Jordanian industrial companies.

To the researcher's knowledge, this study is unique since most accounting research in Jordan has concentrated on financial accounting. However, Shaheen's (1997) case study investigated performance measurement in the Housing Bank in Jordan. Helles (1992) studied the evolution of accounting in Jordan but focused mainly on financial accounting rather than management accounting.

The findings of this study are expected to be useful and improve the use and understanding of management accounting practices within Jordanian industrial companies. Further, the study is expected to trigger and motivate further research in this area.

More specifically, this research aims to achieve the following purposes:

1. Review the literature on management accounting practices in developed and developing countries.

2. Explore and study the state of management accounting practices in Jordanian industrial companies in general, and the state and extent of using modern management accounting techniques in particular.

3. Explore and examine the factors that may influence management accounting practices in a developing country like Jordan.
4. Compare management accounting practices/techniques and the factors that influence the use of these practices/techniques in some countries and Jordan.

5. Promote research in the future in developing countries (e.g. Jordan), using the same questionnaire produced by the current study.

1.3 Research methodology

The purposes of the current study were addressed using the most popular research instruments for collecting primary data: a questionnaire survey and interviews.

The questionnaire was used to examine and explore the state of management accounting practices within industrial companies in Jordan, and to identify the most popular management accounting techniques used within these companies. The extent to which these companies use modern management accounting techniques was compared with traditional ones, and the factors that influence management accounting practices within these companies. The questionnaire was also used to provide background details about the companies under the study and the respondents themselves.

The interview technique was used to collect all the above details by conducting face-to-face interviews and results derived from questionnaires were compared with those elicited from interviewees to ascertain to what extent findings differ. The comparison ensured the validity and reliability of both sets of results. One of the main aims of interviews was to identify possible factors that can influence management accounting

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2 Further discussed in chapter five.
practices. Further, additional questions and comments were collected from participants during interviews. These interviews were a valuable source of information, leading to greater understanding of the behaviour of companies and the reasoning behind their actions.

Many researchers have used these methods in their studies (see Drury et al., 1993; Firth, 1996; Alebaishi, 1998; Helles, 1992; Longden et al., 2001; Haldma and Lääts, 2002; Anderson and Lanen, 1999; Anderson and Young, 1999; Drury and Tayles, 1994).

1.4 Significance of the study

Unfortunately, there is no available empirical evidence that provides a comprehensive description of management accounting practice in Jordan. Thus, this study is the first attempt to investigate management accounting practices and the factors that might impact on these practices within Jordanian industrial companies. It also examines the relationship between selected contingent factors and management accounting practices in these companies.

A shortage of empirical studies in management accounting was one of the main problems of management accounting research in the UK at the beginning of the 1980s as Otley pointed out in his 1983 paper. As a result, he recommended more empirical research should be conducted in management accounting, hence he identified the need for a study such as this.

Hypotheses are also generated from this study which can be tested in further research in the future. The study also provides a contribution to management accounting
practice research in general and supports/contradicts some empirical studies’ findings regarding factors that might influence management accounting practice.

Moreover, the study’s contributions and implications for the future improvement of Jordanian management accounting practices will be discussed in chapter 10.

1.5 The need for the current study

The need for more empirical research studies in the management accounting area was the main conclusion of the management accounting research conference held in December 1980 at the Manchester Business School (Cooper et al., 1988, p. 2).

Scapens (1994) suggested that researchers should give more attention to management accounting practice rather than focus on comparisons of management accounting practice versus theoretical ‘ideals’. Similarly, Brierley et al. (2001) emphasised the need for more surveys of cost/management accounting practices, especially outside the UK.

The need for more research on management accounting practices in developing countries, specifically in Jordan due to the shortage of such research, has led to this study. To the researcher’s knowledge, there is no evidence of current management accounting practices within Jordanian industrial companies. Thus, to investigate the extent of the use of management accounting techniques/practices within Jordanian industrial companies is the first objective of this study.

Further, the importance of conducting more research on management accounting practice has been emphasised by many researchers over the last two decades (see, for
example, Scapens, 1983; Otley, 1983; Scapens et al., 1983; Coates et al., 1983; Scapens, 1991; Drury and Tayles, 1995; Drury and Tayles, 1994; Brierley et al., 2001; Haldma and Lääts, 2002).

The number of empirical articles on contingency-based research in management accounting points to the importance of this research area. The need to examine the factors that influence management accounting practices has been emphasised by many researchers (e.g. Scapens, 1983; Earl, 1983; Jones, 1985; Amat et al., 1994; Drury and Tayles, 1995; Chenhall and Langfield-Smith, 1998a; Abernethy et al., 2001; Laitinen, 2001; Brierley et al., 2001; Haldma and Lääts, 2002; Gerdin and Greve, 2004). Thus, the second objective of this study is to investigate the contingent factors that influence the use of management accounting techniques/practices within Jordanian industrial companies.

1.6 Organisation of the study

This thesis consists of ten chapters. Figure 1.1 illustrates the structure of this thesis in brief. After this introductory chapter, organisation of the remaining chapters is as follows:

Chapter Two discusses significant changes and developments in the Jordanian business environment as a result of economic, technological, and competition developments during the last two decades. This discussion highlights the fact that management accounting practice in Jordan needs to be changed and updated to cope with the new requirements and the need to provide more accurate, timely, and advanced accounting information to management to guide their decision-making.
Chapter Three provides the reader with a short description of management accounting practice and identifies differences between it and financial accounting. Some of the roles of management accounting/accountants are mentioned. The chapter provides a brief historical overview of the development of management accounting practice. It also reviews some previous related empirical studies in management accounting practice. However, the main purpose of the discussion in this chapter is to show that management accounting practice is influenced by the surrounding environment and contingent factors. The chapter also points out the existent gap in the management accounting literature and the need for more empirical research on management accounting practice, especially in developing countries.

Chapter Four reviews the management accounting practice literature and contingent factors that influence the use of management accounting practices in developed and developing countries. A review of previous related studies identifies the gap/shortage existing in this literature and the current study’s contribution to fill this gap/shortage is highlighted.

Chapter Five describes and discusses the study’s research methodology utilised to accomplish the research aims and objectives, namely, the questionnaire and interview. Details of research questions, the study hypotheses, how the researcher will measure the use of management accounting practices, the size of companies, and collect the data for this study are all presented in this chapter. The statistical tests employed to analyse the collected data are also described.

Chapter Six descriptively analyses the data collected using the questionnaire survey and reports the results of the analysis. This chapter will help to fulfil the first objective
of this study, namely, to obtain an overview of the extent to which management accounting techniques are used in Jordanian industrial companies.

**Chapter Seven** examines the relationship between suggested contingent factors and the extent of using management accounting practices. This examination is conducted using bivariate statistical analysis. Each factor is tested individually against the dependent variable which is the extent of using management accounting practices. Kendall’s tau correlation and Chi-square tests are used to accomplish this objective. The analysis results are used to support or reject the hypotheses. Moreover, results are compared with previous empirical studies.

**Chapter Eight** investigates the relationships identified in chapter seven using more advanced statistical analysis. Multivariate statistical analysis is used to find out the relationship between all the contingent factors together and the extent of using management accounting techniques. Multiple regression analysis illustrates the joint influence of these factors on management accounting practice and which of these factors best explain the variation in the extent of using management accounting practices.

The above-mentioned analysis is conducted mainly on questionnaire responses. Data elicited from personal interviews will be discussed in **Chapter Nine**. This chapter will present the results from conducting face-to-face interviews with respondents from some Jordanian industrial companies.

**Chapter Ten** presents a summary of the thesis contents and overall conclusions drawn from the findings and makes recommendations and suggestions for further research in the future.
Figure 1.1: The thesis structure
Chapter Two
Jordan's Business Environment and Economy
2 Jordan's Business Environment and Economy

2.1 Introduction

This chapter mainly discusses the fundamental changes that the Jordanian business environment has witnessed over the last two decades. It provides a brief understanding of some of the issues that may influence management accounting practices in Jordan. These issues have been reported to impact on other countries' management accounting practices, thus suggesting Jordanian management accounting practices may likewise have been influenced (see, for example, Scapens and Yan, 1993).

The chapter begins by presenting background information on Jordan's location, politics, and demographics. It explores Jordan's economy from a number of standpoints, including the history of the economy, its characteristics, sources of income, natural resources, trade balance, and economic vulnerability. The business environment in the country is also discussed, together with new changes that have occurred, the government's role in administering it, and the management culture. Since the study focuses on industrial companies, this chapter also provides background information about the manufacturing industry, with particular attention paid to the Pharmaceutical sector. Finally, the chapter highlights the status of accounting in Jordan, its development since the 1960s, and the education and profession of accounting in the country. The following overview is vitally important since it provides the reader with valuable information about the study context and further develops his/her understanding of the research area.
2.2 The Hashemite Kingdom of Jordan

In the heart of the Middle East where Europe, Africa and Asia converge, lies a small country with a total area of 89,213 sq km, known as The Hashemite Kingdom of Jordan. It borders Syria, Iraq, Saudi Arabia, and Palestine & Israel, thus enjoys a geocentricity that shapes its economic and political welfare (see Figure 2.1).

Figure 2.1: Map of Jordan
In addition to being a small country, Jordan is also a young nation, with only 59 years of independence, which it gained in 1946 after 26 years of being under British mandate. Jordan’s political system can be described as a constitutional monarchy since King Abdullah II is the highest authority in the country, and it is he who appoints the prime minister, however, the public vote for senators and members of parliament.

Jordan’s population size is over five million people, mainly of Arab ethnicity, with a continuing growth rate, which reached 2.5% in 2004. Just under three-quarters (70%) of the population are under the age of 30. This population prides itself on having one of the highest literacy rates in the region, since over 90% of the population can read and write (MOP, 2005).

As Islam is the predominant religion in the country, much of Jordan’s culture is based upon Islamic teachings and values. These teachings heavily emphasise the importance of kinship; therefore, one finds that in Jordan the social life and identity of a person centres around the family. The business environment does not escape these values; thus, in Jordan, the distinction between family and business is not clear-cut.

2.3 Overview of Jordan’s economy

As a small nation, with a small population, compounded by the possession of limited resources, Jordan is considered to have a small economy, one that is subject to external shocks and regional political unrest. This section aims to provide a brief overview of the Jordanian economy, its history, current situation, and future prospects.
2.3.1 The history of Jordan's economy

When the Hashemite Kingdom of Jordan was born in 1946, the country did not look attractive economically. It had few natural resources, no industry, and low agricultural production. Much of the population was unemployed, and it became apparent that the country would not survive without external financing. Briefly, the history of Jordan’s economy can be explored in two phases; firstly, Jordan’s economy from the 1960s to 1988; secondly, from 1988 to the present day.

2.3.1.1 Jordan’s economy from the 1960s to 1988

In the mid-1960s, the country started its early attempts to get its economy on its feet. Light industries were established, port facilities were made available at the strategically located port of Aqaba, and its tourist industry was promoted by building resorts and preserving historic and religious sites. Moreover, in this period, the first attempts to become an open economy were taken since Jordan started exporting phosphates and planned to extract potash for export too. This led to rapid economic growth in the 1950s and 1960s.

In the late 1960s, and early 1970s, Jordan lost the West Bank to Israel in the 1967 Arab-Israeli conflict, and this had severe implications for Jordan’s agricultural production, since most of Jordan’s fertile lands were in the West Bank. Even worse, half a million refugees from the occupied West Bank fled to Jordan, thus upsetting the country’s demographics, and adding more people to the large pool of unemployed Jordanians at that time. This also put a lot of pressure on Jordan’s public spending since the refugees had to be accommodated.
By 1972, Jordan had recovered economically from the 1967 war, and by 1975 it was able to achieve a Gross Domestic Product (GDP) increase of nearly 6%. This was the result of a three-year development plan that concentrated on increasing capital expenditure and creating jobs.

After 1973, prosperity continued for Jordan as the Gulf countries enjoyed an increase in oil income, and Jordan enjoyed more aid from them and remittances from Jordanians working abroad. The annual real GDP growth averaged more than 10%. This led to the government having considerable funds, which it heavily invested in capital-intensive projects, and expanding the primary and secondary sectors of the economy. From the period 1976 to 1980, average annual GDP in real terms was around 8.5%. This was the period when Jordan transformed itself into an open economy, able to export as well as import goods and expertise (CountryWatch, 2004).

However, Jordan's economic vulnerability to external forces meant that in the 1980s, when a regional recession took place, foreign aid from its Arab neighbours declined, remittances from Jordanians working abroad also declined, and GDP slowed down. By the mid-1980s, Jordan was so deeply affected by the recession in the region, that it started to have cash flow problems in the public sector, large debt burdens which stood at US$7.1 billion, and a decelerating growth that reached stagnation point in 1988. Jordan had to import basic commodities, such as food and fuel, and was even considering importing water (Goussous, 2002).
2.3.1.2 Post 1988 to the present day

As a consequence of all the factors mentioned above, the government had to go through a process of reform, in order to restore confidence in the economy and restore the value of the Jordanian Dinar (JD), which had lost half its value by 1989 as a result of society disposing of it. Moreover, the reform aimed at rescheduling the country's debt burden. The reform process had to be implemented with the aid and under the supervision of the International Monetary Fund (IMF) and the World Bank.

Before the structural programme could be implemented, another economic set back occurred, this was the Gulf crisis in 1990. Jordan lost much of its export market in Iraq, and most of its expatriate workforce in Kuwait returned home, thus causing remittances from Jordanians working abroad to fall even further.

The country's strong determination to implement reforms meant that it implemented a new Economic Adjustment Programme (EAP) for the period 1992-1998. This programme along with another five-year development plan, aimed to take Jordan step-by-step towards becoming a free and open national economy.

In spite of the aforementioned problems, the country developed and improved its economy by introducing a new business environment and attracting overseas investment through establishing new Free Zones (FZs), Qualifying Industrial Zones (QIZs), and Free Trade Agreements (FTA) with many countries. Unfortunately, the Jordanian economy was again influenced by another regional crisis, the war in Iraq, which had a significant negative influence on the economy. Bilateral trade between the two countries was significantly disrupted, particularly, the flow of very low-price Iraqi oil, which cost the country dearly. Many Jordanian companies relying heavily on export and re-export products to the Iraqi market also stopped trading or significantly
decreased in number because of the war. As a result of these problems and the uncertainty of the situation in the region, real GDP growth slowed down to 3.2% in 2003, compared with 5% in 2002 (IMF, 2004).

Currently, the economy has transformed to an export-oriented economy, where the private sector is the primary engine of economy growth. However, the reform agenda of Jordan’s economy remains uncompleted, due to ongoing regional crises.

2.3.2 Characteristics of the Jordanian economy

Small, open, and service-oriented are three words that commonly describe the Jordanian economy. As a result of a narrow manufacturing base, and limited resources, the size of the Jordanian economy was US$9.86 billion in 2003 (MOP, 2005). The main strengths of this economy are its geographical position, political stability, well-educated workforce, and competitive labour costs. Its main weaknesses are its limited natural resources, economic vulnerability, rapid population growth, dependence on foreign aid, large public debt (that stood at US$7.60 billion comprising 76.9% of GDP in 2003), and a small domestic market (MOP, 2005).

Throughout its history, Jordan has faced a number of economic difficulties; according to Birks and Sinclair (1982, p. 38), “it is the flexibility of Jordanians that enables the economy to survive”. This section explores certain aspects of Jordan’s economy, including its natural resources, sources of income, trade balance, inflation, unemployment, and economic vulnerability.
2.3.2.1 Natural resources

2.3.2.1.1 Phosphates and Potash

Both phosphates and potash are main mineral resources in Jordan. They have contributed significantly to the economy and were the main exports of the country during the 1990s. They still remain among the country’s main exports. In 2001, the mining sector earned JD157 million, which represented 2.5% of GDP. The country exported, in 2001, around JD230 million of potash and phosphates, about 17% of total domestic exports (Goussous, 2002). Jordan is the sixth largest producer and the third largest exporter of phosphates in the world.

Potash, extracted from the Dead Sea, is another of Jordan’s few main natural resources. In 2001, Jordan’s production of potash was around 2 million tons, most of which was exported with a total value of JD138 million. Jordan is ranked as the fifth largest potash producer in the world. However, increased global competition for these two products has led to unfavourable production and selling price development.

2.3.2.1.2 Oil and gas

Jordan had been reliant on Saudi Arabia and Iraq for oil, however, after a 20 year search, three oil wells were found in the Hamza field in the Wadi al Azraq region west of the capital Amman. Oil was also discovered near the Iraq-Saudi Arabian border, thus Jordan has been able to meet a small fraction of its energy requirements using this oil. The discovery of the oil wells does not mean in any way that Jordan can be self-sufficient, it still needs to import oil for its growing domestic and commercial needs.
In 1980, Jordan discovered a huge amount (estimated to be between 10 to 40 billion tons) of shale oil deposits in the Wadi As-Sultani area, but they have not yet been used efficiently and commercially. Many international oil companies have been invited to explore oil in the country, for example, Hunt Petroleum, Petro-Canada, and the Japanese National Oil Company. Further, natural gas has been discovered at Rishah in eastern Jordan, which may eventually replace oil for electricity generation and other industrial sectors.

2.3.2.1.3 Water

Water, the source of life, is scarce in Jordan. This is one of the government’s main concerns, since it could put a halt to Jordan’s ongoing growth and development. With low annual average rainfall and a desert terrain, the kingdom suffers from a chronic water shortage and is vulnerable to droughts. Many projects have therefore been set-up to reduce this problem, mainly dam building to capture floodwaters in the form of reservoirs. However, the cost of such projects is immense. It is expected that in 2005, Jordan will suffer from a water shortage of around 279 million cubic metres (Goussous, 2002). The government has taken many steps to solve this problem, namely, increase public awareness of the problem, adopt an efficient water distribution policy, recycle water, reduce water pollution, increase supply by using new sources of water, and improve the irrigation processes.
2.3.2.1.4 Human capital

Known as its most valuable resource, Jordan prides itself on its highly skilled and highly educated population. Much of this resource is exported abroad, bringing valuable remittances much needed for the growing economy. Education indicators are among the highest in the region; Jordan invests 6.8% of its GDP in education (Seijaparova and Pellekaan, 2004). The government’s expenditure on public health is also higher than that of other regional countries, with 4.2% of its GDP invested in health in 2001 (IMF, 2004). Further, between 95% to 100% of the population have access to affordable essential drugs, and 96% have access to improved water sources (IMF, 2004).

This human capital compounded with Jordan’s geo-centricity means that within Jordanian businesses there is a huge pool of knowledge and understanding of all the countries in the region. Each part of the Middle-East hosts Jordanian workers, thus such knowledge can be seen as an attraction to foreign firms that want to set-up regional offices in the Middle-East.

However, a main problem with this human resource is the lack of coordination between the labour market and educational institutions, thus, students graduate in areas where there is no demand for them in the labour market. This weak link between the two parties, leads to a number of problems in many professions, including the accounting profession.
2.3.2.2 Sources of income

Traditionally, Jordan has three main sources of income: income from exports of phosphates and potash together with foreign aid and remittances from Jordanians working abroad. These financial inflows have helped to build Jordan’s economy and, in many cases, caused its Gross National Product (GNP) to exceed GDP. In 2001, the flow of remittances from abroad comprised 24% of Jordan’s GDP, which was more than US$2 billion; whilst aid grants reached US$300 million (CountryWatch, 2004). Currently, foreign direct investment (FDI) is another source of income for Jordan. Its geo-centricity is increasingly attracting foreign investment and Jordan is becoming a regional hub for exports and imports between Europe and the Middle East. For example, export products from QIZs and other international trade agreements are greatly contributing to the country’s economic growth. Moreover, revenue from direct and indirect taxes, such as general sales tax (GST), special sales taxes (SST), licenses, fees and interest, also comprise part of the government’s main revenues.

2.3.2.3 Trade balance

Jordan is considered to be an open economy, more open than many of its neighbours in the Middle-East. However, although this openness helps Jordan export more, it also means that imports can easily flow into the country. This has led to the country’s consistent trade balance deficit. The merchandise trade deficit, in 2004, was US$4.18 billion (MOP, 2005). These deficits are remarkably covered by foreign aid and remittances from Jordanians working abroad.
2.3.2.3.1 Exports

Generally, companies are not required to have export licences, except in a limited number of cases. Jordan's main exports are pharmaceutical products and other chemical related products, phosphates, potash, clothes, food, and live animals (see Figure 2.2 below). In recent years, diversification in the export market has led Jordan to concentrate on exporting value added consumer goods, such as pharmaceuticals and fertilisers, rather than crude products such as phosphates. In 2004, the total value of exports was equal to US$3.95 billion (MOP, 2005).

Recently, the United States has become Jordan's main export market, comprising around US$1017.7 million in export value, due to the advantage of duty-free and quota-free access to the US consumer market via the Qualifying Industrial Zones scheme and the US-Jordan free trade agreement. This has led to investments pouring into Jordan since it can export to the USA duty and quota free (MOP, 2005). However, Arab countries took the larger share of all Jordanian exports, around 40% in 2001 (CBJ, 2001).

The IMF (2004, p. 159) reported four possible mechanisms to increase the country's export demand growth: 1) deepening current access of existing markets with the same products; 2) deepening current access of existing markets with new products; 3) accessing new markets with the same products; and 4) accessing new markets with new products.
2.3.2.3.2 Imports

Since the country has limited natural resources, and its manufacturing base is still in the infancy stage, a lot of raw materials, consumer goods and capital goods are imported from abroad. No import licences are required, except for a limited number of imports, such as rice, flour and sugar. Its main imports are: crude oil, machinery, transport equipment, food, live animals and manufactured goods (see Figure 2.3 below). In 2004, the total value of imports was equal to US$8.13 billion (MOP, 2005).

There is a special emphasis on importing capital goods, since these are goods needed to develop the country's economy. Machinery and transport equipment are major import items for Jordan according to the Central Bank of Jordan (see Figure 2.3).
Figure 2.3: Breakdown of imports by commodity for 2001

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured Goods</td>
<td>19%</td>
</tr>
<tr>
<td>Machinery and transport equipment</td>
<td>27%</td>
</tr>
<tr>
<td>Chemicals</td>
<td>11%</td>
</tr>
<tr>
<td>Mineral Fuels &amp; Lubricants</td>
<td>15%</td>
</tr>
<tr>
<td>Miscellaneous Manufactured Articles</td>
<td>6%</td>
</tr>
<tr>
<td>Food and Live Animals</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
</tr>
</tbody>
</table>

(Source: Central Bank of Jordan, 2001)

2.3.2.4 Economic vulnerability

Due to its size and lack of natural resources, it is difficult for Jordan to become self-sufficient. It relies heavily on the sources of income mentioned above for its economic survival. Unfortunately, since two of its main sources of income, namely, foreign aid and remittances, are vulnerable to the political and economic situation of other countries, Jordan’s economy has been known for its vulnerability to external forces. A good example of this is that export growth decelerated sharply, from 24% to 5% in the first three quarters following the US led war on Iraq (Plamondon, 2003). This automatically worsened the chronic trade deficit faced by Jordan. Since Jordan’s economy depends on international aid, the exclusion of grants would make Jordan’s fiscal situation very fragile. In addition, ongoing Israeli-Palestinian violence and the political instability of Iraq continue to hinder the economic outlook of Jordan.
2.3.2.5 Unemployment and inflation

Unemployment has always been a major problem in the Jordanian economy, and perhaps explains the large number of Jordanians working abroad. According to official estimates, the overall unemployment rate in 2004 was 12.5% (MOP, 2005), whereas, unofficial estimates put it much higher, ranging to above 25% (Icon Group International, 2000). Although steps are being taken to reduce this escalating problem, the main solution would be for the private sector to increase investments, thus provide more employment opportunities for people. Moreover, because Jordan is opening up, multinationals looking for low-wage economies will favour the country due to its wage competitiveness.

Jordan’s monetary policy is planned by the Central Bank of Jordan (CBJ) with the main aim of maintaining low inflation, a stable exchange rate, and a secure level of foreign currency reserves. Inflation rate has steadily increased over the years, reaching 3.4% in 2004, but this is a reasonable rate and shows the macroeconomic stability of the Jordanian economy (MOP, 2005). The Jordanian currency JD has been pegged to the US dollar since late 1995 at an exchange rate of approximately JD1 to US$1.41.

2.4 Business environment

With an open economy, a highly skilled workforce, a lower cost of production, and a strategic location, Jordan’s business environment has been recognised as far more attractive than that of many other Middle-Eastern countries. These qualifications
make Jordan a centre of attraction for foreign firms wishing to fully invest in Middle-Eastern markets.

The following sections will discuss management culture in Jordan, the role of government in the business environment, new changes to the business environment, and challenges faced by the business community as a result of these changes.

2.4.1 Management culture

The management culture of Jordan is an integral part of the Jordanian culture itself. In his study, Smith (1987) mentioned several characteristics of Jordanian management, including:

- status is more important than ability,
- a rigid hierarchy, and
- kinship ties in decision-making.

These characteristics emerge due to strong family ties in Jordan and result in nepotism and the belief that the title of a person is much more important than his/her ability. Further, poor management practices and management 'know-how' are the most common problems of Jordanian management culture. These problems penetrate into the accounting environment, especially when managers make decisions without consulting their accountants or ignore certain accounting information because they do not believe in their importance. However, Smith (1987) pointed out that some changes have influenced management culture in Jordan, particularly the influence of western management style, via: 1) education in the USA and Europe; 2) international trade agreements; 3) special training courses for managers; and 4) use of new technology and communication tools, especially the computer. Nevertheless, despite these
changes, Smith (1987) indicated that management culture in Jordan has not necessarily changed very much, and investment in and planning for the future is not an integral part of Jordanian management culture.

2.4.2 The role of government in the business environment

The government plays an important role in the business environment, mainly financing businesses and promoting the investment environment in Jordan. Perhaps one of its most important roles is to channel foreign aid, loans, and workers’ remittances into the business environment. The private sector relies heavily on government support for its survival, therefore, it is not surprising to see the government as the main investor in some private sector industries, even occasionally adopting companies which have been abandoned in the private sector. However, government officials criticise the private sector for its over-reliance on the government and its unwillingness to make capital investments, since with Jordan opening up its economy, domestic firms will face high competition from international firms.

The government tends to invest heavily in companies that guarantee citizens’ social and economic welfare, and those that have strong export and domestic markets. However, over-regulation and red tape are common features of government businesses in Jordan, since the government’s main aim is to create jobs rather than be efficient. This is a major concern for those investors and businesses which hold shares in government owned businesses.
2.4.3 New changes to the business environment

Jordan has always strived to become a model of political liberalisation and continual economic growth and development. Part of its effort in integrating into the world economy is signing up to major trade agreements and international organisations in order to further facilitate trade with countries within and outside the Middle East. The following sections review the most important agreements and policies that Jordan has signed up to or adopted in recent years.

2.4.3.1 Investment promotion law

Many steps have been taken by the Jordanian government to promote foreign and domestic investment; perhaps two of the most notable are the introduction of Investment Promotion Law No. 16 of 1995 and Investment Promotion Law No. 13 of 2000. These laws provide incentives to investors who wish to invest in industry, agriculture, hospitals, hotels, railway transportation, leisure and recreation centres, and convention and exhibition centres. With few exceptions, domestic and foreign investors receive equal treatment, and there is no limit on repatriated profits. As regards marketing investment opportunities globally, the Jordan Investment Board helps and provides potential investors with all necessary information pertaining to the advantages of investing in Jordan.
2.4.3.2 Free Zones

Free Zones (FZs) are defined as zones where favourable conditions exist in order to enhance economic activity within the zone. Since 1966, Jordan has indulged itself in setting up free zones in order to develop an attractive atmosphere for local and foreign investments. The first commercial FZ was established at the port of Aqaba in 1973. In 1976, the government established the Jordan Free Zones Corporation (JFZC). Another commercial/industrial FZ was established in Zarqa in 1983, followed by two others, namely, Sahab and Queen Alia International Airport (QAIA). Inside these zones, tax exemptions, facilities, services and simplification of procedures are used as tools to attract industries and boost the national economy. These zones put Jordan at an economic advantage when investors consider investing in Middle-Eastern countries. However, the older Free Zones have provided limited benefits to Jordan’s economy due to their weak job creation and commercial rather than industrial orientation, therefore, have represented only a very small proportion of both regional FZ exports and employment, and national industrial output (Al-Khouri, 2000). In order to increase the benefits and overcome some of these weaknesses, the government launched a new policy towards liberalisation of the traditional FZ concept to include a wide range of activities. Therefore, a number of privately owned and operated FZs have been established.3 However, these new private FZs concentrate on heavy industry and certain type of services.

Jordan currently has a number of public and private Free Zone areas; perhaps the most prominent one is the Aqaba Special Economic Zone (ASEZ). It was established in 2001, and with a 375 square km area is one of the largest free zones in the world. It

3 These are industrial and other companies that have been given the privilege of FZs.
aims to raise US$6 billion worth of investments and create 70,000 jobs over 20 years. It is a liberalised, low-tax, duty-free, and multi-sector development area, serving as a transit point for a number of manufacturing industries (IMF, 2004).

2.4.3.3 Qualifying Industrial Zones

As a result of the US peace efforts between Jordan and Israel, the Qualifying Industrial Zones (QIZs) initiative was established in 1996 as another type of Free Zone. In order to become a QIZs, the industrial estate should receive QIZ designation from the United States Trade Representative (USTR). Individual manufacturers should also seek approval for their products. A joint committee of Jordanian and Israeli representatives with an observer from the US decides which products qualify. This is a zone where goods produced inside are granted duty-free and quota-free access to the US consumer market, provided they meet certain criteria. Since 1998, QIZ projects have been multiplying in Jordan, greatly contributing to the Jordanian economy. Over 17,000 jobs have been created in Jordan and more will be available in the future. Thus, QIZs are proving to be superior to the older FZs. They allow technology transfer to take place, and industrialists are coming from all over the world to invest in Jordan. Exports to US and other markets have been significantly boosted by QIZs. Total exports of QIZ products reached US$1121.2 million in 2004, compared to US$2.40 million in 1999 (MOP, 2005). Moreover, a new QIZ was launched in 2003, the Aqaba International Industrial Estate (AIIE), which benefits from the advantages of both the ASEZ and duty-and quota-free access to the US market.
2.4.3.4 World Trade Organisation

In April 2000, Jordan became an official member of the World Trade Organisation (WTO). The government has worked persistently in liberalising important sectors and reforming its laws and regulations to comply with WTO requirements. This membership enforces commitments upon Jordan which can be summarised as follows: 1) Jordan has to lower the tariff ceiling down to 20% on all goods (except a few selected products) by 2010; 2) it should not impose any quota-limits; 3) products such as medicine and gasoline need to go through a price liberalisation programme (i.e. remove government price controls on all products); and 4) these commitments should apply in all free zone areas, including the ASEZ.

2.4.3.5 The EU-Jordan Association Agreement

In May 2002, an agreement that had been signed by Jordan and the European Union (EU) in 1997, and ratified at the beginning of the year, came into force. This will create a free trade area between Jordan and the EU within 12 years, and a comprehensive framework for political, economic and financial cooperation between the two. The main feature of this agreement is that European investors will be able to replace Jordan's debt with equity investments, as Europe is one of the main sources for grants and aid.
2.4.3.6 Arab Free Trade Agreement

Jordan is also a member of the Arab Free Trade Agreement (AFTA) that was signed in 1997 and implemented in January 1998. Other countries which have signed the agreement include: Syria, Lebanon, Saudi Arabia, Iraq, Egypt, United Arab Emirates, Bahrain, Tunisia, Oman, Kuwait, Libya, Qatar and Morocco. By 2008, Jordan will be enjoying a free trade zone that will liberalise goods from custom duties, taxes and fees.

2.4.3.7 The US-Jordan Free Trade Agreement

Although Jordan has a small domestic market, it enjoys accessibility to the largest consumer market in the world, the United States. This is the result of a free trade agreement (FTA) between the two countries that was signed in 2000 and implemented in December 2001. Free trade not only applies to goods, but also to services. These include health, education, tourism, printing and publishing, distribution of energy, postal services, and transport services. This agreement will expand investment opportunities for US investors, eventually overtake QIZs, and open the market for US products.

2.4.3.8 Privatisation

Since 1996, and as a result of commendations by the World Bank, Jordan has started a privatisation programme aimed to decrease the government’s role in the economy by decreasing its shares in government-owned businesses. Divestiture of government
shares in public shareholding companies has been the most common privatisation method. The programme aims to attract overseas investment and reduce public debt. The government will be able to use the proceeds from privatisation to pay its large external debt burden and to fund infrastructure projects to spur growth (HSBC, 2003). By 2003, these proceeds comprised 15% of GDP, or about US$1.3 billion (CountryWatch, 2004).

One of the underlying goals of the privatisation programme is to enhance the efficiency and production levels of domestic firms and attract foreign investments in this free-market economy where demand and supply play their role, and the government is not involved in subsidising domestic firms. Moreover, this policy has been adopted to prepare Jordan’s firms for global competition created by the WTO agreement and other free trade zone agreements mentioned above. If domestic firms do not learn to become efficient they will face great challenges in the new business environment of Jordan.

The process of privatisation has not yet ended, and the government still owns shares in some large Jordanian companies (see chapter 6, section 6.2.1.7). However, the long-term objective is to privatise all government owned firms, and for the government to sell its shares to the general public, thus becoming a regulator rather than a competitor in producing goods and services. Another important long-term objective is to increase the efficiency, productivity, and competitiveness of privatised companies in order to prepare them for international competition (CBJ, 2001). It is worth mentioning that Jordan’s privatisation programme is one of the most successful programmes in the region.
2.4.4 Challenges faced by the business community

The business community is in a position never before experienced. As a result of its admission to the WTO, Jordan businesses are facing increasing global competition. Moreover, water and energy are becoming increasingly scarce, and the whole economy is vulnerable to regional political unrest. To cope with these challenges, Jordan aims to expand its markets abroad and access more markets. Its admission to the WTO should pave the way for such expansion; however, Jordanian companies need to improve their efficiency in order to survive global competition.

2.5 Industry

Jordan's industrial sector is mainly built upon two industries: manufacturing and mining. These two sectors are mainly privately owned and are characterised by small size firms. The small size of firms is the result of continual political unrest in the region, inconsistent access to neighbour countries' markets, and small domestic markets.

However, the country's accession to the WTO, its attaining of QIZs, and its signing of free-trade agreements with a number of different parties, means Jordan has become a fertile ground for industrial production to grow and expand. The country's industrial production index comprises 77% manufacturing production, 15% mining and quarrying, and 8% electricity production (Goussous, 2002).
2.5.1 Industrial policy

Jordan has no ‘grand’ master plan for an industrial policy. Its commitments to the IMF and World Bank, and its new commitments to the WTO, have meant that it has had to change its industrial policy and adopt an industrial policy that suits its commitments.

As a small economy, Jordan is concentrating all its efforts on growth, particularly the export of manufactured products. The problem with setting up domestic firms is that internal demand is too small for these firms to achieve economies of scale, therefore, Jordan is setting up export markets in order to expand its domestic firms. The government used to protect Jordan’s domestic products from international competitors to help local companies stand on their feet. However, such protection is currently not useful for Jordan’s economic growth. The government has opened the domestic market to international competition by enrolling in many international trade agreements with other countries and establishing free zones, QIZs, and the ASE, in order to improve local industrial production and encourage local companies to compete and develop their production, management, and skills.

2.5.2 The development of the manufacturing industry in Jordan

The production of chemicals and fertilisers in the 1970s was the beginning of the manufacturing industry. The industrial sector was able to establish export markets which brought much needed revenue to the country. The government tried to expand the manufacturing base through the production of consumer goods with higher value added, therefore, instead of exporting phosphates only, the exporting began of
fertilisers made from phosphates. Unfortunately, at around that same period, many nations were involved in such a strategy that caused demand for Jordanian consumer products to fall (US Library of Congress, 2003).

The late 1980s came and the government adopted a slightly different strategy, instead of exporting consumer goods, which were facing high competition, Jordan decided to use its valuable human resources and produce capital goods that required high expertise to manufacture. These were the goods which had more export markets and few competition. The only problem with such capital goods was they needed raw materials that had to be imported from abroad, and the prices of these raw materials increased over time, thus reducing the profitability of this industry.

In addition, manufacturing firms tend to adopt the policy of cost leadership, which means they concentrate on minimising costs rather than improving quality. This is mainly due to lack of funding, and lack of demand in the domestic economy. However, if firms continue with this policy they may find it difficult to compete in global markets where prices are similar and the quality of the product is its determining factor in creating demand.

In spite of problems, Jordan has taken large strides in developing its industries; it has a wider manufacturing base than it had five decades ago, and it has reached a higher level of industrialisation.

However, although it has been able to expand its capital base, according to a recent study, cited in the International Monetary Fund (IMF) country report, and carried out by the World Bank, Jordan’s Total Factor Productivity (TFP) hardly increased as a result of this expansion during the 1990s. Only in 2001-2002 was this trend reversed and productivity expansion became the largest contributor to the economy’s growth.
This was mainly due to the increased productivity of the export sector, namely, in QIZs (IMF, 2004, p. 19).

2.5.3 Pharmaceutical industry

One of the most impressive sectors in Jordan’s manufacturing industry is the Pharmaceutical industry. It is a sunrise industry that is likely to continue to contribute to and elevate Jordan’s economy and development. This industry has grown substantially, with over 75% of its production sold to over 60 countries worldwide (Goussous, 2002). It is the second largest exporting industry after the garment industry, with exports exceeding US$200 million in 2002 (Fityani, 2005).

It is truly a national success in that in a matter of 20 years, Jordan’s pharmaceutical industry has developed rapidly, developing in every sphere and becoming a large player on a regional and international scale. This comes as no surprise, since Jordan has the educated workforce that can support such a high-tech manufacturing industry.

Pharmaceutical companies are now able to produce branded generics in every form; from tablets, to eye drops, to injectables. The main five companies which account for 90% of total production are: Hikma Pharmaceuticals, Arab Pharmaceutical Manufacturers, Dar Al-Dawa, Jordan Pharmaceutical Manufacturin, and United Pharmaceuticals.

One of the main effects on the pharmaceutical industry of Jordan’s accession to the WTO is that it will have to abide by an intellectual property right known as Trade Related Aspects of Intellectual Property Rights (TRIPs). This means that patents, trademarks and trade secrets are protected and no company can copy a trademarked
product. As a result, this will stimulate the development of medicines and drugs by acting as an incentive for investment in long-term research and development, since firms know that no one can copy their intellectual property. Further, companies have also made significant investments to comply with international standards, particularly those of the EU and the US Federal Drug Administration (FDA). Such a safe and secure economic environment also acts as an incentive for potential investors to invest in Jordan. A number of multinationals have already signed joint venture agreements with Jordanian companies after its accession to the WTO.

2.6 Accounting in Jordan

In most developing countries, including Jordan, accounting has not been fully utilised to achieve its main objective as a tool for a business to expand and grow and make economic decisions. Unlike other professions, accounting interacts and evolves with the business environment of the country.

Financial and management accounting both play their distinct role in a business, and although in Jordan the most commonly recognised form of accountancy is financial accounting, increasingly, businesses find management accounting a vital tool for planning, control and decision making.

2.6.1 The development of accounting in Jordan

Accounting started as a profession in the late 1970s and 1980s, at a time when the economy was growing and industries were expanding. In its infancy, accounting
practice was rarely found, except in large American and British firms operating in the country. As the country developed economically, Jordan witnessed an increase in accountancy firms and public accountants.

As more accountants came into the market, there was a need for some form of regulation and licensing, which gave birth to the Act for the Practice of the Auditing Profession, Act No.10, in 1961. This Act specified that licensing is mandatory for public accountants.

In 1964, The Companies Act No.12 contained the first set of regulations that financial accountants needed to follow in Jordanian firms. Unfortunately, these regulations were vague and loose, since they did not contain enough details. One of the Act’s main downfalls was that it did not specify the form of financial statements needed to be produced annually, moreover, there was no legal requirement of the form or extent of financial statements produced.

The establishment of the Amman Financial Market sharply developed financial reporting standards in Jordan. It required companies to publish all the information necessary to investors to help them make wise investment decisions. However, even with its establishment, no accounting standard was specified.

In 1982, income tax regulations came into place that had an effect on accounting practices in Jordan. These forced companies to use the straight-line method of depreciation for tax purposes, thus giving accountants a formal accounting standard in taxation matters.

In 1985, The Audit Profession Council Act replaced the Act for the Practice of the Auditing Profession No.10 of the year 1961. This mainly made it a requirement for
accountants to take an examination in order to enter the profession of public accountancy in Jordan. This Act also helped in the establishment of the Jordanian Association of Certified Public Accountants (JACPA) in 1987, which decided to adopt International Auditing Standards in 1989, and International Accounting Standards in 1990. However, no legal force was put into place to ensure that such standards were met. It was not until 1998, that the Securities Exchange Commission in its efforts to enhance the capital market in Jordan made it a legal requirement for companies to adopt International Accounting and Auditing Standards.

It can be seen from the above that throughout Jordan’s accounting history, financial accounting has developed much more thoroughly with rules and regulations than management accounting.

### 2.6.2 Accounting education in Jordan

The high quality of education in Jordan has been previously mentioned and its contribution to producing one of the most highly skilled workforces in the region. However, unfortunately, such a high level of education has not penetrated fully to accountancy in Jordan. Accounting education started off in secondary school and was mainly used to meet the demands of government agencies and private companies for bookkeepers and clerks (El-Issa, 1990). Although the increasing importance of accounting means that more universities in Jordan offer Bachelor degrees of accounting, the nature of these courses mainly produce students who are well aware of accounting theories but lack practical skills such as computer and other languages (Arafat, 2002). Most accounting courses and textbooks that are taught in universities are in Arabic.
Moreover, there is a considerable gap between the academic community and the professional community of accountants in Jordan. This is proven by the lack of journals, lectures, seminars, research, and cooperation between the two parties. There are no PhD courses being offered for accounting at any of the 21 universities in Jordan. Further, Helles (1992) reported that accounting education in Jordanian universities creates unskilful and uncreative graduate accountants unable to be problem solvers and only familiar with routine work.

2.6.3 Accounting profession in Jordan

Unfortunately, the accounting profession in Jordan has not yet received the recognition it deserves. It is seen as a service activity whereby accountants are merely bookkeepers protecting the interest of owners and ensuring compliance with laws and regulations. Although these laws are not fully developed, at least they provide a framework for financial accountants to work within. As regards management accounting, no laws or regulations can be found. This confirms the view that only financial accounting is recognised in public, and management accounting is a relatively new and unknown concept.

One of the main reasons for the lack of interest in management accounting in Jordan is the society’s distrustful attitude towards the predictive techniques of this form of accountancy. There is a lack of confidence in information generated by such techniques, thus managers decide not to base their decisions upon them.
However, one might expect that as businesses and industries develop, and companies start competing on global scales, management accounting will be accorded its due weight and importance.

### 2.6.4 Professional accounting bodies

According to a study by the Committee on Accounting in Developing Countries, one of the most prominent problems of accounting practices in developing countries, such as Jordan, is the lack of strong national associations of accountants (American Accounting Association, 1976). Although this was reported in the 1970s, it is still true today. Such an association is vital to influence the development of accounting practices in the country. The role and importance of such accounting bodies is very clear in other countries, such as the USA and the UK. For example, the Chartered Institute of Management Accountants (CIMA) contributed, supported, and sponsored many studies in management accounting inside and outside the UK, such as those of Innes et al. (2000), Reid and Smith (2000) and Longden et al. (2001). Unfortunately, there is no professional management accounting body in Jordan.

### 2.6.5 The effects of new changes in the business environment upon accounting

Since Jordan’s accession to the WTO and as more multinational companies set-up joint ventures or regional offices in Jordan, it is expected that changes will occur to management accounting practices in Jordan. These changes will be driven by the need
for Jordanian companies to rise to international standards in accounting in order to compete more effectively.

Rapid economic growth in Jordan in the last four decades has led to a considerable increase in the number of accountants, and now that the economy is open and becoming export-oriented, more demand will be placed upon the accounting profession in terms of expertise and practicality. Companies need to plan, control, and make decisions about projects that will yield results important to their survival; this can only be done using management accounting information.

Further, since more and more multinationals are setting up in the region, Jordanian companies might be expected to be increasingly influenced by foreign accounting practices. Although “Management accounting practice is not universally uniform” (Luther and Longden, 2001, p. 315), it would be possible to adopt certain techniques/practices from their foreign partners.

2.7 Summary

Even though Jordan possesses limited natural resources, the government’s determination to improve the living standards of Jordanians continues unabated. Improvement has come about with the adoption of policies and reforms that have transformed Jordan into an open, export-led economy, one that aims to act as a model of political and trade liberalisation in the region.

Although Jordan has not yet gone through an industrial revolution, its current economic growth rests on a wider manufacturing base, one that is able to export and compete on a global scale. The pharmaceutical sector is perhaps one of Jordan’s most
prominent industries, since within a period of twenty years, it has been able to access over sixty markets worldwide and become the second largest exporting industry in Jordan. In addition, after the loss of the Iraqi market as a main absorber of Jordanian exports and the huge loss of the Iraqi oil grant because of the war in Iraq, the US market has recently become Jordan’s top export market via QIZs and the US-Jordan FTA.

Further, Jordan’s economic vulnerability due to regional political unrest has not hindered the setting up of free zones and the signing of free trade agreements, including the country’s accession to the WTO. The business environment, although benefiting from such business opportunities, is nevertheless facing increased global competition. Consequently, companies need to possess accurate accounting information to compete efficiently in this new global business environment.

Although the country lacks natural resources, particularly water and oil, and has suffered as a result of many regional crises, Jordan’s workforce is highly educated with lower labour costs than its counterparts in the region. The country is also moving towards a high-tech agenda and tax-free economic zones to encourage overseas direct investment. These changes in Jordan’s business environment and economy have contributed to the country becoming a services centre for the region and improved its economic growth.

Finally, although financial accounting has developed over the years and rules and regulations are starting to shape the face of financial accounting in Jordan, management accounting, however, remains marginalised due to lack of education, research, and incentives from the business environment.
Chapter Three
Management Accounting Overview
3 Management Accounting Overview

3.1 Introduction

The accounting literature segregates accounting into two main branches: Financial Accounting and Management Accounting. Table 3.1 shows important differences between these two accounting branches.\(^4\)

The management in any organisation is the main user of the information that is provided by so-called 'management accounting', hence its name. Management accounting is a branch of accounting which is specifically for those who act as management in organisations (Weetman, 1999).

Management accounting, according to Horngren et al. (2002, p. 5), is “The process of identifying, measuring, accumulating, analyzing, preparing, interpreting, and communicating information that helps managers fulfil organizational objectives.”

The information that management accounting can provide companies is becoming increasingly valuable and is needed more than ever before as companies and their environment become more competitive and complex.

According to the definition of management accounting and aforementioned differences between it and financial accounting, there appears to be an important role for management accounting in organisations as will be demonstrated in the next section. This chapter provides a brief historical account of the development of

\(^4\) The present study's concern is management accounting. For more information about these differences see, for example, Davidson et al. (1988), Upchurch (1998), Garrison and Noreen (2000), Atkinson et al. (2001), and Atrill and McLaney (2004).
management accounting to assist understanding of current management accounting in Jordan and provide some justification for choosing the management accounting techniques and contingent factors selected for inclusion in this study.

This chapter also reviews previous empirical studies on management accounting practices and identifies gaps in this literature.

### Table 3.1: Differences between financial accounting and management accounting

<table>
<thead>
<tr>
<th>Type of difference</th>
<th>Financial accounting</th>
<th>Management accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>External users: e.g. shareholders, owners, regulators, creditors, and financial analysts.</td>
<td>Internal users: e.g. managers, and employees.</td>
</tr>
<tr>
<td>GAAP</td>
<td>Must follow GAAP.</td>
<td>Need not follow GAAP.</td>
</tr>
<tr>
<td>Regulations</td>
<td>Follows certain regulations.</td>
<td>Does not need to follow certain regulations.</td>
</tr>
<tr>
<td>Reporting interval</td>
<td>Usually produced annually and sometimes semi-annually, and a few are reported quarterly.</td>
<td>Can be produced as frequently as required by managers, it can be on a daily basis.</td>
</tr>
<tr>
<td>Time horizon</td>
<td>Concerns about past (historical).</td>
<td>Concerns about past, current, and future.</td>
</tr>
<tr>
<td>Scope</td>
<td>Highly aggregate, report on entire company</td>
<td>Disaggregate, inform local decisions and actions.</td>
</tr>
<tr>
<td>Other (s)</td>
<td>Mandatory for external reports.</td>
<td>Not mandatory.</td>
</tr>
</tbody>
</table>

(Adopted from the management accounting literature including Davidson et al., 1988; Upchurch, 1998; Garrison and Noreen, 2000; Atkinson et al., 2001; Atrill and McLaney, 2004).

### 3.2 The role of management accounting

"Management accountants are increasingly seen as business partners, focusing more and more on key strategic issues, well beyond the boundary of traditional finance" (Ernst & Young and IMA, 2003, p. 1).
The management accountant's role in many companies has transformed from controller or scorekeeper to business support or internal business consultant. According to Kaplan and Atkinson (1998, p. xv), "Management accountants are no longer only scorekeepers of past performance". Instead, a management accountant has become an important member of management helping them to reach the organisation's goals. In addition, "Management accounting systems play a vital role in helping the managers of complex, hierarchical organizations to plan and control their operations" (Kaplan and Atkinson, 1998, p. 10).

Kaplan and Atkinson (1998) state that cost information is the most important type of management accounting information. Companies can use cost information to make important decisions about product feature and product mix. Also, it can be used to develop competitive strategies, guide operation improvement activities, and evaluate their performance.

Management accounting information is used to help managers carry out their responsibilities of planning, directing, motivating, and controlling (Garrison and Noreen, 2000).

Most management accounting literature mentions planning, controlling, evaluating performance, improving and developing competitive strategies, and taking decisions as the main functions of management accounting to attain company goals (see Scapens, 1991; Weetman, 1999; Upchurch, 1998; Atkinson et al., 2001).

The management accountant's position inside companies depends on the structure of each organisation. Although there is no particular single organisational structure applicable to all companies, Zimmerman (2000) suggests that one of the most popular organisational structures is as shown in Figure 3.1.
The organisational structure illustrated in Figure 3.1 shows that the chief financial officer is responsible for both internal and external accounting systems and reports directly to the president. Controllership, treasury, and internal audit are the main responsibilities of the chief financial officer. The controller in this company chart is the chief management accountant who is responsible for tax administration, the internal and external accounting systems, and planning and control systems. The controller is also responsible for collecting and reporting data for the different departments in the company to assist them in decision-making and performance evaluation (Zimmerman, 2000).
3.3 The development of management accounting

Scapens (1991) suggests management accounting started when owners started receiving accounting information related to their businesses, which, according to Al-Khater (1999), can be traced to the sixteenth century. Although it was not called management accounting at that time, it was the start of this discipline. Scapens (1991, p. 9) stated that the current conventional wisdom of management accounting was established from research conducted during the 1950s and 1960s and most of the techniques that were developed during this period were on an *ad hoc* basis: “there was no explicit statement of the underlying theory of management accounting ... to guide this research”. He divided development of the management accounting concept into two stages:

**The first** before the Second World War when the main use of accounting information was directed to determining and controlling the costs of direct labour, direct materials, and overheads.

**The second** was after the Second World War, when the current terminology (i.e. management accounting) began to be used instead of cost accounting. This was clearly manifested when “The Institute of Cost and Works Accountants changed the name of its journal from *Cost Accounting* to *Management Accounting* in 1965 and its own name to the Institute of Cost and Management Accounting in 1972. In the United States, the National Association of Cost Accountants changed its name to the National Association of Accountants in 1958” (Scapens, 1991, p. 9). During this period of time, the management accounting literature has expanded rapidly and widely, focusing on different topics of management accounting.
During the 1980s, researchers started to criticise management accounting practices. One of the most popular criticisms of traditional management accounting practices was that of Johnson and Kaplan (1987) when they published their book *Relevance Lost: The Rise and Fall of Management Accounting*.

A comprehensive summary of the main criticisms of current management accounting practices was provided by Drury (1996, p. 2), who commented:

1. “Conventional management accounting does not meet the needs of today’s manufacturing and competitive environment”;
2. “Traditional product costing systems provide misleading information for decision-making purposes”;
3. “Management accounting practices follow, and have become subservient to, financial accounting requirements”;
4. “Management accounting focuses almost entirely on internal activities and relatively little attention is given to the external environment in which the business operates”.

According to Garrison and Noreen (2000, p. 9), “Managerial accounting has its roots in the industrial revolution of the 19th century”. They indicate that the majority of companies existing at that period of time were managed and owned by groups of people, there were no external shareholders, therefore, the need for financial reporting was poor, while the need for management accounting information was high and more sophisticated techniques were used for this. In the 20th century, increasing attention was paid to financial reporting and regulations to fulfil the requirements of many parties, such as capital markets, creditors, regulation bodies, professional bodies, and other governmental parties. Management accounting for many decades existed to
support and ensure that financial accounting requirements were fulfilled and delivered on time to their users.

Kaplan and Atkinson (1998, pp. 2-3) also claim that "The origins of modern management accounting can be traced to the emergence of managed, hierarchical enterprises in the early nineteenth century, such as armories and textile mills". In their view, the development and fast growth of the railroads was one of the main reasons for management accounting's development in the mid-nineteenth century. Moreover, during the same period the emergence of complex metal-machining companies created a new challenging environment for management accounting systems. Also, managers of companies, such as textile mills, railroads, steel mills, and retail distributors were interested in measuring and assessing the efficiency of internal operating processes and less concerned with measuring the costs of different products or the periodic profit of the organisation.

Kaplan and Atkinson (1998) further assert that managers of the DuPont Power Company in 1903 innovated new management accounting techniques, and the most important was the return-on-investment (ROI). The use of ROI was extended in the 1920s. During the period 1825 to 1925 there was an emergence and growth of both large successful industrial organisations and a host of management accounting techniques which suggests these two phenomena were directly related (see Garrison and Noreen, 2000; Zimmerman, 2000).

Moreover, large enterprises such as DuPont, General Moters, and United States Steel would not have survived without the use of extensive management accounting techniques (Kaplan and Atkinson, 1998, p. 7).
However, during the period 1925 – 1985, there was less and slower development in management accounting than in the period before. One reason was “the demand for product cost information for financial accounting reports” (Kaplan and Atkinson, 1998, p. 7), but there was no particular reason behind the impact of financial accounting’s development upon management accounting systems’ development (see Kaplan and Atkinson, 1998; Zimmerman, 2000).

According to Zimmerman (2000, p. 15), since 1975, there have been two main factors that have influenced and changed organisations, and management accounting: “(1) factory automation and computer/information technology and (2) global competition”.

Kaplan and Atkinson (1998) argue that during the 1980s, new manufacturing technologies emerged, which created new challenges for management accounting since many companies found the traditional cost accounting techniques they were using were inhibiting the development of new manufacturing techniques.

Nowadays, in contrast, management accounting techniques are able to cope with the new environment of competition and technology and support and improve manufacturing processes, quality, and productivity. Just-in-time, computer integrated-manufacturing production systems, reengineering, and total quality management are examples of these techniques (see Bromwich and Bhimani, 1989; Kaplan and Atkinson, 1998; Zimmerman, 2000; Horngren et al., 2002).

Bromwich and Bhimani (1989) described the evolution of management accounting and how it was influenced and developed by the surrounding environment (i.e. advanced manufacturing technology and competition), indicates that companies did not easily change their accounting systems.
During and after the 1990s, management accounting change and practices have become popular research issues. Various studies (e.g. Drury et al., 1993) recently in the UK have investigated management accounting practices. Some of them cover a wide span of accounting activities, while the majority focus on studying the development of specific management accounting techniques, such as ABC. Certain studies rely on questionnaires, others utilise interviews. The following section will review some previous related studies on management accounting practices.

3.4 Management accounting practice

"...never mind the gap, study management accounting practice" (Scapens, 1994, p. 303).

On the one hand, the literature on management accounting research includes many studies highlighting differences between theory and practice and emphasising the so-called 'gap' between theory and practice. On the other hand, researchers in management accounting are advised to concentrate their efforts on studying management accounting practices rather than comparing the practice with the theory (see Abernethy et al., 2001).

The following two sections review the literature on management accounting practices in developed and developing countries.

3.4.1 Management accounting practice in developed countries

As has been mentioned earlier, the number of empirical studies that discuss and investigate management accounting practices in general is small, even in developed
countries such as the UK. Further, the majority of management accounting studies focus on specific techniques and issues such as activity-based costing (ABC).

In their study, using a comprehensive questionnaire, Coates et al. (1983, p. 280) conducted personal interviews with interviewees representing 14 manufacturing companies. They found a substantial gap between theory and practice. They observed little formal analysis of cost behaviour; most interviewees' companies used absorption based costing systems and marginal cost analysis on a limited basis. All the popular capital expenditure appraisal methods were used. The companies interviewed used very traditional performance reports and usually used monthly comparisons between the budgeted and actual numbers and results. The most common transfer pricing method was using a negotiated price. Finally, they described the observed management accounting practices as traditional management accounting practices. They also suggested that more studies on management accounting practices should be conducted.

Puxty and Lyall (1989) used a questionnaire survey and conducted telephone interviews to investigate standard costing and budgeting practices within a sample of UK industrial companies. They received 453 completed questionnaires, a response rate of 23%. They also conducted 15 telephone interviews. The majority of respondent companies were using both standard costing and budgeting systems. The results also indicated that larger companies were employing these techniques more than smaller ones.

In the UK, Drury et al. (1993) surveyed management accounting practices within a sample of UK manufacturing companies, including budgetary control, product costing, pricing, standard costing, transfer pricing, advanced manufacturing
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techniques, capital investment appraisal, and performance measurement. The study also investigated the impact of some factors, such as the size and nature of activity, on companies' practices. The researchers used postal questionnaires to collect study data. Questionnaires were sent to 1,269 individuals (representing 736 companies) and 303 responses (representing 260 companies) were received with a 24% response rate. They found many of the different techniques mentioned within theory were being used in practice. However, a considerable gap between theory and practice still existed for some techniques, such as ABC and JIT. The study results suggested company size influenced management accounting practices within the companies sampled. However, the study did not provide sufficient information to conclusively prove that competition level and the number of products that companies produced had a significant influence on their management accounting practices.

Drury et al. reported that the most common method for pricing decisions was the cost-plus technique, which was being applied selectively. Companies were using simplistic methods to allocate overhead costs, such as plant-wide rates and labour based methods for automated divisions. The direct labour-based method was most widely used to allocate overheads. Conversely, activity based costing (ABC) was not implemented extensively but it had started to be considered by the surveyed companies. For budgetary control practices, the study indicated that companies did not always separate controllable costs from non-controllable ones. Small companies in particular did not distinguish fixed costs from variable ones. Moreover, both standard costing and non-financial performance measures were used widely. Notably, non-accountants often produced these practices.
Drury et al. (1993) further reported that some techniques, such as just-in-time (JIT) and advance manufacturing techniques (AMTs), were not widely implemented. Further, target profit and return on investment (ROI) were more common than residual income (RI) to measure the performance of divisionalised organisations. For capital investment practices, the most popular technique was the payback method. In addition, the most popular transfer pricing method was a negotiated price, although it was indicated that market price and full cost-plus methods were widely used. The researchers recommended further research to investigate how management accounting information is used and why particular techniques are, or are not, implemented.

In their study, Shim and Larkin (1994) reported that more than half (51%) of responding US manufacturing companies were using the job-order costing method, 14.2% were using the process costing method, 10.6% were using operation or hybrid costing methods, and the rest were using the standard costing method. Moreover, 47% of total manufacturing costs were classified as direct materials, 38% as overhead costs, and only 15% as direct labour. The study also indicated that 44% of respondents were using the multiple allocation approach to allocate overhead costs, 34% were using the single allocation approach, and 22% were using activity-based costing to allocate their overheads.

Cropper and Drury (1996), in a study of several universities, found that direct-cost plus a fixed percentage of overheads was the most common costing method used among respondent institutions. The majority were using budget system, and the most widespread budgeting methods being employed were incremental budgeting and previous year plus inflation. They also reported that 73% of the study's population were measuring the performance of managers by assessing to what extent they were
achieving their budgets. Non-financial measures were also used among respondents. Moreover, the same study showed that 41% of respondent institutions were using net present value as a capital investment appraisal technique, 29% were using the payback technique, 23% were using internal rate of return, and only 11% were using return on capital employed. Such a study, conducted by a management accounting practitioner (Paul Cropper) and a professor in accounting (Colin Drury), assists the development of management accounting practices and promotes their relevance and usefulness.

Drury and Dugdale (1996) carried out a survey of the management accounting practices of UK manufacturing firms. Data were gathered from both interviews and questionnaires. The researchers conducted 20 interviews during the period 1988-1990, and had received over 300 replies to questionnaires by 1992. The main objective of their study was to examine the gap between the theory and practice of management accounting in UK companies. In addition, they reviewed some of the published empirical studies of management accounting practice. Practices included costing systems, standard costing and variance analysis, budgeting, pricing, investment appraisal, divisional performance measurement, transfer pricing, and the application of quantitative techniques. Their main conclusion was that “the conventional wisdom of management accounting as portrayed in textbooks is frequently not applied in practice” (p. 389). They suggested that academics and practitioners of accounting should cooperate and work together to achieve a better understanding of management accounting practices. They also agreed with Scapens (1991) that the “theory fails to address the reality faced by practitioners” and contended that “future generations of textbooks should be based on the construction of theory through the observation of practice and the abstraction of assumed principles from such observations” (p. 389).
In their empirical study, Bruggeman et al. (1996) examined management accounting practices, such as ABC, ABM, Discounted Cash Flow (DCF), and Performance Measurement Systems within Belgian companies. They found traditional DCF techniques were still in use although companies had started to change their costing systems towards ABC. Moreover, volume-based measures were the most popular performance measurement techniques used within Belgian firms. The authors also confirmed the impact of US and UK accounting literature on Belgian management accounting.

Israelsen et al. (1996) reported the main results of two Danish studies they had conducted in 1994. One had studied product costing practices and the other had examined the diffusion of new cost management techniques within Danish manufacturing organisations. They found market-oriented pricing policy was the most common pricing technique used. Non-financial performance measures were also popular among Danish firms. The target costing technique was most popular within Danish companies. In contrast, ABC, benchmarking and strategic cost analysis were rarely used, and ABC was more common within foreign subsidiaries.

A questionnaire study devised by Bjørnenak (1997a) surveyed to what extent Norwegian manufacturing companies applied the ABC system. The study classified 40% of respondent companies as adopters of ABC, 31% as non-adopters, and 29% did not know this technique concept.

Subsequently, Chenhall and Langfield-Smith (1998a) investigated the adoption and benefits of certain management accounting practices within 78 manufacturing companies selected from the largest Australian companies. The survey evidence suggested traditional management accounting practices were more commonly used
and more beneficial than recently developed techniques. However, it was also apparent that new management accounting techniques were more commonly used than before and than those identified in surveys from other countries. However, they cautioned it was premature to infer traditional management accounting practices lack relevance. These scholars also pointed out that further research is needed in this field to clarify the factors impacting on the implementation of new management accounting practices in different countries.

Bukh et al. (1998) reported that activity-based costing was not popular among Danish financial services firms. Moreover, according to these firms, ABC principles did not provide them with any newer ideas than their existing accounting systems.

Likewise, Coad's (1999) survey evidence pointed to a wide gap between theory and practice. Only 23.7% of respondents stated they had started and/or adopted one or more of the new management accounting techniques. For instance, the study showed that the most popular management accounting technique used by almost three-quarters of respondents was Qualitative Performance Measures, only 26.3% reported they did not use this technique. In stark contrast, Life-Cycle Costing was uncommon among respondents, since 77.4% reported this technique was not in use.

Clarke et al. (1999) studied the state of management accounting practices in Ireland. The necessary data was collected from a questionnaire survey mailed to 511 Irish manufacturing companies. The researchers received 204 useable responses, a 40% response rate. They found ABC systems were not as widely used within Irish companies as within companies in the US, the UK, and Canada because “the practice of management accounting in Ireland is marginalized”. In other words, Irish management accountants work as record-keepers rather than innovators and decision-
facilitators possibly due to supply and demand barriers. For instance, On the one hand, universities do not supply business companies with creative and problem-solving graduates (i.e. accountants and managers), and on the other hand, companies and professional bodies do not demand changes in the education of accountants and managers. Also, the results indicate that ABC was not well understood by Irish management accountants. Study data evidenced that only 12% of respondent companies had implemented the ABC system, 20% were appraising it, 13% had rejected it after studying it, and 55% had not considered adopting it.

Fahy and O'Brien (2000) reported that more than 50% of manufacturing companies in Ireland had adopted ABC systems, but adoption of advanced ABM systems was low. They also recommended that Irish companies start to use strategic cost management techniques, such as Life-Cycle Costing, Activity-Based Budgeting, and Value Chain Analysis.

In contrast, Innes et al. (2000) reported survey evidence that the adoption of ABC system had not grown since their last survey in 1994, in fact, the adoption of ABC had decreased from 21.0% in 1994 to 17.5% in 1999. Moreover, the percentage of companies that had not considered using ABC had increased from 36.1% in 1994 to 46.9% in 1999. The researchers thought these unexpected results were possibly due to (1) different respondents in the surveys; and (2) internal changes in the structure or personnel of respondent companies between the two surveys (1994-1999). The authors concluded from their comparative survey study that ABC systems had not attracted more users and had not become more widespread within the study's population.
More recently, Lamminmaki and Drury (2001) presented results of a questionnaire survey that investigated and compared product-costing practices in New Zealand (NZ) and the United Kingdom (UK). The survey found strong similarities between the two countries in terms of product-costing practices, especially when the companies were matched by size. They used the same survey mechanism and matched the companies' size in both countries to overcome some weaknesses of previous studies. In their view, the size of companies under study had a major impact on the cross-country comparison of management accounting practices. Therefore, the authors concluded that results derived from cross-country comparisons of product-costing practices which fail to control organisational size, are highly misleading since many cross-country differences will disappear when companies' samples are matched by size.

Moreover, Lamminmaki and Drury (2001) pointed out that although there were many similarities between the two countries, there were some significant differences between them as follows;

1. variable costing was used more in the UK for decision-making than in the NZ.
2. allocation of non-manufacturing costs was ranked as 'very low in importance' among NZ manufacturers.
3. employing separate overhead absorption rates was uncommon among NZ manufacturers.
4. NZ companies were more advanced in terms of ABC than UK companies.

Total costs and single plant-wide rate were widely used within NZ companies for both decision-making and overhead recovery. Direct labour basis was used widely within NZ companies. Moreover, despite the large similarity between the two countries, it was apparent that product-costing practices were more sophisticated in UK firms than
in NZ firms. The findings in Lamminmaki and Drury's study support the existing evidence of a gap between management accounting practice and theory. The researchers concluded that instead of seeking to answer the question: “What practices are employed?” future research in management accounting practices would be more fruitful and beneficial if it sought to answer the question: “Why are these practices used instead of more advanced practices such as ABC?”

Szychta (2002) studied management accounting practices/methods in 60 Polish companies and to identify factors influencing the use of these techniques. The researcher utilised a questionnaire survey, personal interviews and documentary evidence to collect the study data. Questionnaires were sent to 290 companies. However, only 60 usable questionnaires were returned a response rate of 20.7%. He found 54 respondent companies (90%) were applying the traditional full costing system, 5 (8.3%) companies were using standard costing, and one was applying standard costing based on variable and fixed cost. Most respondent companies were applying the job costing system for ordinary activity and the process costing system for support activity. The most popular overheads allocation basis within Polish companies was direct labour and it related costs. Regarding pricing decisions, just under three-quarters of respondents (70%) were using the costs-plus method for their prices. While 15% were using variable costs and the gross margin rates formula. The low usage of the latter was due to the lack of reliable information on variable costs.

The reviewed studies have investigated management accounting practices in developed countries. The review indicates that little attention has been given to the variation in use of management accounting practices between companies and countries. Further, empirically, little attention has been given to factors influencing
management accounting practices nor explanation given of their variation. Further, traditional management accounting techniques are still the most popular techniques in use.

### 3.4.2 Management accounting practice in developing countries

"There is a lack of knowledge concerning the current state of management accounting practices in developing countries..." (Joshi, 2001, p. 86). However, the last decade has witnessed a growth in research investigating management accounting practices in such countries. The following reviews some of these studies.

Chiu (1973) examined the extent of Taiwanese companies' use of management accounting techniques and reasons for not using certain techniques. Also, he examined the relationship between the following contingent variables: company size, length of service of its management accountant, and his educational level, and the extent of management accounting techniques' application. The study focused on the following management accounting techniques: cost-volume-profit analysis, contribution reporting, standard costing, capital budgeting, operating budgets, responsibility accounting, linear programming, network analysis, and the inventory model. Chiu used both personal interviews and questionnaires to collect the required data and information. The questionnaire was sent to 120 companies, and a response rate of 49% was achieved. In addition, supplemental personal interviews were conducted with chief management accountants in eighteen Taiwanese companies. The results revealed traditional management accounting techniques, such as operating budgets, were widely used among the surveyed companies. New techniques, such as linear programming, were not popular. The majority of respondents indicated that
lack of adequate knowledge about management accounting techniques was the most common reason for not using these techniques. Management support was one of the main factors influencing management accounting practices within the Taiwanese companies. Although the study was conducted more than 30 years ago, it is still considered relevant since it identified factors that are applicable to management accounting practices in many other countries today. The results of this study are therefore useful but should be treated with caution since they need to be updated with new empirical studies.

Scapens and Yan (1993) found the dual-pricing system was used in China to control pricing decisions among state companies. The state pricing authority priced and controlled the main goods and materials in the country, while minor and simple products were priced by companies themselves. Responsibility accounting was the most widespread topic in China. Chinese companies were also using financial and non-financial measurements for performance evaluation of targets.

Hoque and Hopper (1994) studied management control systems in a large nationalised jute mill in Bangladesh. The ‘Data triangulation’ method (i.e. use of different data collection methods) was utilised to collect the necessary empirical information from the study site, including semi-structured interviews and postal questionnaires. The authors reported that accounting systems and practices were mainly for external purposes and legitimacy, for example, tax purposes. They also found budgeting techniques were not the dominant mode of control and were used only to comply with the head office and state requirements. Moreover, mill managers relied on social and/or personal controls to cope with uncertainty rather than use the official systems. The study thus reinforced “the conclusions of other research claiming that the wider
social, economic, political and institutional contexts govern the ways management control operates in the organization” (p. 5).

Alebaishi (1998) investigated management accounting practices within a sample of Saudi Arabian manufacturing companies. He also examined the influence of some explanatory variables on management accounting practices within these companies, using a questionnaire and interview techniques to collect the empirical data for the study. One hundred and twenty-three companies responded, a response rate of 28.6%. The study revealed that Saudi manufacturing companies tended to use traditional management accounting techniques rather than developed recently ones. In general, the use of management accounting techniques within Saudi manufacturing companies was less than their counterparts in developed countries. Regression analysis revealed a significant positive relationship between company size and the export level and extent of using management accounting techniques.

Al-Khater (1999) conducted an empirical study in Gulf Cooperation Council Countries to investigate the management accounting practices of a sample of petrochemical companies in these countries. A questionnaire, unstructured interviews, and two case studies were used to collect the study data. The study relied mainly on the case studies as the primary research method. Twenty-four completed questionnaires were used in the analysis (a response rate of 92%). The study was considered an exploratory study. The majority (83%) of respondents applied the process costing system while 22% used the job order costing system. Some respondents used both costing systems. The study indicated that the most popular method for allocating overheads was the cost centre method, 83% of respondents used it, while 17% used blanket rates to allocate overheads. The most popular pricing
method used by respondents was based on market forces. The majority (96%) of the respondents prepared and used budgeting system.

Luther and Longden (2001) studied management accounting techniques and factors influencing the usage of these techniques within Southern African and UK companies. Questionnaires and interviews were used to collect the study data. Response rates were 11.3% and 13.3% from South African and UK companies, respectively. The study showed that the benefits derived from management accounting techniques within companies in South Africa differed from the ones within UK companies. Further, there was a significant increase, over time, in the benefits obtained from most management accounting techniques in both countries, specifically in South Africa. The factors that influenced management accounting practices also differed in the two countries. The authors concluded that management accounting practices around the world are not alike.

Joshi (2001) investigated management accounting practices in a sample of 60 large and medium size Indian manufacturing companies. The required data was collected using a questionnaire, and a usable response rate of 24.4% was achieved. The study was mainly conducted to examine the extent of using certain traditional and recently developed management accounting practices and the benefits received. The study examined 45 management accounting practices/techniques. The results were compared with a similar study conducted in Australia. One of the main findings was that traditional management accounting practices were more popular than recently developed ones within the Indian companies. The adoption of new management accounting techniques was rather slow. Traditional budgeting and performance evaluation techniques were the most popular techniques. Also, the future emphasis
was on traditional practices rather than on new ones because of the higher benefits derived from traditional techniques. One of the main factors influencing the adoption of new management accounting practices was company size.

Longden et al. (2001) investigated the changing role of management accountants in two developing countries, South Africa and Zimbabwe, and benchmarked results against UK ones. The study also investigated the influence of economic and socio-political changes upon management accounting practices within these countries. The researchers used both questionnaire and interviews (semi-structured) to collect the necessary data. Questionnaires were sent to 92 companies in Zimbabwe, 1230 companies in South Africa, and 581 companies in the UK. The response rate was 22.8%, 11.3%, and 13.3%, respectively. The study found the majority of interviewed companies in the three countries were using the standard techniques of budgetary control and variance analysis, a combination of financial and non-financial performance measures, and monthly reporting. UK findings indicated that budgeting and performance evaluation techniques were perceived to be more beneficial than strategic and costing ones. Respondents from the three countries, especially South Africa and Zimbabwe, reported there was a significant increase, over time, in the benefits obtained from most management accounting techniques. Costing techniques were ranked as least important by Zimbabwean respondents. Thus, there were differences among the three countries regarding the perceived benefits of management accounting practices.

The above review shows little effort has been made to empirically investigate the factors influencing management accounting practices. Traditional management accounting techniques are more commonly used than newly developed techniques.
Further, the review of the previous literature indicates that management accounting techniques and practices in developing countries lag behind those in developed countries.

### 3.5 Summary

This chapter has discussed briefly the important role of management accounting information. It has also reviewed the historical development of management accounting. This chapter has primarily reviewed previous studies that have attempted to investigate management accounting practices in both developed and developing countries.

The review and discussion showed that few empirical studies have been conducted on management accounting practices in general, and those that have been undertaken have limited their scope to discussing and investigating specific aspects, such as budgeting and control systems or a specific technique, such as ABC.

It is also important to note that the majority of previous studies have been conducted in developed rather than developing countries. Most of these studies have used a questionnaire and interviews for data collection purposes. Different tests can be used to analyse data statistically, but most previous empirical studies have used only the bivariate analysis. The results of the previously reviewed studies suggest that basic (traditional) management accounting practices and techniques are still in use, and the adoption of recently developed management accounting practices lags behind the prominence accorded to these techniques.
The review of the historical development of management accounting suggests it has been developed to meet new requirements and challenges facing their users (management and others). The reasons for these new requirements and challenges vary. According to Kaplan and Atkinson (1998) and Zimmerman (2000), factors triggering them include: industry type, company size, products diversity, and competition. These factors have been acknowledged by many researchers (see Gordon and Miller, 1976; Hayes, 1977; Waterhouse and Tiessen, 1978; Otley, 1980; Jones, 1985; Nicolaou, 2000; Gerdin and Greve, 2004) under Contingency Theory, which will be discussed in the next chapter.
Chapter Four
Management Accounting and Contingency Theory
4 Management Accounting and Contingency Theory

4.1 Introduction

The preceding chapter reviewed the empirical studies of management accounting practice. In addition, the chapter presented a brief historical development of management accounting practices and identified some factors and forces that influence management accounting practices in companies. A contingency theory approach has been adopted by many researchers over the last three decades to investigate the influence of contingent factors upon management accounting practices. The majority of previous studies suggest that accounting practices are influenced by internal and external factors and forces, and there is no one universal accounting system suitable for all companies all the time (see Walker, 1996; Haldma and Lääts, 2002). However, those which have investigated the influence of contingency factors upon management accounting practices in developing countries are limited (see Haldma and Lääts, 2002).

This chapter first discusses the concept of contingency theory and then contingent factors found to influence the design and usage of management accounting practices in previous related studies. Those chosen for use in this study are highlighted and research hypotheses subsequently formulated.

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4.2 The concept of contingency theory

The concept of contingency theory was first developed in organisation theory in the early to mid-1960s. However, the theory was only recognised by the accounting literature in the mid-1970s. "Contingency theory suggests that efficient organization structures and processes are contingent on an organization's context" (Waterhouse and Tiessen, 1978, p. 68). It assumes that organisational performance is dependent on the degree to which the structure of the organisation matches the prevailing contingencies (Ezzamel and Hart, 1987; Mullins, 1994). Contingency theorists have argued that there is no universal solution which exists to resolve all organisational problems, and that effective problem solving depends on the character of the company and its surrounding environmental circumstances (Chenhall et al., 1981).

Mintzberg (1979) classified the contingency factors that influence an organisation’s structure into four groups: the age and size of the organisation; the technical system it uses; the surrounding environment; and its power relationships. According to Chenhall et al. (1981), the environment and some internal contingencies, such as technology, size and structure, appear to have substantial influence upon internal organisational processes and decision-making.

Otley (1980) states that many of the contingent factors that influence the organisational design are most likely to be important and influence management accounting practices. Moreover, changes in the accounting system rarely occur in a vacuum. Successful managers and companies will be those who adapt quickly to changing markets and technologies. It is very important before implementing accounting and organisational changes to understand what is driving these changes. "An accounting system should not be adopted merely because other firms are doing
so; they may be reacting to a different set of external shocks” (Zimmerman, 2000, p. 658).

“The impetus for the development of contingency theories of management accounting has come primarily from similar developments in organisation theory” (Otley, 1983, p. 142). That is, the type of organisational structure is influenced by its environment, size, the technology, strategic mission, etc. Since 1975, many management accounting researchers have used the contingency approach in their studies (for example, Gordon and Miller, 1976; Waterhouse and Tiessen, 1978; Otley, 1983; Gerdin and Greve, 2004).

Because contingency theory research in accounting indicates that factors such as the environment, technology, and organisational size and structure influence the choice of accounting and information systems there can therefore be no universally appropriate accounting system that applies equally to all organisations in all circumstances (see Hayes, 1977; Waterhouse and Tiessen, 1978; Otley, 1980; Jones, 1985; Clarke et al., 1999; Reid and Smith, 2000; Haldma and Lääts, 2002; Gerdin and Greve, 2004). Nevertheless, there are contingencies or circumstances which effect and force management accounting systems to be in a particular form. Otley (1980) suggests that “particular features of an appropriate accounting system will depend upon the specific circumstances in which an organisation finds itself.” (p. 413). Haldma and Lääts (2002) also pointed to the importance and influence of companies’ circumstances. They commented, “How effective the design of an accounting system is depends on its ability to adapt to changes in external circumstances and internal factors” (p. 383).

Organisations must continually evaluate and improve their management accounting systems to face the challenges of a changing environment and a changing
organisation. Management accountants must accommodate such changes by evaluating and improving their management accounting systems to measure and evaluate their company’s operational performance.

But what are these contingent factors that influence organisational change and how do they impact on management accounting practices? This question is still under investigation within recent management accounting research, and more empirical studies are needed to confirm and clarify the influence of such contingent variables on management accounting practices. Thus, this study will attempt to answer this question through an examination of selected contingent factors and management accounting practices.

However, as Chenhall et al. (1981, p. 9) point out “A fundamental difficulty which is associated with contingency approaches to management accounting is the lack of consistent classification of variables that describe the contextual setting (the independent variables) and the purpose of the accounting system (the dependent variable)”.

Many studies have been conducted to illustrate and clarify the contingent variables that influence management accounting practices. According to Chenhall et al. (1981, p. 9), these studies can be classified into two groups (1) “those that use constructs that aggregate factors into broad dimensions, such as the ‘stable-dynamic’ and the ‘homogeneous-heterogeneous’ nature of the environment” (see, for example, Hayes, 1977); and (2) “those that identify particular elements of context such as organization size, structure and technology among others; and specific external environmental characteristics, like uncertainty, hostility, diversity, and dependence between organizations” (see, for example, Bruns and Waterhouse, 1975).
This study is considered to belong to the second group of studies since it will concentrate on identifying particular contingent factors that influence management accounting practices in Jordan. Therefore, the following sections will illustrate and discuss the particular contingent factors that the current study will examine.

### 4.3 The contingent factors

It is apparent from the review in chapter three and section 4.2 of this chapter that there is no universally appropriate management accounting system/practice that can be applied to all companies in all circumstances. Rather, many contingent factors influence the design and usage of management accounting practices whose effectiveness will depend on a company's ability to adapt to changes in the internal and external environment.

The literature has mentioned many contingent factors that influence organisations and their information systems. This study investigates some of the most popular ones that have been discussed and examined in previous related studies and their selection for examination in this study will be discussed in detail in chapter five.

Figure 4.1 presents a framework of contingent factors and their suggested influence on management accounting practices. The Figure shows a management accounting system is not isolated from the surrounding environment but is an integrated part of the whole system. The contingent factors are divided into two categories: internal and external factors. The centre (the small circle) represents the accounting information system in companies. The first surrounding circle represents the internal environment (i.e. the company's characteristics). The second surrounding circle represents national
external factors (i.e. domestic competition and industry type). The outer circle represents international factors (i.e. international competition). The small black dots represent contingent factors. However, the factors in this framework cannot be considered exhaustive because of the scope and limitations of this study. The following sections discuss the contingent factors that have been chosen for investigation in this study.

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6 For details see chapter 10.
4.3.1 Internal contingent factors

4.3.1.1 Size of the company

Mintzberg (1979) stated that the size of a company has apparent implications for the design of its structure. The need for a formal structure within small companies is
relatively small, whereas in larger companies there will be more responsibilities, work, and divisions, which will require more formalised relationships, structure, management and control. Mintzberg hypothesized that the larger the company, 1) the larger its average unit, 2) the more formalised its behaviour, and 3) the more elaborate its structure. In other words, the more specialised its tasks, the more differentiated its units, and the more developed its administrative component.

It has been shown that large companies need more control and evaluation of their functions and performance. This is due to the size of their activities, great quantities of information, decentralisation of departments, and great quantities of documentation. In addition, the larger the organisation, the more resources will be available for investing in new accounting innovations (see Chenhall and Langfield-Smith, 1998a). “In economic terms, larger firms may have additional resources to modify, upgrade or replace existing systems” (Williams and Seaman, 2001, p. 445).

According to Zimmerman (2000), within small companies, the owner acts as manager and decision-maker, and observes and controls the company’s operations and activities directly, therefore, there is little concern about planning, control, motivation, and performance evaluation. Thus, the larger the company, the more important management accounting will be.

Large companies require and need a formal management information system far more than small ones and this will include the accounting system in general and management accounting system in particular (Upchurch, 1998).

In an early study, Chiu (1973) examined the relationship between the size of Taiwanese manufacturing companies and the extent of use of management accounting techniques. Chi-square tests were used to examine this relationship. A positive
relationship was found between company size and use of techniques. The larger the company's size, the greater the use of management accounting techniques. However, Chiu reported that this relationship was not statistically significant.

Puxty and Lyall (1989) reported the results of a questionnaire survey of 453 British industrial companies. They found a positive relationship between the size of respondent companies and their usage of standard costing and budgeting systems. Firth (1996) found a significant positive relationship between the size of joint ventures and the adoption of management practices and skills (e.g., management accounting practices) within Chinese partners. A positive relationship was also found in Finland. Laitinen (2001) indicated that management accounting systems have a more effective and active role in larger companies than in smaller ones. Thus, size appears to stimulate 'change-oriented' and discontented resourceless companies to become more enthusiastic in developing and changing their management accounting systems than stable, conservative, and performance-contented companies.

Haldma and Lääts (2002, p. 395) further commented, "It is apparent that the level of sophistication of a cost accounting system tends to increase in line with company size". They added that 90% of larger Estonian manufacturing companies used cost centre accounting, while only 59% of smaller companies used it. They also reported that 92% of smaller companies preferred to prepare and use budgets for the company as a whole, 47% used budgets for internal business units, and 51% used more detailed cost budgets. Larger companies used more sophisticated budgeting techniques. All of them used budgets for internal business units, and 90% used more detailed cost budgets. Larger companies also used more sophisticated performance measurement systems than smaller companies.
Moreover, many empirical studies indicate a positive relationship between company size and management accounting system's sophistication. In particular, studies of ABC adoption have shown that adoption is much higher in larger organisations. Clarke et al. (1999) found a strong relation between the size of Irish companies and their adoption of new management accounting systems. Eighteen per cent of larger respondent companies (more than £50 million in annual sales) were using ABC compared to only 4% of smaller Irish companies (less than £10 million in annual sales). Malmi (1999) also reported that ABC systems were more popular among larger Finnish companies than smaller ones. Innes et al. (2000) identified a statistically positive relationship between the size of UK respondent companies and the adoption of activity-based costing techniques. Just under a third (32.8%) of larger companies had adopted ABC compared to only 11.4% of smaller companies (see also Innes and Mitchell, 1995; Clarke et al., 1999).

Bjørnenak (1997a) reported the results of a questionnaire survey study of 75 of the largest Norwegian manufacturing companies. The study investigated the relationship between ABC adoption and company size. On the one hand, companies with ABC knowledge were significantly larger than others, while on the other hand, among companies with ABC knowledge, company size did not significantly discriminate between ABC adopters and non-adopters.

Laitinen (2001) investigated management accounting change in small Finnish technology companies and the factors that might influence this change. The necessary data was collected by a postal questionnaire survey. Only 93 replies out of 859 questionnaires were received, giving only a 10.8% response rate. For statistical analysis, both Pearson correlation coefficients and regression analysis were used to
examine the proposed (hypothesised) relationships. Regarding size of company, there was no statistically significant correlation with management accounting change. The only statistically significant correlation was between company size (logarithmic net sales) and control systems change at the 5% level of significance (using Pearson correlation coefficients).

The literature also mentions many proxies for measuring company size. According to Mullins (1994, p. 340), “size is not a simple variable” and the most common proxy to measure the size variable is the number of employees in the company. Ahmed and Courtis (1999) contend that corporate size can be measured by number of employees. Likewise, Bjørnenak (1997a) suggests that number of employees to measure a company’s size is one way to discriminate between firms’ sizes. Another popular proxy for measuring company size is a company’s sales (turnover). Both proxies will be used in this study.

Although company size is one of the main contingent factors that previous studies have examined and identified, the previous review and discussion indicate there is no consensus on the effect this variable has upon management accounting practices. However, the majority of studies report a positive relationship between company size and management accounting practices. Thus, this study adopts the positive direction to formulate the following two hypotheses:

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7 Hayes (1977), Mintzberg (1979), Bjørnenak (1997a), Nicolaou (2000), Bouwens and Abernethy (2000), and Baines and Langfield-Smith (2003) have all used number of employees to measure companies’ size.
Hypothesis no. 1:

There is a positive association between number of employees and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 2:

There is a positive association between total annual sales and the extent (number) of management accounting techniques used within Jordanian industrial companies.

4.3.1.2 Age of the company

Very few studies and researchers have examined the influence of company age, as an explanatory variable, on management accounting practices. Ezzamel (1987, p. 32) states “The literature on age ... remains probably the least developed research within the contingency framework.” Dent and Ezzamel (1987, p. 96) similarly indicate that the implications of company age have been largely neglected within the literature on the contingency theory of management accounting.

Mintzberg (1979, pp. 227-229) hypothesised that the older the company, the more formalised its behaviour, which suggests that the organisation’s structure is influenced by its date of founding. He claims “As organizations age, all other things being equal, they repeat their work, with the result that it becomes more predictable, and so more easily formalized.” Moreover, organisations’ structure reflects the age of the industry’s founding which, in turn, infers that an organisation’s structure is also influenced by the date of the founding of the industry in which it happens to operate, regardless of its own particular age (see also Ezzamel, 1987).
Age is one of the factors mentioned in Firth's (1996) study. He reported that "The longer the joint venture has been in operation the more time the Chinese partner has had to consider adoption of, and implement, the JV's accounting methods" (p. 641). He expected such a relationship to be a positive one. Regression analysis results showed the age of the joint venture had no significant relationship with the adoption of the joint venture's management accounting practices. He therefore concluded, “Perhaps the three year minimum age was sufficient for management accounting knowledge to be transferred and any longer period (up to eight years) did not yield any extra dissemination” (p. 650).

The age of the company is one of the factors rarely mentioned in the literature. However, unstructured interviews\(^8\) with Jordanian companies suggested that a possible relationship might exist between the age of companies and their management accounting practices. Thus, the following hypothesis is proposed:

**Hypothesis no. 3:**

*There is an association between age of the company and the extent (number) of management accounting techniques used within Jordanian industrial companies.*

### 4.3.1.3 Product diversity

It has been argued in the literature that product diversity increases the overhead costs. This increase creates a demand for better information to more effectively allocate these costs, as an incorrect allocation of overheads may threaten a company’s

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\(^8\) For more details see chapter five.
survival, especially in a very highly competitive market (see Abernethy et al., 2001). Product diversity is also argued to be the main factor for product cost distortions in conventional costing systems that use simplistic product costing systems (see Bjørnénak, 1997a; Drury and Tayles, 1995; Drury and Tayles, 1994).

Drury et al. (1993, p. 13) comment thus: “Increased product diversity arising from products consuming resources in different proportions also favours more sophisticated systems because, as diversity increases, so does the level of distortion reported by traditional systems that rely on simplistic volume-related overhead allocation bases. Where an organisation markets only a small number of products, problems are unlikely to arise in determining which product combinations should be selected for special studies for product profitability analysis purposes. Finally, as the proportion of overheads increases so does the level of distortion arising from relying on simplistic overhead allocation bases and the less relevant are direct costing systems that report only those costs that can be directly assigned to products.”

Walker (1996) studied the factors that influence the implementation of activity-based costing systems in the USA. The study data was obtained from both published financial information and the survey responses of 113 manufacturing companies replying to the survey, a 15.34% response rate. Production diversity was one of the factors that the study investigated. Walker found a significant positive relationship between production diversity and the use of ABC in two industry groups.

Similarly, Malmi (1999) investigated the relationship between product diversity and the adoption of an activity-based costing technique among selected Finnish companies. The results revealed a positive and significant relationship between product diversity and the adoption of an activity-based costing technique.
Abernethy et al. (2001, p. 261) examined the implications of product diversity for costing system design choices. They stated, “Product diversity is a recognized antecedent of ABC adoption”. They used case study methodology to collect the necessary data for their study (including interviews, direct observations, and relevant documents). The research sites were two Australian companies that agreed to participate in the study, one with three divisions, and the other with two divisions. The companies’ products varied in type, length, and size. Table 4.1 shows the main results of their study.

Table 4.1: Abernethy et al.’s (2001) main study results

<table>
<thead>
<tr>
<th></th>
<th>Division HC1</th>
<th>Division HC2</th>
<th>Division HC3</th>
<th>Division FT1</th>
<th>Division FT2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product diversity</strong></td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td><strong>Costing system</strong></td>
<td>Simple costing system</td>
<td>Simple costing system</td>
<td>Simple costing system</td>
<td>Simple costing system</td>
<td>Sophisticated costing system</td>
</tr>
<tr>
<td><strong>characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Advanced manufacturing technology (AMT)</strong></td>
<td>Low investment in AMT</td>
<td>Low investment in AMT</td>
<td>Low investment in AMT</td>
<td>Low investment in AMT</td>
<td>High investment in AMT</td>
</tr>
</tbody>
</table>

(Source: adapted from Abernethy et al., 2001, p. 269)

Although both HC3 and FT2 divisions had high product diversity, only FT2 had a sophisticated costing system. The table shows that FT2, in contrast to HC3, had high investment in advanced manufacturing technology. The researchers concluded that product diversity was a necessary, but not sufficient, condition for companies to invest in sophisticated costing systems. Such relationship was influenced by the way in which companies used their technology to manage product diversity. The study results were not sufficient to generalise the research findings. Hence, on-going
empirical research is needed to investigate the influence of product diversity on management accounting systems.

Bjørnenak (1997a) studied the relationship between the adoption of ABC systems and the product diversity of 75 of the largest manufacturing companies in Norway. The study found no statistically significant relationship between product diversity and ABC systems' adoption. Moreover, the study reported that non-adopters of ABC had higher product diversity than adopters.

Product diversity comprises production volume, size, complexity, material and set-up diversity. Number of products is one of the popular usable operational definitions of product diversity (see Bjørnenak, 1997a). This study utilised number of products as a proxy for the product diversity factor. Several studies have reported a positive relationship between product diversity and management accounting practices, which leads to the following hypothesis:

**Hypothesis no. 4:**

*There is a positive association between number of products and the extent (number) of management accounting techniques used within Jordanian industrial companies.*

### 4.3.1.4 Level of exports

The relationship between the percentage of a company's export of its production (or sales) and its management accounting practices has been examined by a number of researchers (for example, Alebaishi, 1998; Malmi, 1999; Bjørnenak, 1997a; Laitinen, 1990).

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9. It is important to note this variable is particularly relevant to less developed countries.
It has been argued that the percentage of exports to other countries indicates and represents the international competition that a company faces. In other words, companies that export are more likely to face international competition than those that do not. Therefore, companies that export are expected to use and require more accounting information in order to cope with the high competition they face.\textsuperscript{10}

Moreover, Laitinen (2001) indicates that the export percentage of a company’s total net sales represents the intensity of the company’s penetration of international markets.

Alebaishi (1998) examined the relationship between the level of exports as a contingent factor and the extent of using management accounting techniques. Regression analysis revealed a significant positive relationship ($T = 2.863$, $p = 0.0052$) between the exports’ level and the extent of using management accounting techniques within Saudi manufacturing companies.

Malmi (1999) investigated the relationship between the proportion of exports and the adoption of the activity-based costing technique among selected Finnish companies. The results revealed a positive and significant relationship between the two. However, when Bjørnenak (1997\text{a}) investigated the relationship between the percentage of exports and the adoption of the ABC system among 75 of the largest manufacturing companies in Norway, he found non-adopters of ABC had a higher percentage of exports than ABC adopters. This relationship was not statistically significant.

Laitinen (2001) investigated the relationship between percentage of exports in net sales and management accounting change in some Finnish technology companies.

\textsuperscript{10} Competition effect will be discussed later in section 4.3.2.2 of this chapter.
The results showed no statistically significant relationship between the percentage of exports and management accounting change.

Several previous studies investigating empirically the association between the level of exports and management accounting practices have reported inconsistent results. Unstructured interviews\textsuperscript{11} conducted with a sample of Jordanian companies suggested a positive relationship. Therefore, the following hypothesis is proposed:

\textit{Hypothesis no. 5:}

\textit{There is a positive association between percentage of exports of total sales and the extent (number) of management accounting techniques used within Jordanian industrial companies.}

\textbf{4.3.1.5 Ownership of the company}

It has been argued that ownership, as an explanatory variable, has important implications for organisational structure. It may influence the company’s decision-making process, marketing policy, finance resources, manufacturing technology, objectives of shareholders, and mission.

An early empirical study conducted by Chiu (1973) examined the extent of use of management accounting techniques by Taiwanese local companies and foreign subsidiaries. Chi-square tests revealed a statistically significant relationship between the two variables. Foreign subsidiaries tended to use management accounting techniques more than local Taiwanese companies. However, such statistical tests were

\textsuperscript{11} For more details see chapter five.
useful but not sufficient. More advanced statistical tests are required to investigate such relationships and the extent of influence of such contingent factors on usage of management accounting practices.

Clarke et al. (1999) found the adoption of ABC systems higher among multinational subsidiaries than indigenous Irish organisations. In addition, accountants in multinational subsidiaries were more innovative and qualified than accountants in indigenous Irish companies; 14% of multinational subsidiaries were using ABC, whereas only 5% of national companies had adopted it. Moreover, the management of multinational subsidiaries demonstrated greater awareness in the adaptation of new management accounting techniques such as ABC systems. Malmi (1999) also indicated that the first companies to adopt the ABC technique in Finland were subsidiaries of multinational companies.

Chenhall and Langfield-Smith’s (1999) study confirmed the influence of the parent company on the development of innovative management accounting techniques within Australian manufacturing companies. All participant companies in their study were subsidiaries or divisions of larger organisations.

It is important to note that the next two variables to be discussed, i.e. percentage of government ownership and percentage of foreign ownership, are particularly related to less developed countries.

4.3.1.5.1 Percentage of government ownership

Organisations with government ownership capital have objectives which differ from those of organisations with private ownership capital. Companies under government
ownership have targets other than maximising their profit and minimising their costs, such as helping the society in their problems. In contrast, private companies consider maximising profit and minimising costs the most important targets and priorities. This means that the latter should be more interested in accounting information than the former in order to accomplish their targets.

The influence of government ownership upon the accounting information systems within companies has been negatively reported in many studies. Scapens and Yan (1993) found government ownership of Chinese enterprises one of the key restrictions upon Chinese management accounting practices. The use of management accounting information for decision-making was not applicable.

Drury (2000b) reported that the privatisation of Western service organisations from government ownership and control led them to develop and improve their management accounting techniques, inferring that government ownership had been an impediment to the development and improvement of management accounting practices within Western companies.

The Jordanian government owns various amounts of capital of some companies. Does government ownership of corporate shares have an effect on the extent of use of management accounting techniques within these companies? This question is worth investigating in this study. Very few empirical studies have investigated the association between government ownership and management accounting practices. Therefore, the following hypothesis is proposed:
**Hypothesis no. 6:**

*There is an association between the percentage of government ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies.*

### 4.3.1.5.2 Percentage of foreign ownership

It has been argued in many studies that the influence of foreign ownership capital on companies' structure and accounting information system is a positive one, especially when this influence comes from investors from developed countries and is exerted on companies from developing countries.

Firth (1996) pointed out some benefits of domestic state-owned companies having foreign ownership (joint ventures): (1) it encourages the transfer of a huge amount of technology; (2) it also helps to transfer foreign management skills to state-owned companies. This means Chinese personnel learn the practices of foreign partners, including management accounting practices. Firth investigated, using regression analyses, the influence of foreign ownership (joint venture) upon the extent of Chinese state-owned companies' adoption of joint venture's management accounting practices. Findings showed that Chinese companies that had foreign ownership appeared to incorporate the more detailed and newer management accounting practices to a greater extent than Chinese state-owned companies without foreign partners.

Southworth (1994) also indicated the importance of Soviet-Western joint ventures on the development of accounting practices in the former Soviet Union. He contended
that it was more important for Western accountants to help, and continue to help, managers and companies in the former U.S.S.R. to develop their management accounting practices than to impose internationally accepted financial accounting standards.

However, Haldma and Lääts (2002) in their study of Estonian manufacturing companies, found no clear evidence to support the theory that the involvement of foreign ownership in companies has an effect on the design of accounting systems within these companies. Companies under government and foreign ownership showed no difference in their management accounting designs.

Overall, previous studies suggest the foreign ownership factor is more influential than the government ownership factor. Past studies have, in general, revealed a positive relationship between foreign ownership and management accounting practices. Thus, the following hypothesis is proposed:

**Hypothesis no. 7:**

*There is a positive association between percentage of foreign ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies.*

4.3.2 External contingent factors

4.3.2.1 Industry type

Drury (2000b, p. 653) stated that “Control systems have been shown to differ by industry type.” Control systems in manufacturing companies are different from those
in non-manufacturing companies. Manufacturing companies with a large number of standard cost centres rely greatly on detailed variance analysis, while costs in non-manufacturing companies tend to be mainly of a discretionary nature.

Clarke et al. (1999) reported in their empirical study of Irish manufacturing companies that almost a third (31%) of respondents from pharmaceutical, drug and healthcare companies were using ABC systems, compared to just 12% from other types of industry. One explanation for this result is that 94% of respondents from pharmaceutical, drug and healthcare companies were multinational subsidiaries, which already had a positive relationship, as mentioned in this study, with the decision to adopt ABC systems. When the researchers examined the influence of multinational/national status and company size on the decision to adopt ABC, status was the main factor and size was the secondary factor.

In their study, Innes et al. (2000) reported it was the financial sector which had the highest level (40.7%) of adoption of the ABC system, whereas, only 14.3% of manufacturing and 12.1% of non-manufacturing companies used this system.

However, Gosselin (1997) found industry type did not have a significant effect on the adoption of the activity-based costing technique within Canadian manufacturing companies.

Guilding et al.'s (1998) study compared New Zealand (NZ) and United Kingdom (UK) budgeting and standard costing practices. No systematic relationship between industry type and budgeting and standard costing practices was found.
Laitinen (2001) investigated the relationship between industry type and management accounting change in Finnish technology companies. Statistical tests' results showed no significant relationship between industry type and management accounting change.

The previous review and discussion reveal no consensus on the extent of the effect of industry type on management accounting practices. Nevertheless, despite the conflicting views and inconsistent conclusions, the type of industry to which a company belongs has been shown in some studies to affect its management accounting practices. Thus, the following hypothesis is formulated:

**Hypothesis no. 8:**

*There is an association between industry type and the extent (number) of management accounting techniques used within Jordanian industrial companies.*

### 4.3.2.2 Market competition

“Market competition creates turbulence, stress, risk and uncertainty for organizations” (Mia and Clarke, 1999, p. 137). “Organisations operating in a more competitive environment have a greater need for sophisticated cost systems that report more accurate product costs because competitors are more likely to take advantage of any errors arising from managers having to rely on distorted product costs to make decisions” (Drury et al., 1993, p. 13). “In the accounting literature, contingency theorists posit that the competitive environment is a determinant of the form that firms’ management accounting practices take and the intensity with which they are used” (Anderson and Lanen, 1999, p. 379). “When the competition is intense, the firm
must operate very efficiently to reach a satisfactory probability of survival” (Laitinen, 2001, p. 537).

“A more competitive marketplace, its greater dynamism and heterogeneity, and a more intensive operating environment all broadly suggest that the accounting system should become more sophisticated and complex, and capable of evaluating managerial performance in more varied ways” (Haldma and Lääts, 2002, p. 390).

“As market competition intensifies, firms often increase product range, experience decreasing product life cycles, introduce new distribution channels affecting the customer supply chain, face increased market sensitivity, and target products and services to smaller and smaller customer segments” (Mia and Clarke, 1999, p. 141).

Nowadays, companies are facing both local and global competition; therefore, they need to concentrate on producing good quality products at competitive prices. Drury (2000b) pointed to the important influence of global competition on the development of production systems, such as JIT, and on manufacturing technologies, and how it had influenced management accounting practices within companies in Western countries since the 1980s. He showed that companies had faced and were continuing to face severe global competition and were having to offer high-quality products at low prices.

In order to compete effectively and successfully in today’s highly competitive global environment, companies are making customer satisfaction a prevailing priority, adopting new management approaches, changing their manufacturing systems, and investing in new technologies. Management accounting techniques, as part of the company’s system, are significantly influenced by such changes (Drury, 2000a). Garrison and Noreen (2000) indicated that the huge changes in the business
environment and high global competition, they even used the term 'Revolution' to show the extent of these changes, have created new requirements, low prices, and high quality products which, of necessity, have required more information, particularly management accounting information. Moreover, the new management accounting techniques, for instance, JIT, TQM, and the reengineering that has taken place during and after the 1980s are examples of this change and effect (see also Proctor, 2002).

Further, Global competition has forced domestic companies that worked in protected markets to become more cost competitive and to change their information systems, including management accounting practices (Zimmerman, 2000). Zimmerman also referred to Free Trade Agreements between different countries as examples of the influence of competition, resulting in the companies in these countries searching for lower costs and new markets.

Laitinen (2001) classified respondent companies into four groups: change-oriented companies, stable and conservative companies, performance-contented companies, and discontent-resourceless companies. According to Laitinen, it was competition that had caused companies in Finland to change their management accounting systems. This was apparent in both ‘change-oriented’ and ‘discontent-resourceless’ companies. However, due to the lack of resources for changing management accounting systems, ‘discontent-resourceless’ companies had been unwilling to make such changes. Moreover, the lack of competition among ‘stable and conservative companies’ and ‘performance-contented companies’ had resulted in them being unenthusiastic about the change and development of their management accounting systems. According to
Chow et al. (1999), the design of management control systems is related to the impact of competition on the expected costs and benefits of other designs.

Khandwalla (1972) examined empirically the effect of different types of competition on the use of management controls within 92 American manufacturing companies selected randomly. Both correlation coefficient and regression analyses were employed to examine the relationship between the competition variables and control variables. The results confirmed that the greater the competition, the greater the need to control costs, and to evaluate whether production, marketing, finance, etc. were operating as expected (p. 275). He found a positive relationship between competition and the use of sophisticated management controls. Product competition had a higher positive effect on their usage, than price and distributive competition.

Firth (1996) found a significant positive relationship between the degree of competition that a Chinese partner faced and the adoption of a joint venture’s management accounting practices. Moreover, Anderson et al. (2002) reported the relationship between the complexity of ABC models and competition level to be positive.

According to Haldma and Lääts (2002, p. 389), “Increased competition and raised production quality standards required adoption of a more sophisticated and market-sensitive internal management accounting systems (MAS)”. Tightening competition makes companies change from full cost towards variable cost accounting, and they are no longer able to cover their extra costs automatically from their customers.

Bjørnenak (1997a) investigated the relationship between competition and adoption of ABC systems of 75 of the largest manufacturing companies in Norway. Results revealed no statistically significant relationship between competition and adoption of
ABC systems. However, his results were not consistent with previous studies. He found non-adopters of ABC had higher competition levels than ABC adopters.

A similar finding was reported by Drury and Tayles (1994, p.457), who found the level of competition, as an explanatory factor, did not influence the planned or the actual use of ABC within UK manufacturing companies. William and Seaman (2001) indicated that the relationship between the level of competition and changes in management accounting systems, in Singapore, was a negative one.

In Poland, Szychta (2002) studied management accounting practices/methods in 60 Polish companies and the factors that might influence the use of these techniques. The study findings did not support the hypothesis that increased competition in Polish companies is one of the main factors influencing the use of management accounting practices.

Competition is one of the main contingent factors that previous studies have mentioned and examined. However, the previous review and discussion revealed no consensus on this variable’s effect on management accounting practices. Nevertheless, the majority of studies have reported a positive relationship between competition and management accounting practices. In Jordan (as shown in chapter two), the increased competition arising from the removal of trade barriers is expected to change the extent of using management accounting techniques/practices. Thus, the following two hypotheses are proposed:

**Hypothesis no. 9:**

*There is a positive association between domestic competition and the extent (number) of management accounting techniques used within Jordanian industrial companies.*
Hypothesis no. 10:

There is a positive association between international competition and the extent (number) of management accounting techniques used within Jordanian industrial companies.

4.4 Summary

This chapter has reviewed and discussed the effect of selected contingency factors on management accounting practices. The chapter has also indicated there is no universally appropriate management accounting system/practice that can be applied to all companies in all circumstances. Rather, many contingent factors influence the design and usage of management accounting practices. The review showed some factors, such as company size and competition, have been mentioned in many studies. The majority reported a positive relationship between those two factors and management accounting practices.

However, the previous review and discussion have revealed two main findings:

1. Although many studies have investigated the contingency theory of management accounting and the factors that may influence its practices, little empirical research has been undertaken to investigate the influence of such factors on management accounting practices, especially in developing countries.

2. The lack of consistent findings from the empirical studies suggests these conditions/factors are poorly understood both in the literature and in practice.
The existing literature is inconsistent concerning the nature or number of variables that influence management accounting practices. Moreover, there is no established pattern of the association (i.e., positive or negative) between the use of management accounting practices and the possible explanatory variables.

Therefore, more empirical research is required to investigate the effect of contingency factors upon management accounting practices, especially in developing countries.

The next chapter introduces the research methodology of this study. It details the: research site, measures of dependent and independent variables, research tools for data collection, validity and reliability tests, and statistical analysis techniques.
Chapter Five
Research Design and Methodology
5 Research Design and Methodology

5.1 Introduction

This chapter introduces the research methodology, employed to accomplish the objectives of this study. As was mentioned in chapter one, this study aims firstly to investigate empirically to what extent Jordanian industrial companies apply management accounting techniques/practices in general and modern techniques in particular, and, secondly, the contingent factors that influence the extent of usage of management accounting techniques/practices.

The following sections in this chapter discuss and describe the techniques and methods used to collect, measure, and analyse the data to accomplish the study objectives.

5.2 Management accounting techniques

5.2.1 The selection of management accounting techniques

After reviewing the management accounting literature, the researcher identified and classified management accounting techniques under the following main streams: costing; budgeting; performance measurements; capital investment appraisal; and
modern techniques. These classifications were confirmed by conducting factor analysis.

In order to select the management accounting techniques to be included in this study, the following steps were employed:

1) Management accounting techniques in the most popular textbooks in this field were reviewed, namely, Kaplan and Atkinson (1998), Horngren et al. (1999), Drury (2000b), Zimmerman (2000), Atkinson et al. (2001), and Horngren et al. (2002).

2) Similar studies of management accounting practices were reviewed (for example, Chiu, 1973; Drury et al., 1993; Drury and Tayles, 1994; Firth, 1996; Alebaishi, 1998; Chenhall and Langfield-Smith, 1998a; Luther and Longden, 2001; Longden et al., 2001).

3) Scholars and researchers in the field of management accounting research were consulted, namely, Prof. Colin Drury, Prof. John Innes, and Mrs Amanda Nayak.

4) The applicability of these techniques in Jordanian industrial companies was studied (via the exploratory study, see section 5.4.1 for more details).

Based on the above-mentioned steps, it was decided to include the following management accounting techniques:

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13 Factor analysis was used to provide an additional confirmation of classifying selected management accounting techniques under the mentioned classifications.

14 The researcher also consulted several PhD students in this area from different universities in the UK.
5.2.1.1 Costing techniques

These techniques include: job order costing system, process costing system, batch costing system, activity-based costing, allocating service department costs, and allocating overhead costs.

5.2.1.2 Budgeting and control techniques

The following techniques are included: standard costing, responsibility accounting, transfer pricing, sales budget, production budget, cash budget, direct materials purchase/usage budget, direct labour budget, overheads budget, master budget, flexible budgeting, activity-based budgeting, zero-based budgeting, and incremental budgeting.

5.2.1.3 Performance measurement techniques

Performance measurement techniques employed in this study include both financial and non-financial techniques as follows: return on investment, residual income, economic value added, the market share, sales, the shares price, division profit, product quality, customer satisfaction, employees' satisfaction (attitude), budget variance analysis, meeting the budget, benchmarking, and balanced scorecard.

5.2.1.4 Capital investment appraisal techniques

These techniques include: payback period, accounting rate of return, net present value, internal rate of return, and meeting the budget.
5.2.1.5 Modern management techniques

These techniques are: total quality management, activity-based management, value-chain analysis, just in time, kaizen costing, target costing, life-cycle costing, and re-engineering approach. They are believed to be representative of management accounting practices in general and of those in Jordan in particular.

5.2.2 Research questions for management accounting practices\textsuperscript{15}

In order to achieve the first objective of this study, the researcher designed two main questions to investigate empirically to what extent Jordanian industrial companies are applying management accounting techniques as follows:

1. What sort of costing, budgeting and control, performance measurement, capital investment appraisal, and modern management techniques are these companies employing?

2. How important are these used techniques to companies?

Questions designed to answer the above main questions to reveal the level and extent of usage of management accounting techniques within Jordanian industrial companies are to be found in Appendix B (see, for example, questions A.2.3, B.2.1, D.2.1, and E.2.1). However, full details and responses to these questions and others will be discussed later in chapter six.

\textsuperscript{15} Please note these are the main research questions. For further details see the questionnaire design section 5.5.3.
5.3 Factors influencing the use of management accounting techniques

The study's second objective is to examine factors that might influence the extent of using management accounting techniques within Jordanian companies. The following steps were taken to choose the factors for investigation in this study:

1. A review of similar previous studies that had discussed and examined the influence of such factors.\(^{16}\)

2. Researchers and scholars in this field were consulted, for example: Prof. Colin Drury, Prof. John Innes, Dr. Stephen Lyne, and Mrs Amanda Nayak.

3. Ten Jordanian industrial companies were consulted regarding such factors during the exploratory study.

4. The Jordanian business environment was considered.

As a consequence of the literature review, consultations with appropriate bodies, and consideration of the Jordanian business environment, the researcher decided to examine the following eight factors (all previously discussed in chapter four):

1. the size of company (measured by number of staff and amount of sales),
2. the industry type,
3. market competition (both domestic and international),
4. product diversity (number of products),
5. level of exports,
6. percentage of government ownership,
7. percentage of foreign ownership,
8. age of company.

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\(^{16}\) See chapter four, section 4.3, for more details and references.
In the following sections measurement of management accounting practices (the dependent variable), identification of the contingency factors (independent variables), and formulated hypotheses will be discussed.

5.3.1 Measurement of management accounting practices

There is no generally accepted single research method to measure directly the impact of contingency factors on management accounting practices in a country. On the one hand, measuring the extent of usage of management accounting practices employing descriptive statistical analysis is straightforward. This type of analysis is reported in chapter six. However, measuring the extent of usage of management accounting practices as a dependent variable in Bivariate and Multivariate analyses is not straightforward. A popular method is to use an index to measure the dependent variable. After a careful review of the literature, the researcher asked respondents to answer yes/no to questions eliciting information about the application of the listed techniques in their companies. Respondents were subsequently classified as adopters or non-adopters. The researcher summed up the numbers under each classification and regarded this total as a proxy for the level of management accounting practices in the companies under study. The index (i.e. the total number of respondents using management accounting practices under each classification) was then used as a dependent variable (i.e. a proxy for measuring the extent of management accounting practices) in the Bivariate and Multivariate tests. 17 Many prior relevant studies used

17 Because of its subjectivity problem, the five-point scale of measuring the importance of management accounting practices could not be considered as good a proxy for measuring management accounting practices, therefore it was not used as a dependent variable in the Bivariate and Multivariate analyses.
this method (for example, Bjornenak, 1997a; Alebaishi, 1998; Chenhall and Langfield-Smith, 1998a; Laitinen, 2001).

5.3.2 Contingent factors and the hypotheses

The extant literature, reviewed in chapter four, offers no agreement as to the nature or number of variables that influence management accounting practices. Moreover, there is no established pattern of the association (positive or negative) between the use of management accounting practices and the possible explanatory variables. Nevertheless, 10 hypotheses were formulated in the previous chapter in order to examine the relationship between the selected contingent factors and the extent of usage of management accounting practices. The hypotheses with and without directed relationships are presented below. The following hypotheses have previously been formulated in chapter four.

5.3.2.1 Hypotheses with directed (positive) relationship

Hypothesis no. 1:

There is a positive association between number of employees and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 2:

There is a positive association between total annual sales and the extent (number) of management accounting techniques used within Jordanian industrial companies.
Hypothesis no. 4:
There is a positive association between number of products and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 5:
There is a positive association between percentage of exports of total sales and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 7:
There is a positive association between percentage of foreign ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 9:
There is a positive association between domestic competition and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 10:
There is a positive association between international competition and the extent (number) of management accounting techniques used within Jordanian industrial companies.
5.3.2.2 Hypotheses without directed relationship

Hypothesis no. 3:

There is an association between age of the company and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 6:

There is an association between the percentage of government ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies.

Hypothesis no. 8:

There is an association between industry type and the extent (number) of management accounting techniques used within Jordanian industrial companies.

5.3.3 Research questions for measuring the influence of contingent factors

In order to understand and measure the influence of contingent factors on management accounting practices within Jordanian industrial companies, the researcher applied two methods. First, respondents were directly asked what type of factors influenced management accounting practices within their companies in the questionnaire and interviews (see Longden et al., 2001; Luther et al., 2001; Haldma and Lääts, 2002). Second, an indirect method was used where respondents were asked for some background information. Then, using certain statistical analysis, the
researcher could identify and measure the influence and relationship between management accounting practices (as a dependent variable) and the background information (as independent variables, such as number of staff and sales) (see Innes et al., 2000; Laitinen, 2001; Williams and Seaman, 2001; Reid and Smith, 2000; Abdel-Maksoud, 2003; Alebaishi, 1998; Firth, 1996; Sharma, 2002; Chenhall and Morris, 1986; Suwaidan, 1997).

5.4 The research methodology

"From a combination of different research methods we may be able to develop a deeper understanding of change in accounting systems but no single method in itself should be regarded as definitive" (Dugdale and Jones, 1997, p.239). Saunders et al. (2000) point out that employing a multi-method approach in research is very common, where the researcher combines quantitative and qualitative methods and utilises both primary and secondary data. They also point to two main advantages from employing this technique:

1. "different methods can be used for different purposes in a study. You may wish to employ case study methods, for example interviews, in order to get a feel for the key issues before embarking on a survey. This would give you confidence that you were addressing the most important issues" (p. 98);

2. "it enables triangulation to take place. Triangulation refers to the use of different data collection methods within one study in order to ensure that the data are telling you what you think they are telling you. For example, semi-
structured group interviews may be a valuable way of triangulating data collected by other means such as a questionnaire” (p. 99).

However, the nature of the research topic is the most important criterion to consider when choosing which research approach should be employed (Saunders et al., 2000). Therefore, the researcher used both a questionnaire and interviews (unstructured and semi-structured) as research instruments. In this regard, Saunders et al. (2000, p. 245) commented: “In a quantitative approach to research, for example, you may decide to use in-depth or non-standardised interviews initially to identify variables. The data that you gather from such exploratory interviews will be used in the design of your questionnaire or structured interview. Semi-structured interviews may be used to explore and explain themes that have emerged from the use of your questionnaire”.

Many researchers such as Anderson and Lanen (1999) and Chow et al. (1999) have also promoted this approach.

Hence, this study used the methodology described above in order to assess the extent of usage of management accounting practices within Jordanian industrial companies. Firstly, the researcher conducted unstructured interviews with the financial managers of 10 industrial companies, before designing the questionnaire to enable him to compare, develop and understand what had been written in the literature and the actual situation on the ground. Secondly, the researcher designed the questionnaire after studying the literature and examining the feedback from the unstructured interviews. Thirdly, semi-structured interviews were conducted with 30 Jordanian industrial companies to clarify, understand and add further information about management accounting practices and the factors that influence these practices within their companies. It is worth mentioning that this study mainly applied a deductive
approach rather than an inductive one. The research techniques will be discussed in detail in the following sections.

### 5.4.1 Unstructured interview

After reviewing the literature on management accounting practices and the factors that may influence the use of these practices within companies in different countries, including both developed and developing countries, the researcher conducted unstructured interviews with financial managers in 10 Jordanian industrial companies, as exploratory research for this study. The sample was selected to represent different types and sizes of industrial companies in Jordan. According to Zikmund (2000, p. 50), researchers conduct this type of research with the expectation that following research will provide conclusive evidence. Zikmund added “it is a serious mistake to rush into detailed surveys before less expensive and more readily available sources of information have been exhausted”. Many researchers have used this technique in their studies before designing their main questionnaire, for example, Chow et al. (1999).

This method had several advantages in that it assisted the researcher in:

- Collecting in-depth information about management accounting practices within Jordanian companies and the factors that influence these practices.
- Clarifying the issues studied in the literature.
- Designing a more relevant questionnaire.

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• Investigating the willingness (potential response rate) of companies to participate in the study.
• Utilising visual aids and personal observations (Zikmund, 2000, p. 60).
• Understanding to what extent this study could be extended (i.e. its depth).

However, unstructured interviews are:

• Time-consuming and expensive compared with questionnaires.
• The research requires more skills and experience.

5.4.1.1 The exploratory study (questions and design)

Exploratory research is “Initial research conducted to clarify and define the nature of a problem”, and there is no standard design for such research (Zikmund, 2000, p. 50). Unstructured interviews were used in this study. There were no written questions addressed to interviewees.

Unstructured interviews were conducted for the following purposes:

1. To examine the relevance of the research questions designed mainly from the literature.
2. To obtain feedback from interviewees about the study objectives and questions.
3. To elicit information about the situation of management accounting practices in Jordan.
4. To achieve better understanding of the factors that may influence the use of management accounting practices.
5. To gain insights and discover new ideas about the topic (Zikmund, 2000, p. 59).

### 5.4.1.2 The sample for the exploratory study

In September 2001, ten Jordanian industrial companies were persuaded to participate in unstructured interviews. Initially, financial managers in 24 companies had been contacted by telephone and informed of the research objectives, the importance of their companies’ participation in the study, and use of elicited data and information for academic purposes, and assured of confidentiality and anonymity. Table 5.1 shows the researcher succeeded in obtaining positive responses from 10 companies (a 42% response rate) whereas 14 refused to participate in the exploratory study. Interviews were conducted in a friendly, conversational manner.

<table>
<thead>
<tr>
<th>Number of calls</th>
<th>Positive response</th>
<th>Negative response</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>10</td>
<td>14</td>
<td>42%</td>
</tr>
</tbody>
</table>

### 5.4.2 Questionnaire

The questionnaire survey is one of the most widespread techniques that has been used in many previous studies, and can be used for both descriptive and explanatory research. For descriptive research, it allows the researcher to identify and describe the

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19 The questionnaire instrument will be discussed in detail in section 5.5.
variability in different phenomena. For explanatory research, it allows the researcher to investigate and explain relationships between variables (see Saunders et al., 2000; Innes and Mitchell, 1997).

Advantages of using a questionnaire include:

- The independency of researchers is not a problem when a postal survey is being conducted (Saunders et al., 2000).
- The relatively low cost of conducting postal questionnaire surveys (Owen and Jones, 1994; Innes and Mitchell, 1997; Kumar, 1999).
- The ability to study a large population at relatively low cost (Owen and Jones, 1994).
- The risk of bias or mistakes in interviews can be minimised by the postal questionnaire survey (Owen and Jones, 1994). However, the questionnaire has its own bias.
- Provides more anonymity to the respondent (Kumar, 1999).

Disadvantages of using a questionnaire include the following:

- One of the main weaknesses of a postal questionnaire is the low response rate (Owen and Jones, 1994; Kumar, 1999).
- The difficulty in clarifying any issue which may be confusing to the respondent (Innes and Mitchell, 1997).
- Responses cannot be supplemented with other information (Kumar, 1999).
5.4.3 Semi-structured interview

Face to face semi-structured interviews were conducted in 30 industrial companies within the period November 2002 to February 2003. This method has been used by many researchers, it has a list of themes and questions supplemented with open-ended discussion to clarify issues or answer questions raised by both interviewee and interviewer (for example, see Cobb et al., 1995; Anderson and Lanen, 1999; Marriott and Marriott, 2000; Malmi, 2001).

Advantages of using the semi-structured interview include:

- Minimises the non-response rate of the study.
- Enables the researcher to observe the respondent answering.
- Information can be supplemented with other data such as that obtained by observation during the interview (Kumar, 1999).
- The researcher can explain questions, answer any enquiries and clarify terms.

Disadvantages of the semi-structured interview include the following:

- It is time-consuming and expensive.
- It may introduce researcher bias.
- It needs more experience and skills from the researcher.
- It needs specific time from the participant which may not be offered in one go.
5.4.3.1 Interviews (questions and design)

The same questionnaire used for the postal survey was used in interviews as a structured question list. At the beginning of each interview, the interviewee was required to complete the questionnaire. This enabled an additional 30 questionnaires to be included in the questionnaire survey. During interviews, all interviewees' enquiries were explained and answered. Interviewees were also asked if they would like to provide further information, comments, and suggestions relevant to the study, especially about factors that influence the extent of usage of management accounting practices within their companies. It was anticipated that the questionnaire survey would elicit a low response rate, therefore, since a high response was desired, the researcher conducted semi-structured interviews to increase the response rate.

By and large, the purposes for conducting semi-structured interviews were to:

1. facilitate triangulation (see Saunders et al., 2000; Anderson and Lanen, 1999).
2. enable the researcher to observe the respondent answering.
3. obtain more information and suggestions.
4. increase the response rate, by adding interview responses to postal responses.
5. confirm the questionnaire's validity and reliability. By conducting a statistical test to check whether there were significant differences between answers obtained from interviews and the postal survey.

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20 This technique has been used in previous studies, for example, Mia and Clarke (1999).
The sample for semi-structured interviews

The target sample was 30 Jordanian industrial companies, whose details (sampling frame) were obtained from the Ministry of Industry and Trade (MIT) in November 2002. This sample number was considered reasonable for interview purposes and companies were chosen to represent both size and type of Jordanian industrial companies.

The researcher had approached, via telephone calls, company representatives (usually financial managers or those in a similar position) to seek their willingness to participate in the study by engaging in interviews with him. He persuaded 30 companies to participate in interviews, from among 88 initially contacted, a response rate of 34% (see Table 5.2). Fifty-eight companies asked the researcher to send them the questionnaire in the post.

Table 5.2: Response rate for the semi-structured interviews

<table>
<thead>
<tr>
<th>Number of calls</th>
<th>Agreed to participate</th>
<th>Agreed to receive the questionnaire by post.</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>30</td>
<td>58</td>
<td>34%</td>
</tr>
</tbody>
</table>

A copy of the questionnaire for interview purposes was sent to interviewees one week in advance of the interview appointment. The researcher confirmed the interview a day before the appointment.
5.5 The questionnaire administration

In November 2002, the researcher sent postal questionnaires to the chosen sample of this study, namely, 291 Jordanian industrial companies. A unique code was put on each questionnaire to facilitate questionnaire administration and make it easy to follow-up respondents. Details of the sample are provided below.

5.5.1 The study population

The Jordanian industrial sector was chosen as the arena of this study. The majority of management accounting studies have been conducted in the industrial sector\(^{21}\). Kaplan and Atkinson (1998, p. 9) indicate that “Managers in service companies, however, have historically used management accounting information far less intensively than managers in manufacturing companies.”

The researcher decided to eliminate small companies, typically family-owned companies, from this study, for the following reasons:

1. The exploratory study (i.e. unstructured interviews) showed that participation and cooperation from small industrial companies has been very low in the past compared with that from medium and large ones. Studies such as Alebaishi (1998), Marriott and Marriott (2000) and Laitinen (2001) support this.

2. The existence and role of management accounting techniques within small industrial companies are very low (see Marriott and Marriott, 2000; Anderson

and Lanen, 1999; Granlund and Lukka, 1998; Malmi, 1999; Alebaishi, 1998; Laitinen, 2001). Pistoni and Zoni (2000) comment that “Generally, where firm size is relatively small, management accounting is less developed and far less sophisticated” (p. 289).

3. The variation in accounting systems among small companies is higher than among medium and large companies. For example, the accounting and information systems of companies which have one or two employees are usually unlike those of companies which have 20 employees and so on. In contrast, the variation in companies which have 50+ employees is far less.

4. Time and money constraints also directed the researcher to concentrate on representative samples from medium and large manufacturing companies rather than spend a large amount of scarce time and money on small companies, whose response rate was anticipated to be very low.

Therefore, this study focused only on medium and large industrial companies. The number of employees was applied as the size measurement of companies. This measurement is consistent with previous studies, for example, Marriott and Marriott (2000) studied management accounting services in 15 small companies whose number of employees ranged between 2 and 13. According to Marriott and Marriott, less than 50 employees is a reasonable size measurement for small companies, and this is also consistent with McChlery (2000) and Howorth and Westhead (2003) who studied small companies whose number of employees did not exceed 50.

Szychta (2002) also used number of employees as a proxy for measuring company size. In his study, companies that had 50 employees and above were viewed as medium and large companies. Likewise, Cotton et al. (2003) used number of
employees as a proxy for size and focused only on those companies that had more than 100 employees, and excluded small companies from their study.

5.5.2 The sample

5.5.2.1 The sampling frame

The sampling frame is a list of all elements of the study population from which the researcher will draw his sample. But in the case where no such complete and accurate list is available, the researcher has to devise his own sampling frame (Saunders et al., 2000).

For this study, the sampling frame for Jordanian industrial companies was obtained from the Ministry of Industry and Trade in November 2002. After excluding those companies which had less than 50 employees (using the Ministry’s computer system) the final sampling frame contained 344 industrial companies, representative of major industrial companies in Jordan.

5.5.2.2 The sample size

Deciding the sample size in a study is almost always a matter of judgement than calculation (Hoinville et al., 1978; Saunders et al., 2000).

Although there is no agreement in the literature as to the appropriate sample size researchers should use in their studies, many researchers recommend a minimum number of 30 for statistical analyses to provide useful and meaningful results.
Research Design and Methodology

(Saunders et al., 2000). According to Owen and Jones (1994, p. 326), "... a large sample is a sample with more than 30 items".

In this study, the researcher decided to use more than 100 companies as the research sample as a result of reviewing many previous studies which had utilised the same research methodology and collected more than 100 responses as a reasonable research sample.

Helles (1992) in a survey study in Jordan reported that his response rate was 55.3%, of which only 51.4% was usable. Therefore, the present researcher expected to receive a response rate of around 50%.

5.5.2.3 The sampling techniques

To ensure a reasonable response rate to the questionnaire survey, the study used the whole sampling frame, 344 companies, as the study sample and therefore sent questionnaires to the whole study population, i.e. all 344 industrial companies in Jordan.

The researcher chose this technique for the following reasons:

1. There was no bias in choosing a particular company.

2. It was simple to apply.

3. It was the whole population.
5.5.3 The questionnaire design

This section explains and discusses all aspects related to the questionnaire and question design. Because of the nature of this study as a pioneering survey in Jordan, its objectives, and consideration of the questionnaire's length, the researcher designed a simple questionnaire with self-explanatory questions that were:

- Understandable to all.
- Not ambiguous (i.e. meant the same thing to all).
- Asked what they were meant to ask (i.e. had clarity).

In order to achieve the above, a considerable amount of attention was paid to the questionnaire's design. The final version included 39 questions on management accounting practices in use, their relative importance, and factors influencing their use. The questionnaire was sectionalised so as to gather data on a wide range of company practices (e.g. costing, budgeting and control, performance measurement, standard costing, capital investment appraisal, and modern management techniques).

Further, the questionnaire and questions were designed after consulting the following:

- Previous studies' questionnaires (such as Chiu, 1973; Drury et al., 1993; Drury and Tayles, 1994; Alebaishi, 1998; Longden et al., 2001; Luther and Longden, 2001).
- Specialist books (such as Kumar, 1999; Saunders et al., 2000).
- PhD students, scholars and professionals in the area of study. For example, Professor Colin Drury, Professor John Innes, Dr. Stephen Lyne, Mrs Amanda Nayak, Mr Tony Hughes, Dr Mohammed Dulaimi, and Dr Mohamed Tarawna.
The following requirements were also borne in mind, to:

- Bear in mind the study objectives.
- Use simple language.
- Design a good layout to make the questionnaire easy to read, pleasant to the eye, and easy to follow.
- Guide the participant through the questionnaire.
- Start the questionnaire with easy and general questions to give respondents more confidence to answer the rest of the questionnaire.
- Test the questionnaire in the pilot study.

Moreover, most of the questions included in the questionnaire were closed-ended, except for a few which were open-ended. Closed-ended questions provided respondents with a list of possible answers, including the option "other (please specify)". This type of question is easier and quicker for respondents to answer and for the researcher to analyse. Both closed- and open-ended questions have advantages and disadvantages as detailed below.

5.5.3.1 Advantages and disadvantages of closed-ended questions

Some advantages and disadvantages of using closed-ended questions are:

- Such questions help the researcher to obtain the targeted information (Kumar, 1999).
- They are easy for respondents to answer and save their time.
- They are also easy for the researcher to analyse, thereby saving his/her time.
- It is possible for the researcher and others to benefit from such questions in the future.

- They present the possibility of comparing answers between respondents in the same study or with other studies.

- One of the main weaknesses of such questions is the limited information (i.e. lack of depth and variety) they provide (Kumar, 1999).

- Because the researcher lists possible answers this may introduce researcher bias (Kumar, 1999).

- The existence of ready-answers may influence respondents' opinion and thinking (Kumar, 1999).

- The existence of a ready-made answers list may not reflect respondents' opinion and only reflect their degree of agreement/disagreement with the researcher's opinion (Kumar, 1999).

**5.5.3.2 Advantages and disadvantages of using open-ended questions**

Some advantages and disadvantages of using the open-ended questions are:

- Such questions provide more in-depth information in both questionnaires and interviews.

- They allow respondents in questionnaire surveys to express their opinions freely without the influence of the researcher's ready-made answer list, consequently, this reduces researcher bias.

- They are not as easy to answer and need more careful consideration.

- They are difficult for analysis and require more time.
5.5.3.3 The questionnaire structure

The questionnaire is presented in Appendix B. The questionnaire was divided into four parts to facilitate the answering of questions by respondents and their statistical analysis by the researcher. The four parts were as follows:

**Part one** elicited general information and background details about the company (section A contained 11 questions) and participants (section B contained 7 questions). This is customary practice in most questionnaire surveys (see, for example, Chiu, 1973; Drury et al., 1993; Alebaishi, 1998; Longden et al., 2001).

**Part two** contained questions relating to management accounting practices within Jordanian industrial companies. It comprised 5 sections consisting of 14 questions in total. Main questions, for example, A.2.3, B.2.1, C.2.1, D.2.1, and E.2.1, were adapted from previous empirical studies (e.g. Drury et al., 1993; Alebaishi, 1998; Longden et al., 2001).

**Part three** of the questionnaire, question 3.1, asked respondents to indicate, using a five point Likert scale, the extent of influence of some contingent factors on management accounting practices within their companies. This question was adapted from prior related studies (see Luther and Longden, 2001; Longden et al., 2001; Haldma and Lääts, 2002).

**Part four** of the questionnaire contained six general questions, also adapted from previous studies, such as Alebaishi (1998).
5.5.4 The pilot study

The pilot study was mainly used to refine the questionnaire, in particular to:

1. Identify ambiguous or poorly worded questions.
2. Check the suitability of the questionnaire's design.
3. Check the layout of the questions and the questionnaire.
4. Provide valuable information about any potential difficulties that might face the researcher and respondents.
5. Measure the average time to complete the questionnaire.

Using a pilot study increases the response rates and validity and reliability of the study. Ten cases are considered an acceptable number for conducting this important step (Saunders et al., 2000), therefore, 10 companies were consulted about the questionnaire design, the simplicity and suitability of questions. They were also encouraged to suggest possible modifications to the questionnaire before sending it to the whole population. All suggestions and comments received indicated there was no need to make any changes to the questionnaire. Therefore, the researcher used the 10 companies in the pilot study to make up the 30 companies later interviewed, using semi-structured interviews, in this study.

5.5.5 Distribution and collection of the questionnaire

The researcher contacted by telephone the potential respondent in each company. During the telephone call, the researcher tried to persuade the respondent to participate in the study by stressing the following:

1. The study objectives.
2. The importance of this study.

3. The importance of his participation in the study.

4. The sponsor of this research.

5. The confidentiality of respondents' participation in the study.

6. The benefits that this study could provide them.

After respondents had agreed to participate in the study, the researcher asked them whether they preferred to receive the questionnaire by post or to be interviewed by the researcher. The results of telephone calls are shown in Table 5.3. The researcher made 344 telephone calls to potential respondents and introduced the name, objectives, importance, and benefits of this study to them. Of the 344 calls made, only 23 respondents did not show any interest in participating in the study. Thirty companies agreed to be interviewed by the researcher, ten of whom had participated in the pilot study. Two hundred and ninety-one companies showed an interest in the study, therefore, the researcher sent them the questionnaire by post, accompanied by the following: a covering letter, a letter from the researcher's supervisor, a letter from the sponsor of this research, and a prepaid return envelope.

Table 5.3: Results of telephone calls

<table>
<thead>
<tr>
<th>Number of calls</th>
<th>Respondents for interviews</th>
<th>Respondents sent questionnaires in the post</th>
<th>Refused to participate</th>
</tr>
</thead>
<tbody>
<tr>
<td>344</td>
<td>30</td>
<td>291</td>
<td>23</td>
</tr>
</tbody>
</table>
5.5.6 The response rate

As Table 5.4 shows below, of 291 posted questionnaires, only 110 were returned, a response rate of 38%. However, of these 110, seven were eliminated from the study because they had not been completed, making a valid response rate of 35% (103 companies), considered an acceptable and reasonable rate.

According to Owen and Jones (1994, p. 313), “On average a response rate of 20% of questionnaires returned without reminders is considered satisfactory, while 40% is exceptionally good”. Likewise, Cotton et al. (2003) regarded the 40% response rate for their questionnaire survey a satisfactory rate for such a study. Saunders et al. (2000, p. 282) stated that a 30% response rate is a reasonable rate for postal questionnaire/surveys. Howorth and Westhead (2003, p. 100) indicated that 17.8% valid response rate for a questionnaire survey is acceptable. The response rate of other studies has been even lower, for example: 10.8% in Laitinen’s (2001) study; 13.3% in Luther and Longden’s (2001) study; and only 9% in Ernst & Young and IMA’s (2003) survey.

Table 5.4: Response rate to questionnaire

<table>
<thead>
<tr>
<th>No. of postal questionnaires</th>
<th>All responses</th>
<th>Uncompleted questionnaires</th>
<th>Valid questionnaires</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>291</td>
<td>110</td>
<td>7</td>
<td>103</td>
<td>35%</td>
</tr>
</tbody>
</table>

Various procedures were used to increase the response rate to the questionnaire as indicated below:
Small companies were excluded from this study because of their low response rate to questionnaires. Marriott and Marriott (2000) reported that response rates to questionnaire surveys among small companies were often low, particularly in developing countries (see Alebaishi, 1998).

An exploratory study before designing the questionnaire and a pilot study after designing it were conducted to ensure the questions and questionnaire were relevant, clear, easy to answer, understandable and problems of ambiguity and misunderstanding were unlikely to occur.

Telephone contact was made with the entire study sample before sending out the questionnaire to give potential respondents some idea of the study's aims and objectives and its contribution to the field. This was very useful and important.

Formal letters from the researcher's current university (Bristol University, UK) signed by the researcher's supervisor, and from the researcher's current sponsor (Mu'tah University, Jordan) were included with the questionnaire.

A pre-paid, self-addressed envelope accompanied the questionnaire.

Respondents were assured of confidentiality and anonymity.

A well-written covering letter was sent with the questionnaire.

Follow-up telephone calls were made and letters sent.

Non-response bias is a potential problem in any survey, therefore, two investigations for it were undertaken. Firstly, 15 non-respondents were contacted by phone. None of their quoted reasons for non-participation gave rise to a non-response bias concern. Ten non-respondents stated the most widely-cited 'too busy' or 'not enough time' reasons for their non-response, two cited 'lack of interest in such a study', while the other three gave 'contravenes company policy' as a reason for their non-response. The second test for non-response bias involved a comparison of the data provided by early
and late respondents. Those companies that responded may have had very different characteristics to those that ignored the questionnaire, making it difficult to generalise the findings. The Mann Whitney U statistic was calculated for variables with ordinal measures and Chi-square tests were conducted for categorical variables. At the five per cent level of confidence, no statistically significant differences were evident between the data provided by early and late respondents' responses. This finding indicated that non-response bias would not be a major problem when interpreting and generalising the results.

5.5.6.1 Reliability of responses

According to many writers in the research field, testing the reliability of postal questionnaire responses is an unachievable task for researchers (Saunders et al., 2000), because of the difficulty of ensuring that the target respondents filled in the questionnaire by themselves. Thus, the researcher decided to test the reliability of responses by adopting a simple method, namely, conducting telephone interviews (calls) with targeted respondents and asking them for more information, explanations, or to answer uncompleted questions in the questionnaire. If interviews revealed the target respondent understood and was able to answer the researcher’s enquiries, this indicated s/he was the actual questionnaire respondent. If s/he revealed that somebody else had filled in the questionnaire on his/her behalf, the researcher’s enquires were forwarded to the real respondent. In addition, there was a question in the questionnaire asking respondents their positions. Table 5.5 shows respondents' work positions as disclosed in the questionnaires. Figure 5.1 shows respondents' possible work positions within a company.
Table 5.5: Work positions of respondents as disclosed in questionnaires

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Manager</td>
<td>69</td>
<td>51.9</td>
</tr>
<tr>
<td>Assistant Financial Manager</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Head of Accounting Dept.</td>
<td>27</td>
<td>20.3</td>
</tr>
<tr>
<td>Head of Cost Accounting Dept.</td>
<td>15</td>
<td>11.3</td>
</tr>
<tr>
<td>Accountant</td>
<td>14</td>
<td>10.5</td>
</tr>
<tr>
<td>Other(s)</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure 5.1: Respondents’ possible work positions within Jordanian companies

One the basis of telephone call findings, Table 5.6 shows the actual positions of respondents who answered the questionnaire. As the Table illustrates, of 11 respondents who had originally described themselves as financial managers in the questionnaire, 6 were in fact working as assistant financial managers, 2 as heads of accounting departments, 1 as head of cost accounting department, and 2 were working as accountants. A further 3 respondents, who had originally described themselves as heads of accounting departments, were, in fact, working as accountants.
Table 5.6: Respondents' work positions before and after conducting telephone calls

<table>
<thead>
<tr>
<th>Position</th>
<th>As revealed by questionnaires</th>
<th>As corrected by telephone calls</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Manager</td>
<td>69</td>
<td>58</td>
<td>-11</td>
</tr>
<tr>
<td>Assistant Financial Manager</td>
<td>5</td>
<td>11</td>
<td>+6</td>
</tr>
<tr>
<td>Head of Accounting Dept.</td>
<td>27</td>
<td>26</td>
<td>-1</td>
</tr>
<tr>
<td>Head of Cost Accounting Dept.</td>
<td>15</td>
<td>16</td>
<td>+1</td>
</tr>
<tr>
<td>Accountant</td>
<td>14</td>
<td>19</td>
<td>+5</td>
</tr>
<tr>
<td>Other(s)</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>133*</td>
<td>000*</td>
</tr>
</tbody>
</table>

The foregoing analysis shows the majority of questionnaires were answered by targeted respondents and the above revealed differences between stated and actual positions of 14 respondents who answered the questionnaire did not affect its reliability because they were still suitably qualified and working in the accounting field.

Ensuring that questionnaire respondents are those targeted improves the reliability of questionnaire information. Moreover, respondents with sufficient knowledge and experience are likely to provide reliable data (Saunders et al., 2000). Next chapter, section 6.2.2 shows most respondents were suitably qualified and possessed relevant work experience.

Respondents were also asked if they were willing to participate in further research and discuss some of the issues arising from questionnaire replies. More than three-quarters of respondents (86%) agreed to discuss their replies and participate in further research. This high level of interest added credibility to the questionnaire findings. It also showed the seriousness with which respondents viewed the survey.
5.5.7 Validity and reliability of the questionnaire

As previously mentioned, the validity and reliability of a questionnaire can be improved and assessed by conducting a pilot study. Prior to conducting the pilot study, the researcher consulted several postgraduate students, PhD students, experts in statistical analysis and research methodology, and well-known scholars in the management accounting field to elicit their suggestions, comments and opinions on the suitability of the questionnaire and questions. Their ideas and comments were considered and implemented, making the questionnaire more consistent and understandable, and thereby improving its content validity and face validity.

The researcher then translated the final draft of the questionnaire into the Arabic language, the official and dominant language in Jordan (see appendix H). Then, three researchers and five experts in Jordan were consulted for their opinions on the accuracy of the translation and the simplicity of the wording, and their suggestions elicited for improving the quality of the questionnaire. All agreed the questionnaire would accomplish the study aims and objectives and needed only slight modifications.

One of the most popular statistical tests for measuring the internal consistency of a study instrument is Cronbach’s Alpha test. Table 5.7 shows the test result for each classification of management accounting practices as well as for all the techniques together. The results confirm the relatively high internal consistency of each classification’s items, except for costing techniques, since the Alpha result was 0.2323. One explanation for the low Alpha result for costing techniques is that the items listed in the questionnaire under this classification were unrelated and

22 Many thanks to prof. Colin Drury, prof. John Innes, Mrs Amanda Nayak, and Dr. Steve Lyne.
independent of each other, and this test measured the strength of the association between them.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of items</th>
<th>Alpha coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costing techniques</td>
<td>5</td>
<td>0.2323</td>
</tr>
<tr>
<td>Budgeting &amp; Control techniques</td>
<td>11</td>
<td>0.9057</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>14</td>
<td>0.7128</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>5</td>
<td>0.8762</td>
</tr>
<tr>
<td>Modern techniques</td>
<td>8</td>
<td>0.7584</td>
</tr>
<tr>
<td>All techniques</td>
<td>43</td>
<td>0.8610</td>
</tr>
</tbody>
</table>

5.6 **Statistical analysis**

The following chapters will present the results of the statistical analysis of the data collected in this study mainly through the questionnaire survey of management accounting practices within Jordanian industrial companies. This section will discuss the types of statistical tests utilised in this study and reasons for the use of these particular tests.

Siegel and Castellan (1988) indicated that parametric statistical tests are only appropriate when measurement on an interval or ratio scale has been achieved and the population is normally distributed. In statistical analysis there are two main types of tests according to their assumptions: parametric and non-parametric tests. Parametric statistical tests require certain conditions in order to be used, whereas, nonparametric
statistical tests require fewer conditions. According to Siegel (1956, p. vii), "...the nonparametric techniques of hypothesis testing are uniquely suited to the data of the behavioral sciences". He pointed to four reasons for their suitability: firstly, these tests are often distribution-free, which means they do not require data to come from a normally distributed population, and are therefore sometimes called "distribution-free tests". Secondly, they can be used easily with data which is not in any numerical form; alternatively data can be simply in rank form and this is why many of these tests are called "ranking tests". Thirdly, their simplicity leads to their popularity among students and researchers, especially in the behavioural sciences. Finally, they are applicable and useful to use with small samples.

Hence, nonparametric tests were employed (particularly in chapters six and seven) on the data collected in this study, because the test of normality of the study data (through a histogram) indicated the distribution of the variables was not normal and thus nonparametric tests were the most suitable (see Field, 2003; Alam, 1997). Only in chapter eight and after transforming some variables to overcome the normality problem, is multiple regression analysis employed to further identify the effect of selected explanatory variables (contingent factors) on the extent of usage of selected management accounting techniques.

Most of the variables in this study were measured using a nominal and ordinal scale rather than an interval and ratio scale. Siegel and Castellan (1988) suggest that nonparametric statistical tests should be employed when nominal or ordinal scale measurement has been achieved. Consequently, the researcher decided to utilise nonparametric statistical tests.
According to Siegel (1956, p. 31), "... increasing the sample size by an appropriate amount we can use a nonparametric test rather than the parametric one and yet retain the same power to reject \( H_0 \)." Therefore, the present researcher tried to maximise the research sample and to achieve more than 100 companies, considered, as mentioned before a reasonably large sample. Zikmund (2000, p. 466) argued that a sample size is small when \( n \) is less or equals 30.

Further, according to Zikmund (2000), the choice of the method of statistical analysis depends on the:

1. Type of question to be answered.
2. Number of variables.
3. Scale of measurement.

The original data in this study were modified to a format better supporting data analysis to achieve the current research objectives. Collapsing and combining adjacent categories of variables are common data transformations that reduce the number of data categories (Zikmund, 2000). These techniques were used to modify this study’s data and facilitate the statistical tests conducted to achieve the study objectives (see chapter seven and eight). In the following sub sections, the statistical tests and reasons for using them will be discussed.

### 5.6.1 Descriptive statistical analysis

The main purpose of this analysis is to describe the characteristics of the study’s population and the status of management accounting practises within Jordanian industrial companies. The most familiar form of such analysis is the calculation of
averages, frequency distributions, and percentage distributions. Moreover, since the
data in this study is categorical measured (nominal and ordinal) frequency tables,
percentages, modes, and medians are considered the most appropriate descriptive
statistical tests (Zikmund, 2000). However, this type of analysis can only achieve the
first study objective (i.e. the extent of use of management accounting techniques).
Bivariate and Multivariate statistical analyses are needed to accomplish the second
objective (i.e. the effect of contingent factors on management accounting practices).
These two types of statistical analysis will be discussed in the following sections.

5.6.2 Bivariate statistical analysis

Two groups of bivariate analysis tests were used in this study. Firstly, tests of
differences were employed, such as Mann-Whitney U and Chi-square tests, to test if
there were differences between postal questionnaire and interview answers. These
tests were also used to examine the existence of non-response bias. Secondly, tests of
association were also conducted to examine the association between the contingent
factors and the extent of usage of management accounting techniques. Chi-square and
Kendall’s rank correlation tests were used to examine such correlation. The direction
and strength of such correlation could also be provided by such tests.

5.6.3 Multivariate statistical analysis

Multivariate statistical analysis, such as Multiple Linear Regression, can examine the
association between many independent variables and a dependent variable
simultaneously. It also attempts to explain or predict the dependent variable on the basis of these independent variables.

Type of questions to be answered, number of variables, and scale of measurement are the main keys for choosing statistical tests. More details relating to the usage of these tests will be provided in the following chapters.

5.7 Summary

Explaining and discussing the research methodology and tools of this study have been the main purposes of this chapter. This is an empirical research study conducted using mainly the questionnaire as a research tool and several personal interviews to support and supplement the information derived therefrom and shed light on issues arising from questionnaire responses.

As a main research instrument, 291 questionnaires were sent by post to selected Jordanian companies and 110 responded, a response rate of 38%. However, 7 questionnaires were eliminated due to incompletion, resulting in a final response rate of 35% (103 companies). In addition, 30 personal interviews were conducted to ask more detailed questions that could not be included in the questionnaire and in order to keep its contents to a reasonable length.

Descriptive statistical analysis, bivariate and multivariate analyses will all be used in this study to provide reasonable and acceptable results. The research methodology, including statistical tests, is in line with the methodological approach adopted in previous similar studies reviewed in chapters three and four.
The following chapter will present the first part of the analysis, namely, descriptive statistical analysis. The results provided in chapter six mainly fulfil the first study objective mentioned in chapter one, i.e. to assess the extent of usage of management accounting practices in Jordan, to what extent modern techniques are used, and to what extent the used techniques are important to Jordanian manufacturing companies.
Chapter Six
Management Accounting Practice in Jordan:
Descriptive Results
6 Management Accounting Practice in Jordan: Descriptive Results

6.1 Introduction

The selection of management accounting techniques was discussed in detail in the previous chapter as well as the types of statistical analysis and reasons for using such analyses in this study. In this chapter, a descriptive statistical analysis of management accounting practices within Jordanian industrial companies will be presented and findings compared with those in other similar studies in order to accomplish the first objective.

This chapter provides general information about the companies under study and their respondent representatives. It also shows the extent of usage of management accounting techniques (i.e. costing, budgeting and control, performance measurement, capital investment appraisal, and modern management techniques) within these companies. The chapter also discusses the importance of the selected contingent factors and their influence on the use of these techniques. The chapter will attempt to answer the following questions: to what extent do Jordanian industrial companies employ management accounting techniques? To what extent do Jordanian companies regard the used management accounting techniques as important? To what extent do Jordanian companies utilise modern techniques? Further issues and questions raised in the course of the analysis will also be discussed and answered.
6.2 Part one: General information

This part of the survey provides general information about the companies under study and individual respondents. This information will be helpful for understanding the background of respondents and their respective companies.

6.2.1 Information about respondent companies

The information presented in this section relates to Jordanian industrial companies represented by the sample of this study.

The majority of variables are used as contingent variables (independent variables) that influence management accounting practices. They will be further analysed in the following chapters using bivariate and multivariate statistical analysis tests. The current chapter presents the descriptive statistical analysis.

6.2.1.1 The age of companies

The first question in the questionnaire elicited information on companies’ age. Table 6.1 shows 62.4% (83) of respondent companies had been between 10 to 30 years in the market. Almost three-quarters (70.7%) were 30 years old and less. The average age of respondent companies was 25 years. Comparing their ages with those of other international companies in the UK and USA, Jordanian companies are relatively new with little experience.
### Table 6.1: Respondent companies’ age

<table>
<thead>
<tr>
<th>Company age (Years)</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10</td>
<td>11</td>
<td>8.3</td>
<td>8.3</td>
</tr>
<tr>
<td>10-20</td>
<td>49</td>
<td>36.8</td>
<td>45.1</td>
</tr>
<tr>
<td>21-30</td>
<td>34</td>
<td>25.6</td>
<td>70.7</td>
</tr>
<tr>
<td>31-40</td>
<td>21</td>
<td>15.8</td>
<td>86.5</td>
</tr>
<tr>
<td>41-50</td>
<td>13</td>
<td>9.8</td>
<td>96.2</td>
</tr>
<tr>
<td>51-60</td>
<td>4</td>
<td>3.0</td>
<td>99.2</td>
</tr>
<tr>
<td>More than 60</td>
<td>1</td>
<td>0.8</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

### Other descriptive statistical analysis

<table>
<thead>
<tr>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.10</td>
<td>24.00</td>
<td>20</td>
<td>12.856</td>
<td>5</td>
<td>71</td>
</tr>
</tbody>
</table>

#### 6.2.1.2 Industry type

Respondents were asked to classify their companies’ industry type and presented with twelve main industrial categories carefully selected to represent Jordanian industrial companies. Table 6.2 shows the categories and their frequencies. Most respondents' companies were in the following categories: pharmaceutical & chemical industry, building materials and construction, and food products.

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23 The twelve industrial categories were selected carefully after consulting experts in the Jordanian industrial field during the first field visit (i.e. to conduct unstructured interviews) to Jordan. Also, written materials (e.g. annual reports, booklets, and leaflets from the DOS, MIT, MOF) about the industrial sector in Jordan were useful and assisted in this classification.
Table 6.2: Respondent companies’ industrial classification

<table>
<thead>
<tr>
<th>Industry type</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical &amp; chemical industry</td>
<td>29</td>
<td>21.8</td>
</tr>
<tr>
<td>Building materials and construction</td>
<td>23</td>
<td>17.3</td>
</tr>
<tr>
<td>Food products</td>
<td>20</td>
<td>15.0</td>
</tr>
<tr>
<td>Printing, paper and packing</td>
<td>11</td>
<td>8.3</td>
</tr>
<tr>
<td>Iron, steel and aluminum industry</td>
<td>10</td>
<td>7.5</td>
</tr>
<tr>
<td>Textile, clothing and footwear</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Plastic and rubber products</td>
<td>8</td>
<td>6.0</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Tobacco</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Furniture and wooden products</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Oil and gas industry</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6.2.1.3 Number of products (product diversity)

Product diversity was measured by number of products (see Bjørenak, 1997a; Abernethy et al., 2001). Table 6.3 shows 35% of respondent companies were producing between 7 to 14 products, while 28% were producing 15 products or more. Almost three-quarters of respondents (72.2%) were producing 14 products or less.
Table 6.3: Number of products

<table>
<thead>
<tr>
<th>Product number</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 2 products</td>
<td>23</td>
<td>17.3</td>
<td>17.3</td>
</tr>
<tr>
<td>3 to 6 products</td>
<td>27</td>
<td>20.3</td>
<td>37.6</td>
</tr>
<tr>
<td>7 to 14 products</td>
<td>46</td>
<td>34.6</td>
<td>72.2</td>
</tr>
<tr>
<td>15 to 30 products</td>
<td>5</td>
<td>3.8</td>
<td>75.9</td>
</tr>
<tr>
<td>31 to 60 products</td>
<td>9</td>
<td>6.8</td>
<td>82.7</td>
</tr>
<tr>
<td>61 to 120 products</td>
<td>9</td>
<td>6.8</td>
<td>89.5</td>
</tr>
<tr>
<td>More than 120 products</td>
<td>14</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6.2.1.4 Number of employees

Table 6.4 shows that 44.4% of respondent companies had between 101 to 200 employees. The majority (85%) of respondent companies had between 50 to 500 employees. This indicates that Jordanian companies are relatively smaller than their counterparts overseas, such as in the US and UK.

Table 6.4: Number of employees

<table>
<thead>
<tr>
<th>Employee number</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-100 employees</td>
<td>24</td>
<td>18.0</td>
<td>18.0</td>
</tr>
<tr>
<td>101-200 employees</td>
<td>59</td>
<td>44.4</td>
<td>62.4</td>
</tr>
<tr>
<td>201-500 employees</td>
<td>30</td>
<td>22.6</td>
<td>85.0</td>
</tr>
<tr>
<td>501-1000 employees</td>
<td>5</td>
<td>3.8</td>
<td>88.7</td>
</tr>
<tr>
<td>1001-2000 employees</td>
<td>6</td>
<td>4.5</td>
<td>93.2</td>
</tr>
<tr>
<td>2001-5000 employees</td>
<td>9</td>
<td>6.8</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

For instance, Coad (1999, p. 120) reporting on UK respondent companies using the number of employees as size proxy, indicated 48.4% had more than 601 employees, 24.7% had more than 3500 employees, 23.7% had 601-3,500 employees, and 24.1%
had between 151 to 600 employees. Staff within UK companies ranged from 11,170,000. The mean was 11,677 employees.

6.2.1.5 Sales (Turnover)

Table 6.5 shows 74.4% of respondent companies had annual sales less than JD 10 million.\(^{24}\) It also shows that 54% had an average sales turnover of 1 to JD 10 million per year. This result confirms the previous comment that Jordanian companies are significantly smaller in size than UK and US companies.

<table>
<thead>
<tr>
<th>Sales (Turnover) (JD)</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 million</td>
<td>27</td>
<td>20.3</td>
<td>20.3</td>
</tr>
<tr>
<td>1 - less than 10 millions</td>
<td>72</td>
<td>54.1</td>
<td>74.4</td>
</tr>
<tr>
<td>10 - less than 20 millions</td>
<td>12</td>
<td>9.0</td>
<td>83.5</td>
</tr>
<tr>
<td>20 - less than 30 millions</td>
<td>7</td>
<td>5.3</td>
<td>88.7</td>
</tr>
<tr>
<td>30 - less than 40 millions</td>
<td>6</td>
<td>4.5</td>
<td>93.2</td>
</tr>
<tr>
<td>40 - less than 80 millions</td>
<td>3</td>
<td>2.3</td>
<td>95.5</td>
</tr>
<tr>
<td>80 - less than 160 millions</td>
<td>1</td>
<td>0.8</td>
<td>96.2</td>
</tr>
<tr>
<td>160 - less than 320 millions</td>
<td>3</td>
<td>2.3</td>
<td>98.5</td>
</tr>
<tr>
<td>320 - less than 640 millions</td>
<td>2</td>
<td>1.5</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

For instance, Shim and Larkin (1994) reported the results of a survey of management accounting practices of 141 US manufacturing companies and found 63% had annual sales of $10 to $100 million, almost 25% reported annual sales of between $101 and $500 million, and 2.1% had more than $500 million turnover. Only 10% of respondents reported annual sales less than $10 million.

\(^{24}\) JD means Jordanian Dinar. US$ 1 equals JD 0.68 (as on 01/12/2002).
6.2.1.6 Exports' percentage of companies' total sales

Table 6.6 indicates 63.2% of respondent companies had exports ranging between 15% to 70% of their total sales, while the export percentage of just over three-quarters (79.7%) was 50% or less. The latter percentage included 11.3% of companies which did not have any exports. These results suggest that many Jordanian companies were dealing globally and exporting their products to new competitive markets, which means they were facing high competition, and more international requirements.

Table 6.6: Exports' percentage of companies' total sales

<table>
<thead>
<tr>
<th>Exports' percentage</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No exports at all</td>
<td>15</td>
<td>11.3</td>
<td>11.3</td>
</tr>
<tr>
<td>1% - 5% of total sales</td>
<td>17</td>
<td>12.8</td>
<td>24.1</td>
</tr>
<tr>
<td>6%-14% of total sales</td>
<td>9</td>
<td>6.8</td>
<td>30.8</td>
</tr>
<tr>
<td>15%-30% of total sales</td>
<td>23</td>
<td>17.3</td>
<td>48.1</td>
</tr>
<tr>
<td>31%-50% of total sales</td>
<td>42</td>
<td>31.6</td>
<td>79.7</td>
</tr>
<tr>
<td>51%-70% of total sales</td>
<td>19</td>
<td>14.3</td>
<td>94.0</td>
</tr>
<tr>
<td>71%-90% of total sales</td>
<td>5</td>
<td>3.8</td>
<td>97.7</td>
</tr>
<tr>
<td>More than 90% of total sales</td>
<td>3</td>
<td>2.3</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

6.2.1.7 Percentage of ownership

Table 6.7 shows Jordanian individuals and institutions owned the largest percentage of respondent companies' share capital, with a mean of 80%. The Jordanian government still had a share capital but in a decreasing mode because of the privatisation policy in the country. Foreign investments are increasing in Jordan because of the new polices and changes in the country business environment as mentioned in chapter two (section 2.4). The high percentage of share capital owned
Descriptive Analysis Results

by Jordanian individuals and institutions indicates that most government shares were
sold to private sectors in response to the privatisation policy.

Table 6.7: Percentage of ownership

<table>
<thead>
<tr>
<th>Owners</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordanian government</td>
<td>5.7</td>
<td>15.4</td>
<td>0.0</td>
<td>82.0</td>
</tr>
<tr>
<td>Jordanian individuals &amp; institutions</td>
<td>80.0</td>
<td>19.7</td>
<td>5.9</td>
<td>100.</td>
</tr>
<tr>
<td>Arab individuals &amp; institutions</td>
<td>9.1</td>
<td>9.7</td>
<td>0.0</td>
<td>53.0</td>
</tr>
<tr>
<td>Non-Arab individuals &amp; institutions</td>
<td>5.2</td>
<td>11.3</td>
<td>0.0</td>
<td>87.7</td>
</tr>
</tbody>
</table>

6.2.1.8 Level of competition

6.2.1.8.1 Domestic competition

Respondents were asked to indicate on a five-point scale the level of competition in
the domestic market regarding the quality and prices of their products. Table 6.8
below shows that 53.3% of respondent companies were experiencing ‘high’ and ‘very
high’ competition, 35.3% were experiencing ‘low’ and ‘very low’ competition,
whereas, only 11.3% indicated that domestic competition was moderate. The results
suggest Jordanian companies were working in an increasingly competitive domestic
market.

25 See Anderson and Lanen (1999) and Mia and Clarke (1999) who used the same competition
measurement.
Table 6.8: Level of domestic competition

<table>
<thead>
<tr>
<th>Level of competition</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low competition</td>
<td>28</td>
<td>21.1</td>
</tr>
<tr>
<td>Low competition</td>
<td>19</td>
<td>14.3</td>
</tr>
<tr>
<td>Moderate competition</td>
<td>15</td>
<td>11.3</td>
</tr>
<tr>
<td>High competition</td>
<td>47</td>
<td>35.3</td>
</tr>
<tr>
<td>Very high competition</td>
<td>24</td>
<td>18.0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
</tr>
</tbody>
</table>

6.2.1.8.2 International competition

Respondents were also asked to indicate on a five-point scale the level of international competition regarding the quality and prices of their products. It is evident from Table 6.9 that 60.9% of respondents viewed international competition as 'high' and 'very high', whereas, 32.3% considered it 'low' and 'very low'. This finding is due to the new free trade agreements with other countries, such as the USA, Canada, and Europe. It also confirms the export percentage results in section 6.2.1.6, which showed Jordanian respondent companies operating in a competitive market.

Table 6.9: Level of international competition

<table>
<thead>
<tr>
<th>Level of competition</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low competition</td>
<td>21</td>
<td>15.8</td>
</tr>
<tr>
<td>Low competition</td>
<td>22</td>
<td>16.5</td>
</tr>
<tr>
<td>Moderate competition</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>High competition</td>
<td>59</td>
<td>44.4</td>
</tr>
<tr>
<td>Very high competition</td>
<td>22</td>
<td>16.5</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
</tr>
</tbody>
</table>
6.2.1.9 The existence of cost and accounting departments

It was apparent that all respondent companies had accounting departments, whereas, only 37.6% had cost (management accounting) departments, indicating the high importance of costing (management accounting) information to these companies. Moreover, larger companies are more likely to have cost/management accounting departments than smaller ones. The results are shown in Table 6.10 below.

Table 6.10: The existence of accounting departments

<table>
<thead>
<tr>
<th>Name of the department</th>
<th>Yes Valid percentage %</th>
<th>No Valid percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting department</td>
<td>100.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cost (Management accounting) department</td>
<td>37.6</td>
<td>62.4</td>
</tr>
</tbody>
</table>

6.2.1.10 Educational qualifications of accounting employees

Table 6.11 shows the number and qualifications of accounting staff within respondent companies. It is evident that most employees held an accounting degree since this qualification achieved a mean score of 4.75. The second most common educational qualification was a Diploma and Tawjihe\textsuperscript{26} in all majors, with a mean score of 2.62. Relevant degrees to accounting (e.g. Business Administration, Finance, and Economic degrees) achieved a mean score of 2.13. The least commonly held educational qualification was a non-relevant degree to accounting (e.g. Arts and Science degrees). It achieved a mean score of 1.02. One possible reason for the relatively high mean score for the Diploma and Tawjihe in all majors may be the government's policy to

\textsuperscript{26} 'Tawjihe' is the name of the high school educational level before entering university in Jordan, similar to 'A' level in the UK.
employ unqualified staff (i.e. staff with low educational qualifications) to solve existing social problems. However, the fact that the majority of accounting employees, within respondent companies, held accounting degrees suggests Jordanian industrial companies recognised the importance of the accounting profession and appropriately qualified accounting staff.

Moreover, the study revealed that the average number of staff within finance department of respondent companies achieved a mean score of 10.53.

Table 6.11: Accounting employees' educational qualifications

<table>
<thead>
<tr>
<th>Educational qualifications of accounting staff</th>
<th>Statistics for number of staff within finance dept.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Accounting degree</td>
<td>4.75</td>
</tr>
<tr>
<td>Relevant degrees to accounting (e.g. Business Administration degree)</td>
<td>2.13</td>
</tr>
<tr>
<td>Non-relevant degrees to accounting (e.g. Arts and Science degrees)</td>
<td>1.02</td>
</tr>
<tr>
<td>Diploma &amp; Tawjihe in all majors</td>
<td>2.62</td>
</tr>
<tr>
<td>Total</td>
<td>10.53</td>
</tr>
</tbody>
</table>

6.2.1.11 Professional accounting qualifications

Table 6.12 reveals the lack of accountants with professional accounting qualifications. Respondent companies possessed only three types of professional accounting qualifications. The American Certified Public Accountant (CPA) was the most commonly held professional accounting qualification within respondent companies followed by the Jordanian Certified Public Accountant (JCPA) qualification. This
finding suggests American qualifications are more popular in developing countries, such as Jordan, than other qualifications.

Table 6.12: Professional accounting qualifications

<table>
<thead>
<tr>
<th>Professional qualifications</th>
<th>Number of qualified accountants</th>
<th>0</th>
<th>1</th>
<th>2 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Jordanian Certified Public Accountant (JCPA)</td>
<td>126</td>
<td>126</td>
<td>94.7</td>
<td>7</td>
</tr>
<tr>
<td>Arabic Certified Public Accountant (ACPA)</td>
<td>132</td>
<td>132</td>
<td>99.2</td>
<td>1</td>
</tr>
<tr>
<td>American Certified Public Accountant (CPA)</td>
<td>122</td>
<td>122</td>
<td>91.7</td>
<td>9</td>
</tr>
<tr>
<td>British Certified Public Accountant (ACCA)</td>
<td>133</td>
<td>133</td>
<td>100</td>
<td>0.0</td>
</tr>
<tr>
<td>American Certified Management Accountant (CMA)</td>
<td>133</td>
<td>133</td>
<td>100</td>
<td>0.0</td>
</tr>
<tr>
<td>British Chartered Management Accountant (CIMA)</td>
<td>133</td>
<td>133</td>
<td>100</td>
<td>0.0</td>
</tr>
</tbody>
</table>

6.2.2 Information about respondents

This information will be presented as descriptive statistical results in this section. It has also been used in section 5.5.6.1, chapter 5, to confirm the reliability of the study's data. It presents information about individual respondents who filled the questionnaire.

6.2.2.1 Work position of respondents

Table 6.13 reveals 55.6% of those completing the questionnaire were financial managers or their assistants, 31.6% were heads of accounting or cost accounting
departments,\textsuperscript{27} and 10.5\% were accountants. Only 2.3\% of those answering the questionnaire held other work positions. This result ensures the reliability of the collected data.

Table 6.13: Work position of respondents

<table>
<thead>
<tr>
<th>Work position</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Manager</td>
<td>69</td>
<td>51.9</td>
</tr>
<tr>
<td>Assistant Financial Manager</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Head of Accounting Department</td>
<td>27</td>
<td>20.3</td>
</tr>
<tr>
<td>Head of Cost Accounting Department</td>
<td>15</td>
<td>11.3</td>
</tr>
<tr>
<td>Accountant</td>
<td>14</td>
<td>10.5</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
</tr>
</tbody>
</table>

6.2.2.2 Academic qualifications of respondents

Respondents were asked to reveal their academic qualifications. Table 6.14 shows the majority of respondents (81.2\%) held a Bachelor degree (BSc.), while 9.0\% held postgraduate degrees. These results again support the reliability of the collected data.

Table 6.14: Academic qualifications of respondents

<table>
<thead>
<tr>
<th>Academic qualification</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD degree</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Master degree</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td>Higher Diploma degree</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Bachelor degree (BSc.)</td>
<td>108</td>
<td>81.2</td>
</tr>
<tr>
<td>Diploma</td>
<td>13</td>
<td>9.8</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
</tr>
</tbody>
</table>

\textsuperscript{27} Some companies had two different departments for accounting and costs run by different individuals.
6.2.2.3 The field of study of respondents

Table 6.15 shows the field of study of questionnaire respondents. More than three-quarters (75.2%) indicated they had graduated from the accounting field, once more providing support for the collected data’s reliability.

Table 6.15: The field of study of respondents

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>100</td>
<td>75.2</td>
<td>75.2</td>
</tr>
<tr>
<td>Business Administration</td>
<td>12</td>
<td>9.0</td>
<td>84.2</td>
</tr>
<tr>
<td>Economics</td>
<td>3</td>
<td>2.3</td>
<td>86.5</td>
</tr>
<tr>
<td>Finance</td>
<td>10</td>
<td>7.5</td>
<td>94.0</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>6.0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

6.2.2.4 Respondents' professional accounting qualifications

Of the 133 respondents, 5 (3.8%) respondents held the American Certified Public Accountant (CPA) qualification, and 1 (0.8%) held the Arabic Certified Public Accountant (ACPA) qualification. The rest, 127 (95.5%), did not hold any professional accounting qualification. The results in Table 6.16 confirm the popularity of American professional accounting qualifications.
Table 6.16: Respondents' professional accounting qualifications

<table>
<thead>
<tr>
<th>Professional qualifications</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Certified Public Accountant (ACCA)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>American Certified Management Accountant (CMA)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>British Chartered Management Accountant (CIMA)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Jordanian Certified Public Accountant (JCPA)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Arabic Certified Public Accountant (ACPA)</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>American Certified Public Accountant (CPA)</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Without Professional Qualifications</td>
<td>127</td>
<td>95.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6.2.2.5 Respondents' work experience

Respondents were asked to indicate the length of their work experience. Table 6.17 shows 46% of respondents had had more than 20 years experience while 83.5% had had more than 10 years total work experience, again supporting the reliability of the collected data.

Table 6.17: Respondents' work experience

<table>
<thead>
<tr>
<th>Respondents' work experience</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>3</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td>2 - 5 years</td>
<td>4</td>
<td>3.0</td>
<td>5.3</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>15</td>
<td>11.3</td>
<td>16.6</td>
</tr>
<tr>
<td>11 - 15 years</td>
<td>21</td>
<td>15.8</td>
<td>32.4</td>
</tr>
<tr>
<td>16 - 20 years</td>
<td>29</td>
<td>21.8</td>
<td>54.2</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>61</td>
<td>45.9</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>
6.2.2.6 Work experience with current company

Table 6.18 shows 42.1% of respondents had worked between 6 to 15 years in their current companies, while 27.8% had worked for more than 15 years in theirs.

Table 6.18: Work experience with current company

<table>
<thead>
<tr>
<th>Working time</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>16</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>2 - 5 years</td>
<td>24</td>
<td>18.0</td>
<td>30.1</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>27</td>
<td>20.3</td>
<td>50.4</td>
</tr>
<tr>
<td>11 - 15 years</td>
<td>29</td>
<td>21.8</td>
<td>72.2</td>
</tr>
<tr>
<td>16 - 20 years</td>
<td>11</td>
<td>8.3</td>
<td>80.5</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>26</td>
<td>19.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

6.2.2.7 Respondents’ age

Regarding respondents’ age, Table 6.19 shows no respondents were younger than 25 years, 40.6% were aged between 36 and 45 years, while just over half (59.4%) were aged 45 years and less. Only 11.3% were aged 55 years or above.

Table 6.19: Respondents’ age

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency (#)</th>
<th>Valid percentage (%)</th>
<th>Cumulative percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 years</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>25 - 35 years</td>
<td>25</td>
<td>18.8</td>
<td>18.8</td>
</tr>
<tr>
<td>36 - 45 years</td>
<td>54</td>
<td>40.6</td>
<td>59.4</td>
</tr>
<tr>
<td>46 - 55 years</td>
<td>39</td>
<td>29.3</td>
<td>88.7</td>
</tr>
<tr>
<td>More than 55 years</td>
<td>15</td>
<td>11.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
6.3 Part two: Management accounting practices

This part of the study explores and discusses the extent of using different management accounting techniques/practices within Jordanian industrial companies.

6.3.1 Costing techniques

This section will discuss costing practices within Jordanian industrial companies. Respondents were asked to indicate whether they use selected costing techniques or not. They were also asked to indicate on a five point Likert scale the importance of these techniques to their companies.28 These questions and others will be discussed in the following sections. Moreover, previously published empirical studies of management accounting practices, especially costing practices, will be compared with the results of this study.

6.3.1.1 The use of costing techniques (Yes/No question)

Among the first three costing techniques (i.e. job order, process, and batch costing techniques) the job order costing technique was the most popular technique in use since it was used in 57.1 % (76) of respondent companies as shown in Table 6.20 below. This Table shows 50.4% (67) used the process-costing technique, whereas, only 27.8% (37) used the batch costing technique. Respondents were also asked to indicate whether they were allocating service departments’ cost and using activity-

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28 This scale will be used in all the following questions relating to management accounting techniques.
based costing techniques. Results revealed 31.6% (42) of respondent companies were allocating service departments' cost while one company only (0.8%) claimed it used activity-based costing techniques. The researcher was desirous to include the only company that used ABC in subsequent interviews, but unfortunately the company refused to participate further in the study.

Table 6.20: The use of costing techniques (Yes/No question)

<table>
<thead>
<tr>
<th>Technique</th>
<th>Yes Valid percentage %</th>
<th>No Valid percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job order costing technique</td>
<td>57.1</td>
<td>42.9</td>
</tr>
<tr>
<td>Process costing technique</td>
<td>50.4</td>
<td>49.6</td>
</tr>
<tr>
<td>Batch costing technique</td>
<td>27.8</td>
<td>72.2</td>
</tr>
<tr>
<td>Activity-based costing</td>
<td>0.8</td>
<td>99.2</td>
</tr>
<tr>
<td>Allocating service departments' cost</td>
<td>31.6</td>
<td>68.4</td>
</tr>
</tbody>
</table>

Shields et al. (1991) compared the results of survey findings of management accounting practices in Japanese and US companies. They reported that job order costing was used by 23.4% to 32.7% of Japanese companies and by 28% to 35% of US companies. The process costing method was used by 55.4% to 61.5% of Japanese companies and by 24% to 36% of US companies. Only 18% of US companies used the operational costing method.

Shim and Larkin (1994) found the most popular product costing method within US manufacturing companies was job-order costing, with 51.1% using it, and 24.1%, 10.6% and 14.2% using the process-costing method, operation costing, and other costing methods, respectively.
Alebaishi (1998) investigated management accounting practices within Saudi manufacturing companies. More than half (59%) of respondents were allocating service department costs in their companies. The researcher compared his results with a prior study conducted by Blayney and Yokoyama (1991) which had examined management accounting practices in three countries: Australia, Japan, and the UK. According to their study, 66% of Australian companies were allocating service department costs, 96% of Japanese companies were using it, and 92% of UK companies were also employing the technique.

Joshi (2001) reported that the most popular production method within Indian companies was the batch production method, with 41.7% using it, and 20% using activity based costing.

In another study, Haldma and Lääts (2002) indicated that 51.3% of sampled Estonian manufacturing companies used process costing, while 33.7% used job-order costing, 15% used both process and job-order costing, and only 7% used activity-based costing. They also reported that 47% of respondent companies used company-wide rate to allocate maintenance department costs, and 26% used plant-wide rate to allocate such costs. However, they argued that using such techniques to allocate service departments’ cost would not provide companies with accurate cost information for products. They needed to use more accurate cost drivers in order to achieve objective cost information.

Many studies have investigated the use of activity based costing techniques. Drury and Tayles (1994) reported that 13% of UK manufacturing companies were ‘using’ or ‘in the process of using’ ABC. Chenhall and Langfield-Smith (1998a) investigated the adoption and benefits of management accounting practices within a sample of 78
Australian manufacturing companies. They classified use of the activity-based costing technique under 'low adoption' techniques and reported 56% of respondents were using ABC.

Coad (1999) reported the results of a questionnaire survey of management accounting techniques in UK companies and indicated 34.7% of respondents were using ABC. Innes et al. (2000) stated that adoption of the ABC system had not grown since their last survey in 1994, in fact, the adoption of ABC had decreased from 21.0% in 1994 to 17.5% in 1999 in UK companies.

According to Abernethy et al.'s (2001) study, none of the five research sites had applied a full ABC system and one only had a sophisticated costing system. Cotton et al. (2003) reported in their survey of NZ companies that 20.3% of respondents were using ABC.

Although the pharmaceutical company Evans Medical had implemented a new costing system (ABC), the company was not using the new cost information to adjust its product prices, due to the force of the competition which the company was facing in the market (Bhimani and Pigott, 1992).

Dugdale and Jones (1997) suggested that "...many of the claims for ABC use are mistaken, exaggerated or ambiguous" (p.239). Indeed, many researchers have been sceptical of the high reported usage rate of ABC and suggest actual usage of this technique is much lower (see Drury and Tayles, 1994; Dugdale and Jones, 1997).
6.3.1.2 The importance of costing techniques

Respondents who used costing techniques were subsequently asked to indicate on a five point Likert scale to what extent these techniques were important in their companies. Table 6.21 shows 89.6% of companies who were using the process costing technique considered it 'above average in importance' or 'an extremely important' technique. It was ranked highest in importance among techniques, with a mean of 4.54 (S.D 0.682), followed by the batch costing technique, which was considered 'above average in importance' and 'extremely important' by 86.5% of respondents. The job costing technique was ranked third highest in importance, 75% of respondents ranked it as 'above average in importance' or 'an extremely important' technique. Allocating service departments' costs achieved the fourth highest mean score, with 73.8% of respondents rating it as 'above average importance' or 'an extremely important' technique. Finally, the only company which used activity-based costing regarded it as a technique 'average in importance'. The results clearly show all the costing techniques were ranked as 'above average importance' or 'extremely important'. These results are perhaps not surprising, because why would respondent companies use techniques of no importance or value? Generally, costing systems are considered important, as they provide the main management accounting information needed for decision-making.
Table 6.21: The importance of costing techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Use (No.)</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process costing technique</td>
<td>67</td>
<td>0.0</td>
<td>0.0</td>
<td>10.4</td>
<td>25.4</td>
<td>64.2</td>
<td>4.54</td>
<td>5.00</td>
<td>0.682</td>
</tr>
<tr>
<td>Batch costing technique</td>
<td>37</td>
<td>0.0</td>
<td>0.0</td>
<td>13.5</td>
<td>32.4</td>
<td>54.1</td>
<td>4.41</td>
<td>5.00</td>
<td>0.725</td>
</tr>
<tr>
<td>Job order technique</td>
<td>76</td>
<td>0.0</td>
<td>10.5</td>
<td>14.5</td>
<td>15.8</td>
<td>59.2</td>
<td>4.24</td>
<td>5.00</td>
<td>1.057</td>
</tr>
<tr>
<td>Allocating service department costs</td>
<td>42</td>
<td>0.0</td>
<td>11.9</td>
<td>14.3</td>
<td>28.6</td>
<td>45.2</td>
<td>4.07</td>
<td>4.00</td>
<td>1.045</td>
</tr>
<tr>
<td>Activity-based costing</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3.00</td>
<td>3.00</td>
<td>-</td>
</tr>
</tbody>
</table>

*1 = Not important, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

6.3.1.3 Techniques used to allocate overhead costs

Respondents were asked to indicate which techniques they used to allocate overhead costs. Table 6.22 shows that just under three-quarters (70%) of respondents used a blanket overhead rate, 23% used cost centre rates to allocate overhead costs, and 16% used department rates. Only one company (1%) claimed that it used activity-based drivers to allocate overhead costs.

Table 6.22: Techniques used to allocate overhead costs

<table>
<thead>
<tr>
<th>Technique</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanket overhead rate</td>
<td>81</td>
<td>60.9</td>
</tr>
<tr>
<td>Activity-based drivers</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Department rates</td>
<td>21</td>
<td>15.8</td>
</tr>
<tr>
<td>Cost centre rates</td>
<td>30</td>
<td>22.6</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>
This study revealed that the blanket overhead rate (i.e. single or plant wide) was the most popular method for allocating overheads. In contrast, Drury et al. (1993) found only 26% of surveyed UK companies were using blanket overhead rates (plant-wide overhead rates). Likewise, Bjørnenak (1997b) in his survey of the costing practices of 75 of the largest Norwegian manufacturing companies, reported that only one company was using one blanket overhead rate. Also, he found two-thirds of respondents were using departmental overhead rates.

Drury and Tayles (1994, p. 454) suggested that using plant-wide rates to allocate overheads could be acceptable for stock valuation purposes, but were likely to be unsuitable for decision-making purposes. They reported that 26% of UK companies used plant-wide rate to allocate overheads. Further, according to Drury and Tayles (1995, p. 270), UK, USA and Australian surveys revealed approximately 30% of respondents were using plant-wide rates. Moreover, direct labour was the most popular allocation bases, even if it represented only 10% - 15% of total manufacturing cost.

In another study, Lamminmaki and Drury (2001) found (see Table 6.23 below) 52% of NZ respondent companies were using one plant-wide overhead rate, whereas only 28% of UK respondents were using only one overhead rate.
Table 6.23: Lamminmaki and Drury’s (2001) results for the extent of usage of overhead rates

<table>
<thead>
<tr>
<th></th>
<th>NZ (%)</th>
<th>UK (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One overhead rate</td>
<td>52</td>
<td>28</td>
</tr>
<tr>
<td>Department rates</td>
<td>21</td>
<td>32</td>
</tr>
<tr>
<td>Cost centre rates</td>
<td>27</td>
<td>40</td>
</tr>
</tbody>
</table>

Joshi (2001) indicated that more than half (65%) of respondent companies were using departmental rates, while 35% of Indian sampled companies were using plant-wide single rate to allocate overheads.

The above results suggest that the product costing system within the sampled Jordanian companies was simple and relied on plant-wide overhead rates to allocate overheads, which may be acceptable for stock valuation purposes, and financial accounting in general, but not for decision-making (see Drury et al., 1993). It is also evident that the adoption of plant-wide overhead rates is more common in developing countries than in developed ones.

6.3.1.4 The extent of using overhead recovery bases

The results in Table 6.24 below show that 75.9% of respondents ‘often’ or ‘always’ used number of units produced; 28.6% ‘often’ or ‘always’ used direct material cost; 15.8% ‘often’ or ‘always’ used direct machine hours; and 12.8% ‘often’ or ‘always’ used direct labour hours/cost. The Table findings indicate that many respondents used a combination of bases to allocate overhead costs, and the most important one was number of units produced, with a mean score of 4.11 (SD = 1.27).
Table 6.24: The extent of using overhead recovery bases

<table>
<thead>
<tr>
<th>Technique</th>
<th>Used level*</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of units produced</td>
<td>7.5 6.8 9.8 18.8 57.1</td>
<td>4.11</td>
<td>5.00</td>
<td>1.27</td>
</tr>
<tr>
<td>Direct material cost</td>
<td>56.4 6.0 9.0 9.8 18.8</td>
<td>2.29</td>
<td>1.00</td>
<td>1.64</td>
</tr>
<tr>
<td>Direct machine hours/cost</td>
<td>63.2 7.5 13.5 6.8 9.0</td>
<td>1.91</td>
<td>1.00</td>
<td>1.36</td>
</tr>
<tr>
<td>Direct labour hours/cost</td>
<td>68.4 4.5 14.3 10.5 2.3</td>
<td>1.74</td>
<td>1.00</td>
<td>1.18</td>
</tr>
<tr>
<td>Cost drivers using ABC</td>
<td>99.2 0.0 0.8 0.0 0.0</td>
<td>0.8</td>
<td>1.00</td>
<td>-</td>
</tr>
</tbody>
</table>

* 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always.

In practice, companies employ many different overhead recovery bases rather than just the most common one, which is direct labour hours. For example, material value, machine hours, engineering hours, and units produced are all popular bases. Recently, companies have started to develop and improve their overhead recovery bases by employing new techniques, such as cost drivers using ABC. However, in this study, the number of units produced was the most popular overhead recovery base in the companies under study, used by 76% of respondents.

The use of direct labour hours/cost methods as overheads’ allocation bases has been criticised by many researchers, especially in a machine-paced environment where the direct labour cost is a small proportion of the total costs. However, Drury et al.’s (1993) study reported that direct labour rates were still the most popular overhead allocation bases for both automated and non-automated production activities, 68% and 73%, respectively. Similarly, Drury and Tayles (1994) reported that 73% of non-automated and 68% of automated respondent companies were using direct labour hours/cost methods to allocate their overheads.
Bjørnenak (1997b) found more than 50% of Norwegian manufacturing companies were using more than 10 indirect cost pools. Table 6.25 reports the results of the survey, which showed that one-third of respondents were using one type of overhead allocation base (e.g. direct labour), another third were using two different allocation bases, and the remaining third were using more than two different overhead allocation bases.

Table 6.25: Bjørnenak’s (1997b) survey of overhead allocation bases in Norway

<table>
<thead>
<tr>
<th>Allocation base</th>
<th>Percentage of companies using it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of units produced</td>
<td>40</td>
</tr>
<tr>
<td>Direct labour costs</td>
<td>37</td>
</tr>
<tr>
<td>Machine hours</td>
<td>29</td>
</tr>
<tr>
<td>Direct labour hours</td>
<td>28</td>
</tr>
<tr>
<td>Direct materials costs</td>
<td>26</td>
</tr>
<tr>
<td>Other allocation bases</td>
<td>23</td>
</tr>
</tbody>
</table>

(Source: Bjørnenak, 1997b, p. 376)

Lamminmaki and Drury (2001) reported the results of comparing product-costing practices used by both NZ and UK manufacturing companies. They found the most popular overhead rate was direct labour and the least was ABC. Table 6.26 presents these results in detail.
Table 6.26: Lamminmaki and Drury’s (2001) comparison of types of manufacturing overhead rates

<table>
<thead>
<tr>
<th>Allocation base</th>
<th>Automated production activities</th>
<th>Non-automated production activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NZ (%)</td>
<td>UK (%)</td>
</tr>
<tr>
<td>Direct labour</td>
<td>84</td>
<td>78</td>
</tr>
<tr>
<td>Material hours</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Machine hours</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>Units of output</td>
<td>47</td>
<td>55</td>
</tr>
<tr>
<td>ABC</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

Brierley et al. (2001) found the most common bases for allocating overheads were the volume-based overhead methods, especially direct labour hour/cost.

However, the result of the present study is consistent with other developing countries’ studies. Al-Khater (1999) reported that 50% of respondent companies used the number of units produced as a basis to allocate overheads. Similar results were obtained in Haldma and Lääts’ (2002) study. They found manufacturing overhead costs were usually allocated on a volume basis, where, 42% of respondents used direct labour costs to allocate overheads, 38% used sales volume, 28% used direct labour hours, 26% used direct materials, 16% used machine-hours, and only 8% used number of operating cycles. They also added that most companies used more than two different allocation bases.

It seems that this method is widely used in developing countries rather than in developed ones where direct labour is more popular.
6.3.1.5 How Jordanian companies price their products

In response to the question: 'How does your company determine its products’ price', 43.6% of respondents indicated they used the market price and it was the most popular method of pricing. Full cost-plus pricing was the second most popular method, used by 27.8% of respondent companies; 15.8% used the variable cost-plus pricing method, and 11.3% indicated their products’ price was determined by the government. The results are shown in Table 6.27 below.

Table 6.27: The extent of using pricing methods

<table>
<thead>
<tr>
<th>Pricing method</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing by government</td>
<td>15</td>
<td>11.3</td>
</tr>
<tr>
<td>Pricing by market</td>
<td>58</td>
<td>43.6</td>
</tr>
<tr>
<td>Variable cost-plus pricing</td>
<td>21</td>
<td>15.8</td>
</tr>
<tr>
<td>Full cost-plus pricing</td>
<td>37</td>
<td>27.8</td>
</tr>
<tr>
<td>Other(s)</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Surveys of practice have shown that companies usually mark up their prices to gain adequate contribution to fixed costs and profit and usually they use full cost (including fixed overheads) as a base for marking up (see Drury and Dugdale, 1996). Similarly, Drury and Tayles (1995) found full costs were popular and widely used for decision-making. Moreover, the cost-plus pricing method using full costs was widely used for pricing decisions. One explanation for such popularity is that companies
usually seek to cover all their costs when they use the cost-plus pricing method and ensure that profit is generated.\textsuperscript{29}

Empirically, Drury et al. (1993) found full costs were often the main determinant of product prices. The majority (84\%) of respondents were using cost-plus pricing, and it was used selectively not for all products. Over half (63\%) of firms indicated that the use of cost-plus pricing was only one of many factors that determined the selling price. They also found more than three-quarters (77\%) of firms were often or always using total manufacturing or total cost in their pricing decisions; 50\% were often or always using variable manufacturing or total variable cost; 32\% were often or always using both total manufacturing cost/total cost and variable manufacturing/variable total cost; while 24\% never or rarely used variable product costs (neither variable manufacturing cost or total variable cost).

Similar results were reported by Shim and Sudit (1995) based on Shim’s survey of pricing practices in US manufacturing companies conducted in 1993. His survey revealed that almost three-quarters (69.5\%) of respondent companies were using the full-cost pricing method, 17.7\% were using market-based (competitive) pricing, while only 12.1\% were using the variable-cost method.

However, the result of this study is consistent with that of Israelsen et al. (1996) who found 60\% of Danish respondent companies were using the market alone to determine final prices. Similarly, in Gulf Cooperation Council Countries, Al-Khater (1999) indicated that the majority (87\%) of respondent companies determined their final prices according to market forces (market based), 9\% used the variable cost plus method, another 9\% used the total cost plus method, and 17\% used the manufacturing

\textsuperscript{29} For further explanation of such popularity, please see Drury and Tayles (1995, pp. 268-270).
cost plus method. The results indicate that such companies were working in a highly competitive environment.

### 6.3.1.6 The extent of using different product costs for decision-making

Table 6.28 reveals the extent of using different costs in making decisions. The results show that most respondent companies used a mix of cost information in their decisions. The most popular product cost was total manufacturing cost, with a mean of 3.32. Almost half of respondents (49.6%) 'often' or 'always' used total manufacturing cost; 48.1% 'often' or 'always' used total cost (including fixed non-manufacturing costs); 33.8% 'often' or 'always' used variable manufacturing cost in their decisions, while 22.5% 'often' or 'always' used total variable cost.

<table>
<thead>
<tr>
<th>Technique</th>
<th>Used level*</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total manufacturing cost</td>
<td>1 %</td>
<td>2 %</td>
<td>3 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Sample 133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total variable cost (inc. non-manufacturing costs)</td>
<td>39.8</td>
<td>16.5</td>
<td>21.1</td>
<td>15.0</td>
</tr>
<tr>
<td>Total manufacturing cost</td>
<td>21.1</td>
<td>3.0</td>
<td>26.3</td>
<td>21.8</td>
</tr>
<tr>
<td>Total cost (inc. fixed non-manufacturing costs)</td>
<td>12.8</td>
<td>11.3</td>
<td>27.8</td>
<td>30.1</td>
</tr>
<tr>
<td>Variable manufacturing cost</td>
<td>36.8</td>
<td>16.5</td>
<td>12.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Total variable cost (inc. non-manufacturing costs)</td>
<td>39.8</td>
<td>16.5</td>
<td>21.1</td>
<td>15.0</td>
</tr>
</tbody>
</table>

*1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always.

Drury et al. (1993) observed that most firms used different types of cost information in decision-making. Fifty-eight per cent of respondent companies 'often' or 'always' used full costs (i.e. total manufacturing cost or total cost), 62% 'often' or 'always'
used variable/incremental costs (i.e. manufacturing cost or total variable cost); 18% 'never' or 'rarely' used full costs; 13% 'never' or 'rarely' used variable costs, and 54% 'often' or 'always' used both full and variable cost approaches. In addition, the study revealed that larger companies tended to make greater use of variable/incremental costs.

Similarly, Drury and Tayles (1994), who studied UK manufacturing companies, found the most popular cost UK companies used for their decision-making was total manufacturing cost or total cost. In their study, 79% of respondents ‘often’ or ‘always’ used these costs for decision-making, while 70% of UK companies ‘often’ or ‘always’ used variable manufacturing cost or total variable cost for decision-making purposes.

In another study, Lamminmaki and Drury (2001) investigated the use of these costs within both NZ and UK manufacturing companies. They reported, as shown in Table 6.29 below, that total manufacturing cost was the most popular used cost for decision-making among NZ respondents (Mean = 3.85), whereas within UK respondent companies the most extensively used costing classification for decision-making purposes was variable/incremental-manufacturing cost (Mean = 3.55). For pricing decision purposes, total manufacturing cost was the most popularly used costing classification among both NZ and UK companies surveyed (Means = 3.88 and 3.42, respectively).
Table 6.29: Lamminmaki and Drury’s (2001) results for the extent of using different types of cost information

<table>
<thead>
<tr>
<th></th>
<th>For decision-making purposes</th>
<th>For pricing decision purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NZ (Mean) *</td>
<td>UK (Mean) *</td>
</tr>
<tr>
<td>Variable manufacturing cost</td>
<td>2.84</td>
<td>3.55</td>
</tr>
<tr>
<td>Total manufacturing cost</td>
<td>3.85</td>
<td>3.22</td>
</tr>
<tr>
<td>Total variable cost (inc. non-manufacturing costs)</td>
<td>2.40</td>
<td>2.94</td>
</tr>
<tr>
<td>Total cost (inc. fixed non-manufacturing costs)</td>
<td>2.92</td>
<td>2.81</td>
</tr>
</tbody>
</table>

* Means of a five-point scale to measure the degree of usage where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always.

The results from prior studies show companies were using cost information in a flexible way and decisions were not based only on full cost information. Nevertheless, full costs were still widely used among companies.

6.3.2 Budgeting and control techniques

The following techniques were included under the budgeting and control classification: sales budget, production budget, cash budget, direct materials purchase/usage budget, direct labour budget, overheads budget, master budget, flexible budgeting, activity-based budgeting, zero-based budgeting, and incremental budgeting. Standard costing and transfer pricing questions were also included in this section of the questionnaire.
6.3.2.1 The use of budgeting and control techniques (Yes/No question)

The results show that six budgeting techniques were used by more than half (60% and above) of respondents. These techniques were sales budget (69.9%); production budget (63.9%); cash budget (63.2%); master budget (62.4%); incremental budgeting (61.7%); and direct materials purchase/usage budget (60.2%). Less popular were flexible budgeting (34.6%); overheads budget (32.3%); and direct labour budget (30.1%). The only techniques used by very few respondents were activity-based budgeting (3.8%) and zero-based budgeting (3.0%). Results are presented in Table 6.30 and indicate that Jordanian companies rely on simple budgeting techniques, such as sales, production, and master budgets, as budgeting and control practices. Companies surveyed were more familiar with incremental budgeting than other budgeting techniques because this method is widely used in government organisations, and Jordanian companies had and still have government capital shares.
Table 6.30: The use of budgeting and control techniques (Yes/No question)

<table>
<thead>
<tr>
<th>Technique</th>
<th>Yes Valid percentage (%)</th>
<th>No Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 133</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales budget</td>
<td>69.9</td>
<td>30.1</td>
</tr>
<tr>
<td>Production budget</td>
<td>63.9</td>
<td>36.1</td>
</tr>
<tr>
<td>Cash budget</td>
<td>63.2</td>
<td>36.8</td>
</tr>
<tr>
<td>Direct materials purchase/usage budget</td>
<td>60.2</td>
<td>39.8</td>
</tr>
<tr>
<td>Direct labour budget</td>
<td>30.1</td>
<td>69.9</td>
</tr>
<tr>
<td>Overheads budget</td>
<td>32.3</td>
<td>67.7</td>
</tr>
<tr>
<td>Master budget</td>
<td>62.4</td>
<td>37.6</td>
</tr>
<tr>
<td>Flexible budget</td>
<td>34.6</td>
<td>65.4</td>
</tr>
<tr>
<td>Activity-based budgeting (ABB)</td>
<td>3.8</td>
<td>96.2</td>
</tr>
<tr>
<td>Zero-based budgeting (ZBB)</td>
<td>3.0</td>
<td>97.0</td>
</tr>
<tr>
<td>Incremental budgeting</td>
<td>61.7</td>
<td>38.3</td>
</tr>
</tbody>
</table>

A survey conducted by Puxty and Lyall (1989) of 453 UK companies, found nearly 95% of respondent companies prepared and used budgeting systems. Similarly, Drury et al.'s (1993) investigation of budgetary control and control reporting within a sample of UK manufacturing companies, reported virtually all the companies surveyed prepared and used budgeting systems. Sales budget tended to be the most important and difficult plan in the annual budgeting. Managers' performance was often evaluated by the success of meeting their budget target. Forty-two per cent of respondent companies were using flexible budgets.

Chenhall and Langfield-Smith (1998a) surveyed the adoption and benefits of management accounting practices within Australian manufacturing companies and found the most popular techniques were budgeting techniques: 94% to 100% of
respondents indicated they used budgeting techniques for different purposes. Most budgeting techniques were classified under 'high adoption' techniques. Only activity-based budgeting was classified under 'low adoption' techniques, with 78% of usage.\textsuperscript{30}

In Guilding et al.'s (1998) study, more than 50% of respondent companies were using budgeting practices. Almost 95% of UK respondents and 98% of NZ respondents indicated they were still using them. Moreover, the use of the flexible budgeting technique among UK respondents was statistically significantly higher than among NZ respondents: 42% of UK respondents were using this technique compared to only 27% of NZ respondents.

Szychta (2002) studied management accounting practices within a sample of 60 Polish companies. He found 80% (48) of respondent companies were using annual budgeting for the whole company. About 17% of companies prepared and used a full set of operating and financial budgets. Remaining companies, which stated they applied and used annual budgeting, prepared at least two or three operating budgets, such as sales budget and production budget. Sixty-five per cent of respondents prepared and used cost budgeting. The researcher also reported that 46% of companies applied incremental budgeting, 35% applied zero-based budgeting, and 44% used and prepared flexible budgets.

Alebaishi (1998) investigated the extent of usage of budgeting techniques within Saudi manufacturing companies. Almost three-quarters (74%) of respondent companies were preparing and using a master budget. More than three-quarters of these companies (77%) prepared and used this technique annually. The researcher also reported that 77% of the respondent companies used production budget, 76%
used cash budget, and 76%, 68%, 60%, and 59% used sales budget, direct material budget, overhead budget, and direct labour budget, respectively.

In his study, Al-Khater (1999) reported that the majority of respondent companies used a comprehensive budget approach. Ninety-six per cent of respondents prepared and used sales budget, production budget, material budget, direct labour budget, overhead cost budget, profit and loss statement, capital expenditure, and cash budget, while 43% used flexible budgets.

Similar results were found in an Indian study. Joshi (2001) found the most popular management accounting practices within sampled Indian companies were budgeting techniques used together with other traditional performance evaluation techniques. Most budgeting techniques were used by at least 85% of respondent companies. However, new techniques were not so popular. For example, activity-based budgeting was only used by 7% of respondents, and zero-based budgeting was used by only 5%.

Both previous and present study results clearly show more advanced budgeting techniques, such as activity-based budgeting and zero-based budgeting, were not popular among the Jordanian companies. Simple budgeting techniques, such as sales, production, and master budgets were most commonly used techniques. Moreover, the current study's results are consistent with previous related studies in both developed and developing countries.

6.3.2.2 The importance of budgeting and control techniques

Table 6.31 shows most budgeting techniques were ranked as 'above average importance' or 'extremely important' by more than 50% of respondent companies.
These techniques were cash budget (92.9%); master budget (91.6%); sales budget (89.3%); production budget (77.7%); flexible budgeting (71.7%); direct materials purchase/usage budget (67.1%); and incremental budgeting (56.1%). Fifty per cent of respondents ranked overheads budget as ‘above average importance’ or ‘an extremely important’ technique, while 46.7% ranked direct labour budget as ‘above average importance’ or ‘an extremely important’ technique.

It is important to note that all budgeting techniques were ranked above the ‘average importance’ level. Direct labour budget had the lowest mean of 3.55. The findings indicate the importance of budgeting techniques within Jordanian industrial companies. This is not a surprising result, since most previous studies had found budgeting techniques widely used among respondent companies in both developed and developing countries.
## Table 6.31: The importance of budgeting and control techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Use (No.)</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master budget</td>
<td>83</td>
<td>0.0</td>
<td>0.0</td>
<td>8.4</td>
<td>25.3</td>
<td>66.3</td>
<td>4.58</td>
<td>5.00</td>
<td>0.646</td>
</tr>
<tr>
<td>Cash budget</td>
<td>84</td>
<td>0.0</td>
<td>0.0</td>
<td>7.1</td>
<td>36.9</td>
<td>56.0</td>
<td>4.49</td>
<td>5.00</td>
<td>0.630</td>
</tr>
<tr>
<td>Sales budget</td>
<td>93</td>
<td>0.0</td>
<td>3.2</td>
<td>7.5</td>
<td>26.9</td>
<td>62.4</td>
<td>4.48</td>
<td>5.00</td>
<td>0.775</td>
</tr>
<tr>
<td>Production budget</td>
<td>85</td>
<td>0.0</td>
<td>2.4</td>
<td>20.0</td>
<td>35.3</td>
<td>42.4</td>
<td>4.18</td>
<td>4.00</td>
<td>0.833</td>
</tr>
<tr>
<td>Flexible budgeting</td>
<td>46</td>
<td>0.0</td>
<td>0.0</td>
<td>28.3</td>
<td>41.3</td>
<td>30.4</td>
<td>4.02</td>
<td>4.00</td>
<td>0.774</td>
</tr>
<tr>
<td>Direct materials purchase/usage</td>
<td>80</td>
<td>0.0</td>
<td>2.4</td>
<td>30.5</td>
<td>37.8</td>
<td>29.3</td>
<td>3.94</td>
<td>4.00</td>
<td>0.837</td>
</tr>
<tr>
<td>Incremental budgeting</td>
<td>82</td>
<td>0.0</td>
<td>12.2</td>
<td>31.7</td>
<td>37.8</td>
<td>18.3</td>
<td>3.62</td>
<td>4.00</td>
<td>0.925</td>
</tr>
<tr>
<td>Overheads budget</td>
<td>43</td>
<td>0.0</td>
<td>5.0</td>
<td>45.0</td>
<td>33.3</td>
<td>16.7</td>
<td>3.62</td>
<td>3.50</td>
<td>0.825</td>
</tr>
<tr>
<td>Direct labour budget</td>
<td>40</td>
<td>0.0</td>
<td>11.7</td>
<td>41.7</td>
<td>26.7</td>
<td>20.0</td>
<td>3.55</td>
<td>3.00</td>
<td>0.946</td>
</tr>
<tr>
<td>Zero-based budgeting</td>
<td>4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>50.0</td>
<td>50.0</td>
<td>4.50</td>
<td>4.50</td>
<td>0.577</td>
</tr>
<tr>
<td>Activity-based budgeting</td>
<td>5</td>
<td>0.0</td>
<td>0.0</td>
<td>20.0</td>
<td>40.0</td>
<td>40.0</td>
<td>4.20</td>
<td>4.00</td>
<td>0.837</td>
</tr>
</tbody>
</table>

*1 = Not important, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

### 6.3.2.3 Standard costing technique

Respondents were asked to indicate whether or not they used the standard costing technique. If used, which type of standard costing did they apply?

#### 6.3.2.3.1 The extent of using standard costing

Table 6.32 shows almost three-quarters (73.7%) of respondent companies did not use standard costing, whereas just over a quarter (26.3%) used it. Explanations for non-usage of this technique will be provided in chapter 9.

---

31 The last two techniques have been reported in the end of the table, although their 'means' were relatively high, because their sample was very low (4 and 5 responses, respectively).
Table 6.32: The extent of using standard costing

<table>
<thead>
<tr>
<th>Does your company use standard costing?</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>98</td>
<td>73.7</td>
</tr>
<tr>
<td>Yes</td>
<td>35</td>
<td>26.3</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Puxty and Lyall (1989) reported that more than three-quarters of surveyed British industrial companies prepared and used standard costing systems. Likewise, Drury et al. (1993) reported that the standard costing system was widely used among UK manufacturing companies, 76% of respondent companies were still using this technique. The study did not support claims that standard costing systems no longer provide useful information for cost control and performance evaluation.

Shields et al. (1991) compared the results of survey findings of management accounting practices in Japanese and US manufacturing companies. They reported 40% to 60% of Japanese companies were using standard costing, whereas 70% to 73% of US companies were using this technique.

Guilding et al. (1998) found no statistically significant difference between UK and NZ manufacturing respondent companies' usage of the standard costing system: 73% of NZ respondents and 76% of UK respondents were using this technique.

Alebaishi (1998) investigated the extent of using the standard costing system within Saudi manufacturing companies. More than half of respondents (57%) were using standard costing. Whereas, and according to Alebaishi (1998), Blayney and Yokoyama (1991) reported that 69% of Australian companies, 52% of Japanese companies, and 64% of UK companies were using this technique.
In his study, Al-Khater (1999) found the standard costing system widely used by petrochemical respondent companies in Gulf Cooperation Council Countries: 83% of respondent companies were using this system. Joshi (2001) reported that 68% of sampled Indian manufacturing companies were using standard costing. He classified it under ‘low adoption techniques’.

One possible explanation for the low adoption of standard costing techniques among Jordanian companies compared with the high adoption of budgeting techniques is these companies’ greater familiarity with government budgeting systems than with management accounting techniques, such as standard costing.

### 6.3.2.3.2 Types of standard costing

Respondents who used standard costing were requested to indicate which standard costing basis they used in their companies. As shown in Table 6.33 below, 48.6% of respondents used historical standards, 28.6% used currently attainable standards, 20% used basic standards, and only one company (2.9%) claimed that it used ideal standards.

<table>
<thead>
<tr>
<th>Type of standard cost</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal standards</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Historical standards</td>
<td>17</td>
<td>48.6</td>
</tr>
<tr>
<td>Currently attainable standards</td>
<td>10</td>
<td>28.6</td>
</tr>
<tr>
<td>Basic standards</td>
<td>7</td>
<td>20.0</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Shields et al. (1991) compared survey findings of management accounting practices in Japanese and US companies. He reported 5.3% of Japanese companies were using ideal standards compared with 4.4% to 7.6% of US companies. In addition, 54.3% of US companies were using ‘currently attainable standards’ in contrast to 9.7% only of Japanese companies. Further, 41.4% to 42.2% of US companies were using average past performance.

Drury et al. (1993) reported that 44% of UK manufacturing companies were employing ‘achievable but difficult to attain standards’, 46% were using ‘average past performance standards’, and only 5% were using ‘maximum efficiency standards’.

Alebaishi (1998) reported that more than three-quarters (79%) of Saudi respondent companies were using the currently attainable method to set cost standards, 16% were using ideal standards, and only 5% were using other methods.

Guilding et al. (1998) found the ‘average of historic cost’ was the most popular method among NZ respondent companies but used less by UK respondents.

The present study’s result is consistent with that of Al-Khater (1999) who reported that more than three-quarters (79%) of respondent companies used the past historical records method to set raw materials standards and 32% used the engineering studies method to set raw materials standards.
6.3.2.4 Transfer pricing

6.3.2.4.1 The extent of using transfer pricing in companies

As shown in Table 6.34, almost three-quarters (72.2%) of respondent companies did not use the transfer-pricing technique.

Table 6.34: The extent of using transfer pricing

<table>
<thead>
<tr>
<th>Does your company use transfer pricing?</th>
<th>Frequency #</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>96</td>
<td>72.2</td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td>27.8</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

6.3.2.4.2 Transfer pricing methods

Those respondents who used transfer pricing in their companies were asked to indicate the extent of using the listed transfer pricing methods. The results, as shown in Table 6.35, show that only three transfer pricing methods were ‘often’ or ‘always’ used by respondents; these techniques were the full cost method, used by 56.7% and the most popular method with a mean of 3.24, then the variable cost method (used by 37.8%) followed by the market pricing method (used by 27%).
Table 6.35: The extent of using transfer pricing methods

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Used level*</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 % 2 % 3 % 4 % 5 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N = 37</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market pricing method</td>
<td>59.5 0.0 13.5 18.9 8.1</td>
<td>2.16</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Full cost method</td>
<td>24.3 18.9 0.0 21.6 35.1</td>
<td>3.24</td>
<td>4.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Variable cost method</td>
<td>62.2 0.0 0.0 13.5 24.3</td>
<td>2.38</td>
<td>1.00</td>
<td>1.82</td>
</tr>
<tr>
<td>Full cost-plus method</td>
<td>75.7 13.5 10.8 0.0 0.0</td>
<td>1.35</td>
<td>1.00</td>
<td>0.68</td>
</tr>
<tr>
<td>Variable cost-plus method</td>
<td>70.3 18.9 10.8 0.0 0.0</td>
<td>1.41</td>
<td>1.00</td>
<td>0.69</td>
</tr>
<tr>
<td>Negotiated pricing method</td>
<td>94.6 5.4 0.0 0.0 0.0</td>
<td>1.05</td>
<td>1.00</td>
<td>0.23</td>
</tr>
<tr>
<td>Standard costing method</td>
<td>86.5 0.0 13.5 0.0 0.0</td>
<td>1.27</td>
<td>1.00</td>
<td>0.69</td>
</tr>
</tbody>
</table>

* 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always.

Shields et al. (1991), who reported and compared survey findings of management accounting practices in Japanese and US companies, indicated that the most popular transfer pricing method among both groups of respondents was adjusted market price (see Table 6.36).

Table 6.36: The results of Shields et al.'s (1991) comparative study of transfer pricing methods

<table>
<thead>
<tr>
<th></th>
<th>Japan (%)</th>
<th>U.S.A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Adjusted market</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Contribution margin</td>
<td>Ni</td>
<td>13</td>
</tr>
<tr>
<td>Negotiated</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Cost plus</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>Actual full cost</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Standard full cost</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Standard variable cost</td>
<td>2</td>
<td>Ni</td>
</tr>
</tbody>
</table>

(Source: Shields et al., 1991)
Drury et al. (1993) surveyed the extent of using different transfer pricing methods by UK companies. The most popular transfer pricing method was negotiated transfer pricing, with 70% of respondents using it. The market-pricing method was widely utilised by 52% of respondents. Unit variable/marginal cost transfer prices were rarely employed. Full cost or cost-plus transfer prices were more commonly used than unit variable cost transfer prices. More than half of respondent companies (68%) permitted divisions to buy from outside their companies.

In his study, Al-Khater (1999) reported that the majority (86%) of respondent companies used the full cost method for setting transfer prices, while only 7% used market based and variable cost methods. No respondent used the negotiated transfer pricing method.

The popularity of the full cost method among Jordanian companies is not surprising. Al-Khater (1999) also reported the same finding among respondents in Gulf Cooperation Council Countries. This may indicate that this method is more popular in developing countries than in developed ones.

### 6.3.2.4.3 Divisions' right to buy from outside

When respondents were asked to indicate to what extent buying divisions have the right to buy from outside their companies, Table 6.37 shows that the majority (81.1%) indicated divisions 'never' had this right while only 18.9% indicated that divisions 'rarely' had the right to buy from outside their companies. Thus, the overall findings suggest divisions' right to buy from outsiders is not available within Jordanian industrial companies. One explanation is the centralisation of management within the
majority of Jordanian companies. This means that although companies might have divisions, these divisions are not fully independent in their decisions and management. Another explanation is that most Jordanian companies do not have independent and separate divisions within their structures and most work as one entity under one management.

Table 6.37: The extent of using standard costing

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency (#)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>30</td>
<td>81.1</td>
</tr>
<tr>
<td>Rarely</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100.0</td>
</tr>
</tbody>
</table>

6.3.3 Performance measurement techniques

Performance measurement techniques employed in this study included financial techniques and non-financial techniques as follows: return on investment, residual income, economic value added, market share, sales, share price, division profit, product quality, customer satisfaction, employees’ satisfaction (attitude), budget variance analysis, meeting the budgets, benchmarking, and balanced scorecard.

6.3.3.1 The use of performance measurement techniques (Yes/No question)

More than half of respondents used multi performance measurement techniques in their companies. Results showed 91%, 78.2%, 75.9%, 73.7% and 56.4% used sales, customer satisfaction, product quality, target budgets, and market share to evaluate
their performance, respectively. Further, between a quarter and just under half of respondents used five other techniques to measure their performance: 45.9%, 42.1%, 35.3%, 30.8% and 26.35% used return on investment, budget variance analysis, employees' attitude, benchmarking, and share price, respectively. Other performance measurement techniques were used by very few respondents as follows: 6.8% used residual income technique, 4.5% used economic value added, and only 1.5% used balanced scorecard. The results are presented in Table 6.38 below.

Table 6.38: The use of performance measurement techniques (Yes/No question)

<table>
<thead>
<tr>
<th>Technique</th>
<th>Sample 133</th>
<th>Yes Valid percentage (%)</th>
<th>No Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on investment (ROI)</td>
<td></td>
<td>45.9</td>
<td>54.1</td>
</tr>
<tr>
<td>Residual income (RI)</td>
<td></td>
<td>6.8</td>
<td>93.2</td>
</tr>
<tr>
<td>Economic value added (EVA)</td>
<td></td>
<td>4.5</td>
<td>95.5</td>
</tr>
<tr>
<td>Market share</td>
<td></td>
<td>56.4</td>
<td>43.6</td>
</tr>
<tr>
<td>Sales</td>
<td></td>
<td>91.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Share price</td>
<td></td>
<td>26.3</td>
<td>73.7</td>
</tr>
<tr>
<td>Product quality</td>
<td></td>
<td>75.9</td>
<td>24.1</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td></td>
<td>78.2</td>
<td>21.8</td>
</tr>
<tr>
<td>Employees' attitude</td>
<td></td>
<td>35.3</td>
<td>64.7</td>
</tr>
<tr>
<td>Budget variance analysis</td>
<td></td>
<td>42.1</td>
<td>57.9</td>
</tr>
<tr>
<td>Meeting the budgets</td>
<td></td>
<td>73.7</td>
<td>26.3</td>
</tr>
<tr>
<td>Benchmarking</td>
<td></td>
<td>30.8</td>
<td>69.2</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td></td>
<td>1.5</td>
<td>98.5</td>
</tr>
</tbody>
</table>
Shields et al. (1991) compared the extent of using performance measures to evaluate divisional managers in Japanese and US companies. As Table 6.39 below shows, the most common performance measurement techniques among Japanese and US respondent companies were sales and ROI, respectively. The popularity of sales measurement was found among Jordanian companies in this study.


<table>
<thead>
<tr>
<th></th>
<th>Japan (%)</th>
<th>US (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>69</td>
<td>19</td>
</tr>
<tr>
<td>Market share</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>ROI</td>
<td>7</td>
<td>75</td>
</tr>
<tr>
<td>Residual income</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Budgeted performance</td>
<td>NI</td>
<td>49.3</td>
</tr>
</tbody>
</table>

(Source: adapted from Shields et al., 1991)

In their study, Drury et al. (1993) reported respondent companies extensively used non-financial performance measures: 79%, 73%, 72%, and 86% often or always used customer satisfaction/product quality, customer delivery efficiency, supplier quality and delivery reliability, and scrap/defects/ rework, respectively. Many of these measures were produced by non-accountants.

Conventional wisdom on management accounting recommends that companies should use the residual income technique (RI) rather than return on investment (ROI) for
divisional performance measurement (Drury and Dugdale, 1996). However, previous empirical studies indicate a different practice. Drury et al. (1993) reported that only 20% of respondent companies employed RI, whereas, 55% used ROI, 61% used target profit, 43% employed target cash flow, and 57% used ability to stay within the budget.

In an Australian study, Chenhall and Langfield-Smith (1998a) investigated the adoption and benefits of management accounting practices within a sample of 78 manufacturing companies. They found 96%, 95% and 92% of respondents were using return on investment, budget variance analysis, and non-financial measures, respectively. Eighty-eight per cent were using balance scorecard (mix of financial and non-financial measures), customer satisfaction, and employees’ attitude. A lower percentage (60%) were using residual income.

Coad (1999) conducted a questionnaire survey of management accounting techniques in UK companies and found 68.4% of respondents were using qualitative performance measures and 17.9% were using balanced scorecard.

Anderson and Lanen (1999) found the most common performance evaluation practices among Indian respondent companies were productivity, customer satisfaction, and on-time delivery (non-financial measures). In his study, Joshi (2001) reported performance evaluation techniques were widely used within the sampled Indian manufacturing companies. All respondents (60 companies) used return on investment, budget variance analysis, and divisional profit. Moreover, 80%, 70%, and 53% were using customer satisfaction surveys, team performance, and non-financial measures, respectively. Just under half were using residual income and balanced scorecard, 43% and 40%, respectively. Less than a quarter (22%) were using
employees' attitudes. The researcher also found between 23% to 65% of respondents were using benchmarking techniques.

The findings of the present study suggest that Jordanian companies do not rely on one single performance measure, instead, they utilise a range of techniques to ensure the accuracy and validity of their evaluation. Moreover, this study's results and those of previous studies indicate that most companies, in both developed and developing countries, used a mixture of financial and non-financial performance measurements. However, it seems non-financial measures are more popular than financial ones among companies in developing countries.

6.3.3.2 The importance of performance measurement techniques

Almost all the performance measurement techniques, except three, were ranked as 'above average importance' or 'extremely important' by more than 50% of respondent companies. According to Table 6.40, 89.3%, 78.6%, 72.3%, 69.2%, 66.7%, 64.3%, 64%, 63.4% and 60% of respondent companies ranked sales, budget variance analysis, product quality, customer satisfaction, market share and economic value added, meeting the budget, return on investment, benchmarking, and the share price as 'above average importance' or 'extremely important', respectively. Two techniques were considered as 'above average importance' or 'extremely important' by less than 50% of respondents, namely, employees' attitude (34.1%) and residual income (22.2%). Not one respondent viewed the balanced scorecard technique as 'above average importance' or 'extremely important'.
### Table 6.40: The importance of performance measurement techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Sample 133</th>
<th>Use (No.)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>121</td>
<td>0.0</td>
<td>1.7</td>
<td>9.1</td>
<td>39.7</td>
<td>49.6</td>
<td></td>
<td>4.37</td>
<td>4.00</td>
<td>0.720</td>
</tr>
<tr>
<td>Product quality</td>
<td>101</td>
<td>0.0</td>
<td>8.9</td>
<td>18.8</td>
<td>27.7</td>
<td>44.6</td>
<td></td>
<td>4.08</td>
<td>4.00</td>
<td>0.997</td>
</tr>
<tr>
<td>Budget variance analysis</td>
<td>56</td>
<td>0.0</td>
<td>16.1</td>
<td>5.4</td>
<td>48.2</td>
<td>30.4</td>
<td></td>
<td>3.93</td>
<td>4.00</td>
<td>1.006</td>
</tr>
<tr>
<td>The share price</td>
<td>35</td>
<td>0.0</td>
<td>8.6</td>
<td>31.4</td>
<td>22.9</td>
<td>37.1</td>
<td></td>
<td>3.89</td>
<td>4.00</td>
<td>1.022</td>
</tr>
<tr>
<td>The market share</td>
<td>75</td>
<td>0.0</td>
<td>10.7</td>
<td>22.7</td>
<td>36.0</td>
<td>30.7</td>
<td></td>
<td>3.87</td>
<td>4.00</td>
<td>0.977</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>104</td>
<td>4.8</td>
<td>12.5</td>
<td>13.5</td>
<td>39.4</td>
<td>29.8</td>
<td></td>
<td>3.77</td>
<td>4.00</td>
<td>1.151</td>
</tr>
<tr>
<td>Meeting the budget</td>
<td>98</td>
<td>0.0</td>
<td>8.2</td>
<td>27.6</td>
<td>44.9</td>
<td>19.4</td>
<td></td>
<td>3.76</td>
<td>4.00</td>
<td>0.862</td>
</tr>
<tr>
<td>Return on investment</td>
<td>61</td>
<td>4.8</td>
<td>8.2</td>
<td>23.0</td>
<td>41.0</td>
<td>23.0</td>
<td></td>
<td>3.69</td>
<td>4.00</td>
<td>1.074</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>41</td>
<td>0.0</td>
<td>17.1</td>
<td>19.5</td>
<td>51.2</td>
<td>12.2</td>
<td></td>
<td>3.59</td>
<td>4.00</td>
<td>0.921</td>
</tr>
<tr>
<td>Economic value added</td>
<td>6</td>
<td>0.0</td>
<td>33.3</td>
<td>0.0</td>
<td>50.0</td>
<td>16.7</td>
<td></td>
<td>3.50</td>
<td>4.00</td>
<td>1.225</td>
</tr>
<tr>
<td>Employees’ attitude</td>
<td>47</td>
<td>0.0</td>
<td>21.3</td>
<td>44.7</td>
<td>12.8</td>
<td>21.3</td>
<td></td>
<td>3.34</td>
<td>3.00</td>
<td>1.048</td>
</tr>
<tr>
<td>Residual income</td>
<td>9</td>
<td>0.0</td>
<td>55.6</td>
<td>22.2</td>
<td>0.0</td>
<td>22.2</td>
<td></td>
<td>2.89</td>
<td>2.00</td>
<td>1.269</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td>2</td>
<td>0.0</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td>2.00</td>
<td>2.00</td>
<td>.000</td>
</tr>
</tbody>
</table>

*1 = Not important, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

Guilding et al. (1998) found accountants in both NZ and the UK rated variances from budgets as important: 71% of NZ respondents and 67% of UK respondents classified variances from budgets for performance appraisal either as ‘above average importance’ or ‘vitally important’.
6.3.4 Capital investment appraisal techniques

Techniques under this classification were: payback period, accounting rate of return, net present value, internal rate of return, and meeting the budget.

6.3.4.1 The use of capital investment appraisal techniques (Yes/No question)

The majority of respondents indicated that capital investment appraisal techniques were not popular and only a few used them. Table 6.41 shows 13.5% of companies used meeting budgets as a capital investment appraisal technique, 10.5% used accounting rate of return, 7.5% used net present value and internal rate of return, and 6% used payback period.

Table 6.41: The use of capital investment appraisal techniques (Yes/No question)

<table>
<thead>
<tr>
<th>Technique</th>
<th>Yes Valid percentage (%)</th>
<th>No Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payback period (PBP)</td>
<td>6.0</td>
<td>94.0</td>
</tr>
<tr>
<td>Accounting rate of return (ARR)</td>
<td>10.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Net present value (NPV)</td>
<td>7.5</td>
<td>92.5</td>
</tr>
<tr>
<td>Internal rate of return (IRR)</td>
<td>7.5</td>
<td>92.5</td>
</tr>
<tr>
<td>Meeting budgets</td>
<td>13.5</td>
<td>86.5</td>
</tr>
</tbody>
</table>

Shields et al.’s (1991) comparative survey of management accounting practices in Japanese and US companies found 14.5% and 15.7% of Japanese companies were using net present value and internal rate of return, respectively, whereas, between 64% to 82% of US companies were using NPV and/or IRR. In addition, 83.6% and
35.2% of Japanese companies were using the payback method and average rate of return, respectively.

Drury et al.'s (1993) study supported prior studies' findings that payback method was the most popular capital investment appraisal technique. NPV and IRR discounting methods were also used but IRR was more popular than NPV. Companies were using a combination of these techniques, 63% often or always using payback (unadjusted), 42% often or always using discounted payback, 57% often or always using IRR, and 43% often or always using NPV.

Neale and Pike (1996) found all capital investment appraisal techniques were widely utilised. Payback period was the most popular technique, with 94% of respondents adopting it, followed by internal rate of return (81%), net present value (74%), and average accounting rate of return (50%).

In his study, Szychta (2002) examined investment appraisal techniques within a sample of Polish companies. He found 35%, 40%, 30% and 25% of respondent companies were using ROI, payback period, net present value (NPV), and internal rate of return (IRR), respectively.

6.3.4.2 The importance of capital investment appraisal techniques

All respondents evaluated these techniques as highly important. The majority considered these techniques as ‘above average importance’ or ‘extremely important’. According to Table 6.42, all respondents evaluated payback period and net present value as ‘above average in importance’ or ‘extremely important’, while 80%, 71.4%
and 61.1% rated internal rate of return, accounting rate of return, and meeting the budget as highly important, respectively.

Table 6.42: The importance of capital investment appraisal techniques

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 133</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use (N.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net present value (NPV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4.40</td>
<td>4.00</td>
<td>0.516</td>
</tr>
<tr>
<td>Payback period (PBP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.13</td>
<td>4.00</td>
<td>0.354</td>
</tr>
<tr>
<td>Internal rate of return (IRR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4.10</td>
<td>4.00</td>
<td>0.738</td>
</tr>
<tr>
<td>Accounting rate of return (ARR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>3.93</td>
<td>4.00</td>
<td>0.730</td>
</tr>
<tr>
<td>Meeting the budget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>3.67</td>
<td>4.00</td>
<td>0.907</td>
</tr>
</tbody>
</table>

* 1 = Not important, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

The few Jordanian industrial companies using capital appraisal techniques, considered them very important techniques. This is not surprising, since one would expect those using these techniques to consider them useful and important otherwise why they would not use them in the first place.

6.3.5 Modern management techniques

These techniques included: total quality management, activity-based management, value-chain analysis, just in time, kaizen costing, target costing, life-cycle costing, and re-engineering approach.
6.3.5.1 The use of modern management techniques (Yes/No question)

Table 6.43 below shows that the total quality management (TQM) technique was the most popular modern management technique among surveyed Jordanian industrial companies; 52% of respondent companies were using TQM. This relatively high percentage is not surprising. Interviews revealed that the government in Jordan was encouraging all companies to apply this technique. The table shows other techniques, such as kaizen costing and target costing, were used relatively more often than other techniques. The findings as a whole reveal the poor usage of new management techniques within Jordanian industrial companies, but suggest they have started to recognise the importance of such techniques in their new environment.\(^{32}\) This recognition may also be driven by the fact that TQM is not a single, recognised technique rather an approach with many different techniques and practices to implement.

Table 6.43: The use of modern management techniques (Yes/No question)

<table>
<thead>
<tr>
<th>Technique</th>
<th>Sample 133</th>
<th>Yes Valid percentage (%)</th>
<th>No Valid percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total quality management (TQM)</td>
<td>133</td>
<td>51.9</td>
<td>48.1</td>
</tr>
<tr>
<td>Activity-based management (ABM)</td>
<td></td>
<td>4.5</td>
<td>95.5</td>
</tr>
<tr>
<td>Value-chain analysis</td>
<td></td>
<td>1.5</td>
<td>98.5</td>
</tr>
<tr>
<td>Just in time (JIT)</td>
<td></td>
<td>6.8</td>
<td>93.2</td>
</tr>
<tr>
<td>Kaizen costing</td>
<td></td>
<td>16.5</td>
<td>83.5</td>
</tr>
<tr>
<td>Target costing</td>
<td></td>
<td>13.5</td>
<td>86.5</td>
</tr>
<tr>
<td>Life-cycle costing</td>
<td></td>
<td>3.8</td>
<td>96.2</td>
</tr>
<tr>
<td>Re-engineering approach</td>
<td></td>
<td>10.5</td>
<td>89.5</td>
</tr>
</tbody>
</table>

\(^{32}\) The new environment mentioned in chapter 2.
Drury et al. (1993) reported that 26% of UK respondent companies were often or always using target costing, whereas 47% never or rarely used this technique.

Chenhall and Langfield-Smith (1998a) investigated management accounting practices within a sample of Australian manufacturing companies. They found 70% of respondent companies were using product life cycle analysis, 68% were using activity-based management, 49% were using value chain analysis, and only 38% were using the target costing technique.

Coad (1999) conducted a questionnaire survey of modern management accounting techniques in UK companies. He reported 40%, 28.1%, 26.4%, 22% and 17.9% were using kaizen costing, activity-based management, target costing, value-chain analysis, and life cycle costing, respectively.

According to Ernst & Young and IMA (2003, p.4), “In today’s economic environment, new initiatives are not high on companies’ priority lists”. In their study, 80% of US respondent companies indicated that adoption of new management accounting initiatives’ techniques was of low to medium priority. Traditional management accounting practices were still popular and used frequently. Their study showed 26% of respondents were using target costing, and 25% were using value-based management.

Alebaishi (1998) investigated the extent of usage of other management accounting techniques. He found 35% of respondent companies were using life-cycle costing, 50% were using the just-in-time technique, and 28% using the ABC technique.

In a similar study, Joshi (2001) investigated the extent of adoption of recently developed management accounting practices within Indian companies. All the
examined techniques had been adopted at a very low level (under the low adoption classification). The most popular technique was product life cycle analysis, 45% of respondents were using it. Sequentially, 35%, 25% and 13% of respondents were using target costing, value chain analysis, and activity-based management, respectively.

6.3.5.2 The importance of modern management techniques

The majority of users of these techniques considered them as 'above average importance' or 'extremely important'. Table 6.44 shows that 84% of respondent companies considered TQM 'above average importance' or 'extremely important'. Other techniques, such as kaizen costing and target costing, were also ranked above the 'average importance' point.
### Table 6.44: The importance of modern management techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Use (No.)</th>
<th>Importance level</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 %</td>
<td>2 %</td>
<td>3 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Value-chain analysis</td>
<td>2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Just in time (JIT)</td>
<td>9</td>
<td>0.0</td>
<td>0.0</td>
<td>22.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Activity-based management</td>
<td>6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>83.3</td>
</tr>
<tr>
<td>Total quality management</td>
<td>69</td>
<td>0.0</td>
<td>0.0</td>
<td>15.9</td>
<td>53.6</td>
</tr>
<tr>
<td>Target costing</td>
<td>18</td>
<td>0.0</td>
<td>0.0</td>
<td>38.9</td>
<td>33.3</td>
</tr>
<tr>
<td>Re-engineering approach</td>
<td>14</td>
<td>0.0</td>
<td>0.0</td>
<td>50.0</td>
<td>28.6</td>
</tr>
<tr>
<td>Kaizen costing</td>
<td>22</td>
<td>0.0</td>
<td>9.1</td>
<td>27.3</td>
<td>50.0</td>
</tr>
<tr>
<td>Life-cycle costing</td>
<td>5</td>
<td>0.0</td>
<td>0.0</td>
<td>60.0</td>
<td>40.0</td>
</tr>
</tbody>
</table>

*1 = Not important, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

Scapens (1991) suggests that new management accounting techniques should be implemented in a competitive environment to help decision-makers maximise their profits. Nevertheless, he argues that using traditional or simple management accounting techniques in practice could be the best response to the decision-making situation and not an illogical refutation of textbook theory and models.

### 6.4 Part three: Factors that influence management accounting practices

This part of the questionnaire investigated factors that have influenced/changed management accounting practices/techniques in Jordanian industrial companies. Respondents were asked to indicate on a five-point Likert scale the importance of
selected factors that have influenced management accounting practices in their companies.\footnote{Some prior related studies used the same methodology to investigate such factors, for example, Luther and Longden (2001), Longden et al. (2001), and Haldma and Lätts (2002).}

Table 6.45 shows respondents considered the most important and least important factors to be accounting education in Jordan and specialist management accounting journals, respectively, with means of 4.14 and 3.12. The Table shows that most of the listed factors were ranked as 'above average importance' or 'extremely important' by more than 50% of respondents. Accounting education in Jordan, top management support, increased competition, using a computer system for management accounting purposes, management accounting training programmes, adequate financial resources for accounting development, and incentive systems were ranked as 'above average in importance' or 'extremely important' by 81.2%, 68.4%, 61.6%, 60.9%, 59.4%, 57.9%, and 50.4% of respondents, respectively. The lowest mean of 3.12 for specialist management accounting journals indicates that all the listed factors were recognised as important by most respondents.
### Table 6.45: The importance of selected factors’ influence on management accounting practices

<table>
<thead>
<tr>
<th>Factors</th>
<th>Importance level *</th>
<th>Mean</th>
<th>Median</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting education in Jordan</td>
<td>0.0 11.3 7.5 37.6 43.6</td>
<td>4.14</td>
<td>4.00 0.98</td>
<td></td>
</tr>
<tr>
<td>Top management support</td>
<td>3.0 14.3 14.3 21.8 46.6</td>
<td>3.95</td>
<td>4.00 1.21</td>
<td></td>
</tr>
<tr>
<td>Increased competition</td>
<td>2.3 15.0 21.1 30.8 30.8</td>
<td>3.73</td>
<td>4.00 1.12</td>
<td></td>
</tr>
<tr>
<td>Management accounting training programmes</td>
<td>10.5 10.5 19.5 27.1 32.3</td>
<td>3.60</td>
<td>4.00 1.32</td>
<td></td>
</tr>
<tr>
<td>Adequate financial resources for accounting</td>
<td>15.8 8.3 18.0 24.8 33.1</td>
<td>3.51</td>
<td>4.00 1.43</td>
<td></td>
</tr>
<tr>
<td>development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a computer system for management</td>
<td>23.3 6.0 9.8 22.6 38.3</td>
<td>3.47</td>
<td>4.00 1.60</td>
<td></td>
</tr>
<tr>
<td>accounting purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-operation between universities and</td>
<td>12.8 12.0 27.8 28.6 18.8</td>
<td>3.29</td>
<td>3.00 1.26</td>
<td></td>
</tr>
<tr>
<td>companies (professionals)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive systems</td>
<td>18.0 12.8 18.8 27.8 22.6</td>
<td>3.24</td>
<td>4.00 1.41</td>
<td></td>
</tr>
<tr>
<td>Professional accounting bodies in Jordan</td>
<td>5.3 21.1 38.3 18.0 17.3</td>
<td>3.21</td>
<td>3.00 1.12</td>
<td></td>
</tr>
<tr>
<td>Accounting research in Jordan</td>
<td>15.0 12.8 32.3 23.3 16.5</td>
<td>3.14</td>
<td>3.00 1.27</td>
<td></td>
</tr>
<tr>
<td>Specialist management accounting journals</td>
<td>12.0 22.6 24.1 24.1 17.3</td>
<td>3.12</td>
<td>3.00 1.28</td>
<td></td>
</tr>
</tbody>
</table>

*1 = Low importance, 2 = Below average importance, 3 = Average importance, 4 = Above average importance, 5 = Extremely important.

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**6.5 Part four: General questions**

The last section of the questionnaire comprised of other general questions. Firstly, respondents were asked their opinion about the level of development of management accounting profession in Jordan. More than two-quarters (56%) of respondents considered it as a ‘low’ and ‘very low’ level of development. Only 8% ranked it as a ‘high’ level of development (see below Figure 6.1).
Secondly, respondents were asked to indicate on a five-point scale the importance of management accounting information in their company. Almost 40% considered it ‘above average in importance’ and ‘extremely important’, while the majority (55%) ranked it as ‘average’ and ‘below average’ of importance (see Figure 6.2).

Thirdly, almost all the respondents (98.5%) highlighted the need for improving their current management accounting practices in the future. However, the two other
questions in this section were used previously in chapter five, section 5.5.6.1, to confirm the reliability of questionnaire responses.

6.6 Summary

This chapter has reported information about the sample companies, the extent of using selected management accounting techniques, and the degree of importance of selected factors’ influence on the usage of management accounting practices.

The above descriptive information shows Jordanian industrial companies are relatively small compared with overseas companies, such as those in the UK and the USA. The results also showed the average age of Jordanian industrial companies was 25 years, considerably less than that of their counterparts in the USA and UK. Most companies reported high levels of competition. All companies had accounting departments and a few had costs departments. The majority of accounting staff held accounting degrees and qualifications. However, professional accounting qualifications, such as CMA and CIMA, were not common among Jordanian industrial companies. A few respondents held the American Certified Public Accountant (CPA) qualification. The majority of questionnaires were completed by financial managers. Most respondents held a Bachelor Degree (BSc.), accounting qualification/degree, and had extensive work experience, which increased the reliability and credibility of collected data.

The results reported in this chapter indicate that Jordanian industrial companies had applied various management accounting techniques. Performance measurement techniques were the most prominent ones, and ‘Sales’ measurement was the most
popular performance measurement technique. Customer satisfaction, product quality, and meeting the budget were also widely used. The second most widespread management accounting techniques were budgeting and control techniques. Sales budget was the most popular budgeting and control technique. Other budgets, such as production, cash, and master, were also widely used. At the third level of popularity were advanced management techniques. Total quality management was the most widely used technique among companies. The less applied management accounting techniques were capital investment appraisal techniques. Meeting the budget was the most popular capital investment appraisal technique in use.

Further, blanket overhead rate and number of units produced were the most popular techniques for allocating overhead costs. As regards pricing methods, 'pricing by market' was the most commonly used technique. Management accounting techniques, such as activity based costing, standard costing, and transfer pricing, were not popular within Jordanian industrial companies. However, the majority of respondents who used these techniques considered them very important or above average in importance for their companies.

The findings in this study also revealed the degree of importance, and hence influence, of selected factors on the usage of management accounting practices. Of the factors listed, 'accounting education in Jordan' was ranked the most influential and important factor whereas 'specialist management accounting journals' was considered the least influential and important. However, all selected and reported factors were ranked above average in importance, which means Jordanian companies have begun to recognise their important influence on management accounting practices.
The next two chapters will investigate the influence of other contingent factors on management accounting practices using further statistical analyses.
Chapter Seven
Management Accounting Practices and the Association With Selected Contingent Factors:
The Bivariate Analysis
7 Management Accounting Practices and the Association with Selected Contingent Factors: The Bivariate Analysis

7.1 Introduction

As introduced in chapter 1, the second objective of this study is to evaluate the influence of contingent factors on the management accounting practices of Jordanian industrial companies. In order to accomplish this objective, the association between selected explanatory variables and the extent of using management accounting techniques is examined within a sample of Jordanian industrial companies.

The empirical studies reported in the literature review in chapter 4 suggested that management accounting practices could be influenced by many contingent factors. Factors such as company size, product diversity, percentage of exports, age of the company, government ownership, foreign ownership, Industry type, and competition, were widely mentioned in the literature.

In this chapter, the association between each individual explanatory variable and the extent of using management accounting techniques in Jordanian industrial companies is examined. The results of the association tests will be used to evaluate the eight hypotheses formulated in chapter four. The explanatory variables were classified into internal and external contingent factors. The selection of these factors was based on theoretical arguments, previous studies, and applicability to Jordanian companies and their environment.
After considering the statistical tests employed in previous similar studies (see Abdel-Maksoud, 2003; Anderson et al., 2002; Nicolaou, 2000; Gosselin, 1997; Suwaidan, 1997; Abou-Nassar, 1993; Jones, 1985; McCosh and Howell, 1983; Chiu, 1973; Khandwalla, 1972) and the nature of the data used in this study, it was decided to conduct the non parametric statistical tests, Kendall’s tau and Chi-square, to test the formulated hypotheses.

7.2 The association analysis

In chapter five, management accounting techniques were categorised into five classifications, namely: costing, budgeting, performance measurement, capital appraisal measurement, and modern management techniques. In order to examine the association between the contingent variables and management accounting techniques, the association analyses were divided to examine each classification individually and all management accounting techniques as a total.

The following sections report the results of testing the research hypotheses introduced in chapter four concerning the association of each explanatory variable with the extent of usage management accounting practices within Jordanian industrial companies. Moreover, although the results are discussed and explained after each test, further discussion and explanation will be provided in section 7.3 of this chapter. However, in order to avoid repetition, further explanation and discussion of some results will be waived until the multivariate analysis is performed.
7.2.1 Association with internal factors

The correlation between the internal contingent factors and the extent of using management accounting techniques will be examined in this section. Kendall’s rank correlation coefficient (tau) is used to examine these relationships. The factors are: company size (measured by number of employees and total sales), number of products, percentage of exports of total sales, age of the company, government ownership, and foreign ownership.

7.2.1.1 The association with company size

Number of employees and total sales were used in this study as a measure of company size in testing hypothesis no. 1 and no. 2.

7.2.1.1.1 Association with number of employees

Hypothesis no. 1 ‘There is a positive association between number of employees and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was examined. The results of the test are presented in Table 7.1. The results indicate a significant positive association between the number of employees and the extent of using management accounting techniques. Therefore, the null hypothesis of hypothesis no. 1 presented above can be rejected at the 1% level of significance.
Table 7.1: Results of Kendall’s tau correlation between number of employees and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.177**</td>
<td>.004</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.160**</td>
<td>.009</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.133*</td>
<td>.040</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.149*</td>
<td>.020</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.166**</td>
<td>.006</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).
** Correlation is significant at the .01 level (1-tailed).

7.2.1.1.2 Association with sales

Hypothesis no. 2 ‘There is a positive association between total annual sales and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was assessed. The results of the test, shown in Table 7.2, reveal a significant positive association between the total annual sales and the extent of using management accounting techniques. Therefore, the null hypothesis of hypothesis no. 2 can be rejected at the 0.1% level of significance. These results confirm the results pertaining to the above variable (number of employees) as another measurement of company size. As companies’ size increases, they are more likely to increase the extent of usage of management accounting techniques.

These are not surprising results, larger companies are expected to use more management accounting practices than smaller ones. One reason for this expectation is that larger companies are likely to have more financial resources to cover accounting information’s costs than smaller companies. Also, in large companies,
managers and accountants are expected to handle greater quantities of information. Further, large companies are likely to be more decentralised and employ more sophisticated budgeting and performance techniques than small ones. Moreover, larger companies are likely to have more complex and varied product lines. All the above-mentioned explanations suggest larger companies are more likely to use management accounting practices than smaller ones.

Comparing previous relevant studies, this study’s results are consistent with those of Puxty and Lyall (1989), Clarke et al. (1999), Innes et al. (2000) in the UK; Haldma and Lääts (2002) in Estonia, but contrast with those of William and Seaman (2001) in Singapore; and Laitinen (2001) in Finland.

Table 7.2: Results of Kendall’s tau correlation between total annual sales and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.164**</td>
<td>.008</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.166**</td>
<td>.007</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.032</td>
<td>.337</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.097</td>
<td>.093</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.200***</td>
<td>.001</td>
</tr>
</tbody>
</table>

** Correlation is significant at the .01 level (1-tailed).
*** Correlation is significant at the .001 level (1-tailed).
7.2.1.2 Association with product diversity (number of products)

Hypothesis no. 3 ‘There is a positive association between number of products and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was evaluated. The results in Table 7.3 below show a significant positive association between the number of products and the extent of using management accounting techniques. Therefore, the null hypothesis of hypothesis no. 3 can be rejected at the 1% level of significance.

A possible explanation for the above result is that various products consume various proportions of costs, especially overhead costs. Therefore, and in order to avoid product cost distortions, as product diversity increases, so does the need for management accounting information systems which provide better and more accurate cost information for those products. Also, the more the companies produce and sell a variety of different products, the more communication channels, and spending resources they need, and the more challenges they face. Thus, greater control and accurate accounting information is required, especially in highly competitive market places.

Comparing previous relevant studies, this study’s results are consistent with Abernethy et al. (2001) in Australia; Walker (1996) in the USA; Malmi (1999) in Finland, but contrast with those of Bjørnenak (1997a) in Norway.
Table 7.3: Results of Kendall’s tau correlation between number of products and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.156**</td>
<td>.010</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.169**</td>
<td>.006</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.052</td>
<td>.242</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.063</td>
<td>.189</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.189**</td>
<td>.002</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).
** Correlation is significant at the .01 level (1-tailed).

7.2.1.3 Association with percentage of exports of total sales

Hypothesis no. 4 ‘There is a positive association between percentage of exports of total sales and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was examined. Table 7.4 shows a significant positive relationship between the percentage of exports of total sales and the extent of using management accounting techniques. Thus, the null hypothesis of hypothesis no. 4 can be rejected at the 5% level of significance.

This positive relationship is what might be expected, since companies with a high level of exports among their sales were found to use more management accounting techniques than companies with a lower level of exports (see Alebaishi, 1998; Malmi, 1999). One possible reason for this result is that companies with a high level of exports are facing more competition and challenges in the international market than those with a low level of exports and less international competition and challenges. Overseas markets and buyers usually require particular specifications for the products.
they are interested in. All these factors require more accurate and timely management accounting information for better decision-making.

A comparison of previous related studies shows the results of this study are consistent with Malmi (1999) in Finland; Alebaishi (1998) in Saudi Arabia, but contrast with those of Bjørnenak (1997a) and Laitinen (2001) in Norway.

Table 7.4: Results of Kendall’s tau correlation between percentage of exports of total sales and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.119*</td>
<td>.036</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.111*</td>
<td>.047</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.089</td>
<td>.116</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.084</td>
<td>.118</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.139*</td>
<td>.015</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).

7.2.1.4 Association with age of the company

Kendall’s rank correlation coefficient (tau) was also used to examine hypothesis no. 5 ‘There is an association between age of the company and the extent (number) of management accounting techniques used within Jordanian industrial companies’. The results shown in Table 7.5 indicate a weak and insignificant positive association between the age of companies and the extent of using management accounting techniques. Therefore, the null hypothesis of hypothesis no. 5 cannot be rejected at the 5% level of significance.
One explanation for this result is that Jordanian industrial companies, especially older ones, are more familiar with certain techniques than younger companies, for instance, budgeting techniques with which the government company is familiar. But, as mentioned before, it is a weak and insignificant relationship. Comparing previous related studies, the results of this study are consistent with those of Firth (1996) in China.

Table 7.5: Results of Kendall’s tau correlation between age of the company and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.107</td>
<td>.112</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.087</td>
<td>.200</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.078</td>
<td>.305</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.021</td>
<td>.775</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.117</td>
<td>.074</td>
</tr>
</tbody>
</table>

7.2.1.5 Association with government ownership

Hypothesis no. 6 ‘There is an association between percentage of government ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was tested. The test results are presented in Table 7.6. The table shows a weak and non-significant positive association between the percentage of government ownership and the extent of using management accounting techniques.

---

34 The government used to have capital share in them.
techniques. However, the level of association tends to be small and insignificant at the 5% level. Therefore, the null hypothesis of hypothesis no. 6 cannot be rejected at either the 5% or 10% level of significance.

Table 7.6: Results of Kendall’s tau correlation between percentage of government ownership and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.043</td>
<td>.542</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.074</td>
<td>.299</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.127</td>
<td>.113</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.035</td>
<td>.642</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.090</td>
<td>.191</td>
</tr>
</tbody>
</table>

7.2.1.6 Association with foreign ownership

Hypothesis no. 7 ‘There is a positive association between percentage of foreign ownership and the extent (number) of management accounting techniques used within Jordanian industrial companies’ was evaluated. In Table 7.7 below, the test results reveal a significant positive association between percentage of foreign ownership and the extent of using management accounting techniques. Thus, the null hypothesis of hypothesis no. 7 can be rejected at the 5% level of significance.

This result seems reasonable in that one would expect companies with foreign ownership to use more management accounting techniques than companies without such ownership. One explanation is that managers and accountants within companies
with foreign ownership are expected to communicate with and benefit from the experience, knowledge, and management skills of their overseas owners. Also, it is expected that overseas owners may require more quality accounting information than local companies.

Comparing previous related studies, the results of this study are consistent with those of Firth (1996) in China and Southworth (1994) in the former Soviet Union, but contrast with those of Haldma and Läätts (2002) in Estonia.

Table 7.7: Results of Kendall’s tau correlation between percentage of foreign ownership and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.121*</td>
<td>.032</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.163**</td>
<td>.006</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.044</td>
<td>.274</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.105</td>
<td>.068</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.145*</td>
<td>.011</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).
** Correlation is significant at the .01 level (1-tailed).
7.2.2 Association with external factors

Industry type and level of competition were considered as external explanatory variables against the extent of using management accounting techniques. The level of competition was divided into domestic and international competition.

7.2.2.1 Association with industry type

In order to test hypothesis no. 8 'There is an association between industry type and the extent (number) of management accounting techniques used within Jordanian industrial companies', both Chi-square and Phi tests were used to test if there was a significant association and to determine the strength of this association between the two categorical variables. Table 7.8 summarises the results of these tests. The results indicated a significant positive association between the chemical industry and the extent of using management accounting techniques (Chi-square = 4.031, p = .034) and (Phi = .174, p = .045). Therefore, the null hypothesis of hypothesis no. 8 can be rejected at the 0.5% level of significance.

It seems that chemical companies, including drug and pharmaceutical companies, were using more management accounting techniques than other industries. This is not a surprising finding for this type of industry. According to contingency theory, the technological contingency factor, including the nature of the production process, is one of the factors that influence management accounting practices. The raw materials of chemical/pharmaceutical company products, and new technology and research are very expensive and frequently updated. Moreover, because of their sensitive and complex production process, chemical companies, especially pharmaceutical ones, are
expected to use more management accounting techniques/practices than other industries. Another explanation for the above result is that drug and pharmaceutical companies in Jordan are mainly price takers from the government which controls the prices of their production. Thus, their products' prices are controlled and predetermined by the government. Therefore, these types of companies have to control their cost, evaluate products' profitability, and measure their performance in order to achieve profit and whether to continue or abandon their production. Further, Jordanian pharmaceutical companies are facing very high local and international competition and export many of their products overseas. In addition, these companies also have high product diversity. Therefore, the above explanation suggests that this type of industry is expected to use and benefit from management accounting techniques more than other type of industries. The above explanations and reasons confirm the reported results of other sections in this chapter (see section 7.2.1.2 and 7.2.2.3).

Comparing the findings of previous related studies, the results of this study are consistent with Clarke et al. (1999) in Ireland; Innes et al. (2000) in the UK, but contrast with those of Guilding et al. (1998) in New Zealand and Laitinen (2001) in Finland.
### Table 7.8: Chi-square and Phi results for the association between industry type and management accounting practices

<table>
<thead>
<tr>
<th>Industry type (Dummy variables)</th>
<th>Budgeting techniques</th>
<th>Performance techniques</th>
<th>Capital appraisal techniques</th>
<th>Modern techniques</th>
<th>All management accounting techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square (Sig)</td>
<td>Phi (Sig)</td>
<td>Chi-square (Sig)</td>
<td>Chi-square (Sig)</td>
<td>Chi-square (Sig)</td>
</tr>
<tr>
<td>Textile, clothing and footwear</td>
<td>.076 (.529)</td>
<td>.024 (.783)</td>
<td>.414 (.389)</td>
<td>.574 (.397)</td>
<td>.425 (.378)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.502)</td>
<td>(.449)</td>
<td>(.514)</td>
</tr>
<tr>
<td>Plastic &amp; rubber products</td>
<td>.257 (.479)</td>
<td>-.044 (.612)</td>
<td>.028 (.620)</td>
<td>.003 (.717)</td>
<td>.055 (.592)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.868)</td>
<td>(.953)</td>
<td>(.815)</td>
</tr>
<tr>
<td>Typing, paper and packing</td>
<td>.154 (.468)</td>
<td>-.034 (.694)</td>
<td>.256 (.430)</td>
<td>1.032 (.280)</td>
<td>.001 (.611)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.613)</td>
<td>(.310)</td>
<td>(.981)</td>
</tr>
<tr>
<td>Oil and gas industry</td>
<td>.963 (.511)</td>
<td>.085 (.326)</td>
<td>1.303 (.436)</td>
<td>.269 (.789)</td>
<td>.828 (.549)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.254)</td>
<td>(.604)</td>
<td>(.363)</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>.257 (.479)</td>
<td>-.044 (.612)</td>
<td>.568 (.380)</td>
<td>.003 (.717)</td>
<td>.465 (.408)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.65)</td>
<td>(.953)</td>
<td>(.495)</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>1.219 (.239)</td>
<td>.096 (.270)</td>
<td>2.325 (.129)</td>
<td>.251 (.455)</td>
<td>.816 (.309)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.127)</td>
<td>(.616)</td>
<td>(.366)</td>
</tr>
<tr>
<td>Food products</td>
<td>.020 (.543)</td>
<td>.012 (.887)</td>
<td>.020 (.546)</td>
<td>.000 (.634)</td>
<td>.612 (.299)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.127)</td>
<td>(.1000)</td>
<td>(.434)</td>
</tr>
<tr>
<td>Furniture and wooden products</td>
<td>.002 (.673)</td>
<td>-.004 (.963)</td>
<td>.581 (.412)</td>
<td>.039 (.616)</td>
<td>.674 (.387)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.446)</td>
<td>(.844)</td>
<td>(.412)</td>
</tr>
<tr>
<td>Chemicals industry</td>
<td>3.581 (.044)</td>
<td>.164 (.058)</td>
<td>5.371 (.017)</td>
<td>1.190 (.194)</td>
<td>1.741 (.129)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.201)</td>
<td>(.275)</td>
<td>(.187)</td>
</tr>
<tr>
<td>Tobacco</td>
<td>1.127 (.293)</td>
<td>-.092 (.288)</td>
<td>.581 (.412)</td>
<td>1.100 (.384)</td>
<td>1.488 (.240)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.066)</td>
<td>(.294)</td>
<td>(.223)</td>
</tr>
<tr>
<td>Building materials and construction</td>
<td>.012 (.548)</td>
<td>.010 (.912)</td>
<td>.000 (.588)</td>
<td>1.473 (.174)</td>
<td>1.462 (.164)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.001)</td>
<td>(.225)</td>
<td>(.227)</td>
</tr>
<tr>
<td>Iron, steel and aluminium industry</td>
<td>.107 (.525)</td>
<td>.028 (.744)</td>
<td>.002 (.641)</td>
<td>.251 (.455)</td>
<td>.816 (.309)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.004)</td>
<td>(.616)</td>
<td>(.366)</td>
</tr>
</tbody>
</table>

224
7.2.2.2 Association with domestic competition

To test hypothesis no. 9 'There is a positive association between domestic competition and the extent (number) of management accounting techniques used within Jordanian industrial companies', Kendall's rank correlation coefficient (tau) was used. The results of this test are presented in Table 7.9. The results indicate a significant positive relationship between domestic competition and the extent of using management accounting techniques. Consequently, the null hypothesis of hypothesis no. 9 mentioned above can be rejected at the 1% level of significance.

Table 7.9: Results of Kendall's tau correlation between domestic competition and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.154*</td>
<td>.012</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.181**</td>
<td>.004</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.064</td>
<td>.201</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.116</td>
<td>.056</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.186**</td>
<td>.002</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).
** Correlation is significant at the .01 level (1-tailed).

7.2.2.3 Association with international competition

Hypothesis no. 10 'There is a positive association between international competition and the extent (number) of management accounting techniques used within Jordanian industrial companies' was also examined using Kendall's rank correlation coefficient
(tau). Table 7.10 shows the results of this test. The results show a significant positive association between international competition and the extent of using management accounting techniques. Therefore, the null hypothesis of hypothesis no. 10 can be rejected at the 0.1% level of significance.

High competition, both domestic and international, is expected to focus companies' attention on efficiency, profitability, and customers' satisfaction which requires more accurate and timely management accounting information. Further, increased competition and raised production quality standards force companies to use more management accounting techniques. In a highly competitive market place, companies are not expected to cover their costs directly by charging their customers a full-cost-based price. Therefore, companies in highly competitive markets are expected to use more management accounting techniques than those in low competitive markets. This also confirms the results of the level of exports effect, discussed in section 7.2.1.3 of this chapter.

Comparing previous related studies, the results of this study are consistent with those of Haldma and Lääts (2002) in Estonia and Firth (1996) in China; but contrast with those of William and Seaman (2001) in Singapore; Bjørnenak (1997a) in Norway, and Szychta (2002) in Poland.
Table 7.10: Results of Kendall’s tau correlation between international competition and the extent of using management accounting techniques

<table>
<thead>
<tr>
<th>Types of management accounting techniques</th>
<th>Correlation coefficient</th>
<th>Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting and Control techniques</td>
<td>.187**</td>
<td>.003</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>.195**</td>
<td>.002</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>.045</td>
<td>.279</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>.103</td>
<td>.081</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>.225***</td>
<td>.000</td>
</tr>
</tbody>
</table>

* Correlation is significant at the .05 level (1-tailed).
** Correlation is significant at the .01 level (1-tailed).
*** Correlation is significant at the .001 level (1-tailed).

7.3 Further discussion

As mentioned in chapter five, the bivariate analysis was divided into five groups of tests according to the management accounting techniques used against the explanatory variables. Table 7.11 below presents a summary of the bivariate analysis findings.

Using total management accounting techniques as one variable and each of the contingent variables in bivariate tests (mentioned above) revealed, on the one hand, a significant positive relationship between total management accounting techniques and each of the following contingent variables: number of employees, annual sales, number of products, percentage of exports of total sales, foreign ownership, chemical industry, and domestic and international competition at least at the 5% level of significance.
Table 7.11: Summary of bivariate analysis results

<table>
<thead>
<tr>
<th>Techniques</th>
<th>The explanatory variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sales</td>
</tr>
<tr>
<td>Budgeting and Control techniques</td>
<td>**</td>
</tr>
<tr>
<td>Performance measurement techniques</td>
<td>**</td>
</tr>
<tr>
<td>Capital investment appraisal techniques</td>
<td>*</td>
</tr>
<tr>
<td>Modern management techniques</td>
<td>*</td>
</tr>
<tr>
<td>Total management accounting techniques</td>
<td>***</td>
</tr>
</tbody>
</table>

*** Significant at 0.001 level.
** Significant at 0.01 level.
* Significant at 0.05 level.
On the other hand, there was no significant association between management accounting techniques and company age, government ownership, and other industry types.

Employing budgeting and control techniques as one variable and each of the contingent variables in bivariate tests revealed a significant positive relationship between budgeting and control techniques and each of the following contingent variables: number of employees, annual sales, number of products, percentage of exports of total sales, foreign ownership, chemical industry, and domestic and international competition at least at the 5% level of significance. However, there was no significant relationship between budgeting and control techniques and company age, government ownership, and other industry types.

Using performance measurement techniques in bivariate tests with each of the contingent variables revealed a significant positive relationship between performance measurement techniques and each of the following contingent variables: number of employees, annual sales, number of products, percentage of exports of total sales, foreign ownership, chemical industry, and domestic and international competition at least at the 5% level of significance. However, there was no significant association between performance measurement techniques and company age, government ownership, and other industry types.

The results of using capital investment appraisal techniques in bivariate tests with each of the contingent variables produced different results from the above findings derived from employing other techniques. There was only a significant positive association between these techniques and number of employees at the 5% level of significance.
Similarly, the findings derived from examining the association between modern management techniques and each of the contingent variables revealed a significant positive association only between these techniques and number of employees at the 5% level of significant. If the significance level was reduced from 5% or less to 10% or less there was a significant positive association between these techniques and annual sales, foreign ownership, and domestic and international competition. However, there was no significant relationship with number of products, percentage of exports, company age, government ownership, and industry type at the 5% or 10% levels of significance.

Surprisingly, the results showed no association between contingent variables and capital investment appraisal and modern management techniques. One possible explanation for this similarity of pattern may be the sample size (i.e., number of respondents) which was relatively small to investigate these two groups of techniques.

7.4 Summary

In this chapter, the results of the bivariate analysis of the relationships between selected explanatory variables (mentioned in chapter 4) and the extent of using management accounting techniques within Jordanian industrial companies have been evaluated and reported.

The results supported eight hypotheses focusing on the following contingent factors: company size (measured by number of employees and total sales), product diversity (measured by number of products), percentage of exports of total sales, industry type, foreign ownership, domestic competition, and international competition. All showed
significant positive relationships with management accounting practices at the 5% level of significance at least.

Further, the bivariate analysis revealed that among Jordanian industrial companies those which can be expected to use more management accounting techniques are large in size (measured by number of employees and total sales), have high product diversity (measured by number of products), high percentage of exports, high competition (domestic and international), high foreign ownership, and operate in the chemical/pharmaceutical industry sector.

However, the bivariate analysis in this chapter explored only the single relationship between each explanatory variable (contingent factor) and the extent of using management accounting techniques. It did not identify the interrelationships among variables in explaining the variation in the extent of using management accounting techniques. Moreover, a series of such analyses may overstate the apparent overall explanatory power of a set of explanatory variables (independent variables). Therefore, more sophisticated analysis is required and must be employed to overcome such weakness. The next chapter will evaluate the relationship between the explanatory variables (contingent factors) and the extent of using management accounting techniques using multivariate analysis. Multiple Regression Analysis will be employed to seek additional evidence regarding the effect of explanatory variables on management accounting practices in Jordan.
Chapter Eight

Management Accounting Practices and the Association With
Selected Contingent Factors:
The Multivariate Analysis
8 Management Accounting Practices and the Association with Selected Contingent Factors: The Multivariate Analysis

8.1 Introduction

This study has so far examined the effect of each individual explanatory variable on the use of management accounting techniques within Jordanian industrial companies. This chapter will extend the analysis in order to answer the following questions: what is the joint influence of these contingent variables on the use of management accounting practices? What are the variables which best explain variation in the extent of using management accounting techniques? And also to confirm the results reported in the previous chapter. Multiple Regression Analysis will be employed to accomplish these objectives.35

According to Ezzamel and Hart (1987, p. 27), "...recent evidence suggests that a set of contingency factors taken jointly is likely to be more powerful in explaining variations in organisational structures than is the single contingency factor approach". Using multiple regression analysis to investigate the effect of several independent variables simultaneously on a dependent variable facilitates, besides examination of the collective impact of such variables, determination of which independent variables best explain variations in the dependent variable. Therefore, multiple regression analysis presents a balanced result on the joint contributions made by selected

Multivariate Analysis Results

This section provides details of the statistical measurement and identification of both the dependent and independent variables that will be tested in this chapter.

8.2 Identification and measurement of dependent and independent variables

The number of management accounting techniques was adopted as a dependent variable in this study (see Bjornenak, 1997a; Chennall and Langfield-Smith, 1998a; Alebaishi, 1998). The number of these techniques was calculated first for each classification individually and then as a total of all the techniques.\(^{36}\)

8.2.2 Independent variables

Almost all the independent variables were in ordinal form, except three variables, namely: industry type, government ownership, and foreign ownership. Industry type was in nominal form and was transformed into dummy variables. Government

\(^{36}\) Full details have been provided earlier in chapter 5 (section 5.3.1).
ownership and foreign ownership were continuous variables and also transformed into
the logarithm format in order to solve their non-normality problem.  

8.3 Reasons for using regression analysis

Multiple regression analysis is a multivariate statistical technique which examines the
association between a single dependent variable and a number of independent
variables (Hair et al., 1998). Conducting multivariate regression analysis minimises
the possibility of overstating the apparent overall explanatory power of a group of
independent variables which could occur using a series of bivariate analyses (Patton
and Zelenka, 1997).

8.4 The regression model

As discussed in chapter five, the dependent variable is the extent of using
management accounting techniques, measured by the number of such techniques
which have been used. The independent variables are company size (measured by
number of employees and total sales), number of products, percentage of exports of
total sales, age of the company, industry type, government ownership, foreign
ownership, domestic competition and international competition.

Table 8.1 presents the independent variables included in the regression model, their
description, their regression coefficient (\(\beta_i\)), their code names, and expected signs in
the regression analysis.

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37 For more details about these transformations see Field (2003).
Table 8.1: List of independent variables, their code names and expected signs in the regression model

<table>
<thead>
<tr>
<th>Regression coefficient</th>
<th>Independent variables</th>
<th>Code name in the regression</th>
<th>Expected signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_1$</td>
<td>$X_1 =$ number of employees (proxy for size)</td>
<td>EMP</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>$X_2 =$ annual total sales (proxy for size)</td>
<td>ATS</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_3$</td>
<td>$X_3 =$ number of products (product diversity)</td>
<td>NOP</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_4$</td>
<td>$X_4 =$ percentage of exports of total sales</td>
<td>POE</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_5$</td>
<td>$X_5 =$ age of the company</td>
<td>AGE</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_6$</td>
<td>$X_6 =$ government ownership</td>
<td>GOW</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_7$</td>
<td>$X_7 =$ foreign ownership</td>
<td>FOW</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_8$</td>
<td>$X_8 =$ domestic competition</td>
<td>DC</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_9$</td>
<td>$X_9 =$ international competition</td>
<td>IC</td>
<td>+</td>
</tr>
<tr>
<td>$\beta_{10}$</td>
<td>$X_{10} =$ textile, clothing and footwear industry ($TEX = 1$; otherwise = 0, a dummy variable)</td>
<td>TEX</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{11}$</td>
<td>$X_{11} =$ plastic and rubber industry ($PAR = 1$; otherwise = 0, a dummy variable)</td>
<td>PAR</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{12}$</td>
<td>$X_{12} =$ printing, paper and packing industry ($PAP = 1$; otherwise = 0, a dummy variable)</td>
<td>PAP</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{13}$</td>
<td>$X_{13} =$ oil and gas industry ($OAG = 1$; otherwise = 0, a dummy variable)</td>
<td>OAG</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{14}$</td>
<td>$X_{14} =$ mining and quarrying industry ($MAQ = 1$; otherwise = 0, a dummy variable)</td>
<td>MAQ</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{15}$</td>
<td>$X_{15} =$ electrical appliances industry ($ELE = 1$; otherwise = 0, a dummy variable)</td>
<td>ELE</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{16}$</td>
<td>$X_{16} =$ food products industry ($FOD = 1$; otherwise = 0, a dummy variable)</td>
<td>FOD</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{17}$</td>
<td>$X_{17} =$ furniture &amp; wooden products industry ($FAW = 1$; otherwise = 0, a dummy variable)</td>
<td>FAW</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{18}$</td>
<td>$X_{18} =$ chemical &amp; pharmaceutical industry ($CHE = 1$; otherwise = 0, a dummy variable)</td>
<td>CHE</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{19}$</td>
<td>$X_{19} =$ tobacco industry ($TOB = 1$; otherwise = 0, a dummy variable)</td>
<td>TOB</td>
<td>+/-</td>
</tr>
<tr>
<td>$\beta_{20}$</td>
<td>$X_{20} =$ building materials &amp; construction industry ($BAC = 1$; otherwise = 0, a dummy variable)</td>
<td>BAC</td>
<td>+/-</td>
</tr>
</tbody>
</table>

Therefore, the regression equation can be presented as follows:
$MAT = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} +$  
$\beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + \beta_{13} X_{13i} + \beta_{14} X_{14i} + \beta_{15} X_{15i} + \beta_{16} X_{16i} + \beta_{17} X_{17i} +$  
$\beta_{18} X_{18i} + \beta_{19} X_{19i} + \beta_{20} X_{20i} + \varepsilon_i$

Where: -

$MAT =$ the extent of using management accounting techniques.

$\beta_0 =$ the intercept (constant).

$\varepsilon_i =$ the residual (error term).

### 8.5 Multicollinearity

Multicollinearity problems occur when two or more independent variables are highly correlated with each other in the regression model. This sort of correlation between independent variables minimises the power of the regression analysis to determine the contribution of each of the independent variables in the prediction of the dependent variable (Hair et al., 1998).

“...high levels of collinearity increase the probability that a good predictor of the outcome will be found non-significant and rejected from the model (a type II error)” (Field, 2003, p.131).

In order to examine whether or not multicollinearity problems exist in the regression analysis, most previous studies and the statistical literature have employed the correlation matrix of all the independent variables in the regression model. If the correlation analysis reports a very high association among these independent

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38 Sometimes called the Collinearity problem when this correlation occurs only between two independent variables in the regression equation.

39 This writer used the term outcome instead of the dependent variable.
variables, this means that a multicollinearity problem exists. According to many researchers, correlation coefficients should not be considered harmful until they exceed 0.80 (see Firth, 1996; Field, 2003).

Another method to detect the multicollinearity problem before conducting regression analysis is to assess the value of the *Variance Inflation Factor* (VIF) (see Firth, 1996; Laitinen, 2001). The VIF value reflects the strength of the relationship among independent variables included in the regression analysis. Most researchers regard a value of 10 or above for this test as an indication of the existence of the multicollinearity problem (see Firth, 1996; Laitinen, 2001; Field, 2003). A third test for identifying the multicollinearity problem is the *Tolerance* statistic, which is related to the VIF (1/VIF), a value below 0.1 indicates that multicollinearity exists (see Field, 2003).

In this study all the above methods were used to determine whether a multicollinearity problem was present or not. The results of the correlation matrix (see Appendix E), the VIF, and *Tolerance* statistics (see Tables 8.2 to 8.6) indicated that a multicollinearity problem was not present in this study.⁴⁰ Hence, the inclusion of all the explanatory variables in one regression model was considered an appropriate procedure. The following sections report multiple regression analysis results. The next section (8.6) highlights important statistics in the multiple regression analysis and results are reported in the section following it.

⁴⁰ Although, as shown in the correlation matrix, there was relatively high correlation between number of employees and sales (as proxies for company size), SPSS diagnostics (VIF and Tolerance) show that collinearity is unlikely to be a major problem in the regression model (see Firth, 1996; Patton and Zelenka, 1997).
8.6 Important statistics in the regression analysis

The following sections present the results of the final models for stepwise multiple regression analysis. These results consist of the following important statistics:

- R-square (R²) and adjusted R-square: these statistics appear in the model summary of the SPSS outputs. R² (coefficient of determination) is the amount of variance in the dependent variable that is accounted for by the regression model from the study sample. Whereas, adjusted R² (the modified measure of the R²) is the amount of variation in the dependent variable that can be explained in the regression model if this model was derived from the population which the sample was taken (Field, 2003).

- F-value and the significance of F-value: analysis of variance (ANOVA) output of the SPSS reports these figures. F-ratio and its significant value indicate whether the regression model (as a whole) predicts the dependent variable significantly or not. Hence, ANOVA does not report the individual contribution of each independent variable in the regression model. In other words, this result shows the strength of the regression model in predicting the dependent variable.

- β-value, T-value and the significance of the T-value: all these statistics appear in the coefficient output of the SPSS. This output provides the β-value (the coefficient) for the constant and the other independent variables individually. β-value represents the change in the dependent variable associated with a unit change in the independent variable. While, the T-value and its significance
indicate whether each independent variable in the regression model contributes significantly in the prediction of the dependent variable or not.

- **Variance Inflation Factor (VIF) and Tolerance Statistics**: these are the multicollinearity diagnostics produced by the SPSS. These statistics indicate the strength of the relationship between the independent variables in the regression model. Most of the literature suggests that this relationship is considered harmful when the VIF value reaches 10 or more. Likewise, the tolerance statistic indicates whether there is a multicollinearity problem or not. The relationship between independent variables is considered a problem when the tolerance value reaches 0.2 or less.

### 8.7 Multiple regression analysis results

Conducting regression analysis enables the researcher to find out the individual contribution of each independent variable and whether its contribution is significant or not in explaining the variation in the dependent variable.

As mentioned in the previous chapter, management accounting techniques included in the association tests are budgeting techniques, performance measurement techniques, capital investment appraisal techniques, and modern management techniques. The following subsections report the results of Stepwise (Forward) Regression analysis for each classification mentioned above and all management accounting techniques against all the explanatory variables.41

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41 This method has been used by many researchers, for example, Abu-Nassar (1993), Al-Mulhem (1997), Innes et al. (2000), Williams and Seaman (2001), and Laitinen (2001).
The first model presents the budgeting techniques as a dependent variable and all the explanatory variables (contingent factors) as independent variables in one model. The second model shows the performance measurement techniques as a dependent variable and all the contingent factors as independent variables in one model. The third model includes capital investment appraisal techniques as a dependent variable and all the contingent factors as independent variables. In the fourth model, the dependent variable is modern management techniques and all the contingent factors are independent variables. The final model (model 5) presents all the management accounting techniques, overall, as the dependent variable and all the contingent factors as independent variables.

A discussion and explanation of the findings will be presented in section 8.8 of this chapter.

8.7.1 Stepwise regression analysis results of the variation in the extent of using budgeting techniques (Model 1)

As seen from Table 8.2, the model is highly significant ($F = 10.517, p = .000$), which indicates it is reliable in examining the variation in the extent of using budgeting techniques. An adjusted $R^2$ of .178 indicates that approximately 18% of the variance in the extent of using budgeting techniques among Jordanian industrial companies can be explained by sales ($T = 3.951, p = .000$), domestic competition ($T = 2.562, p = .012$), and international competition ($T = 2.252, p = .026$). These three factors are the only explanatory factors that have a significant association with and influence the extent of using budgeting techniques. As mentioned in section 8.6, the $\beta$-value (the
coefficient) indicates the direction and the amount of the association between the dependent and independent variable, in other words, whether the change in the dependent variable is associated (positively or negatively) with a unit change in the independent variable. Table 8.2 reports the $\beta$ coefficients and shows that all three explanatory variables have a positive association with the dependent variable. That is to say, Jordanian industrial companies that are large and face both domestic and international competition use budgeting techniques more than others.

However, $\beta$ coefficients are not appropriate statistics to use to distinguish which of the three independent variables is more important than the others because of the differentiation in these independent variables measurement. Therefore, the Beta statistic can be used to compare the importance of each independent variable contribution in explaining the variation in the dependent variable (see Field, 2003). The Beta value is the coefficient of the independent variables when all variables are expressed in standardised (Z-scores) figure. Accordingly, Table 8.2 shows that the highest Beta is for sales ($\beta = .316$) which means that company size (using sales measurement) has the highest association with the variation in the dependent variable; for simplicity, this means that a change in one standard deviation in this variable increases the dependent variable by .316 standard deviations. A change in one standard deviation in domestic competition changes the standard deviation in the dependent variable by .207. Similarly, the change in the standard deviation of international competition by one unit increases the dependent variable by .181 standard deviations.
Table 8.2 also presents multicollinearity statistics, the VIF values and Tolerance statistics. The results suggest the multicollinearity problem does not exist among the independent variables in this model.

Table 8.2: Summary of the final model of stepwise multiple regression analysis of the extent of using budgeting techniques

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td></td>
</tr>
<tr>
<td>R Square (R²)</td>
<td>.443</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>.197</td>
</tr>
<tr>
<td>Std. Error</td>
<td>.178</td>
</tr>
<tr>
<td></td>
<td>2.6829</td>
</tr>
<tr>
<td>F</td>
<td>10.517</td>
</tr>
<tr>
<td>Sig. F</td>
<td>.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables in the Model (Coefficients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>Sales</td>
</tr>
<tr>
<td>Domestic competition</td>
</tr>
<tr>
<td>International competition</td>
</tr>
</tbody>
</table>

8.7.2 Stepwise regression analysis results of the variation in the extent of using performance techniques (Model 2)

As can be seen from Table 8.3, the F-ratio was found highly significant (F = 8.541, p = .000) for model 2, which included performance techniques as a dependent variable, with an explanatory power (adjusted R²) of .186. The following explanatory variables explained 18.6% of the variation in the extent of using performance measurement techniques within Jordanian industrial companies: the industry type to which companies belonged, the chemicals/pharmaceutical industry (a dummy variable) was a variable with a significant T-value (T = 2.599, p = .010); domestic competition was
also a significant variable ($T = 2.083$, $p = .039$); international competition made a significant contribution ($T = 2.502$, $p = .014$); and sales (the measurement of company size) was also a significant variable ($T = 2.293$, $p = .023$).

The $\beta$ coefficients indicate that the four explanatory variables mentioned above have a positive association with the dependent variable. That is, large Jordanian industrial companies working in the chemicals/pharmaceutical industry which have both domestic and international competition tend to use performance measurement techniques more than other companies. Further, the industry type variable, notably the chemicals/pharmaceutical industry, was the most important independent variable due to its highest contribution in explaining the variation in the dependent variable. It had a Beta value of .217. The independent variable which contributed least to explaining the variation in the dependent variable was domestic competition. It had a Beta value of .174. Table 8.3 also presents multicollinearity statistics, the VIF values and Tolerance statistics. These indicate no multicollinearity problem existed among independent variables in this model.
Table 8.3: Summary of the final model of stepwise multiple regression analysis of the extent of using performance techniques

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>.459</td>
</tr>
<tr>
<td>R Square (R²)</td>
<td>.211</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>.186</td>
</tr>
<tr>
<td>Std. Error</td>
<td>2.2465</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables in the Model (Coefficients)</th>
<th>β</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t-value</th>
<th>Sig. t</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.983</td>
<td>.877</td>
<td>2.260</td>
<td>.025</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals/pharmaceutical industry</td>
<td>1.166</td>
<td>.448</td>
<td>.217</td>
<td>2.599</td>
<td>.010</td>
<td>.885</td>
<td>1.130</td>
</tr>
<tr>
<td>International competition</td>
<td>.523</td>
<td>.209</td>
<td>.200</td>
<td>2.502</td>
<td>.014</td>
<td>.965</td>
<td>1.036</td>
</tr>
<tr>
<td>Sales</td>
<td>1.311</td>
<td>.572</td>
<td>.185</td>
<td>2.293</td>
<td>.023</td>
<td>.948</td>
<td>1.055</td>
</tr>
<tr>
<td>Domestic competition</td>
<td>.455</td>
<td>.219</td>
<td>.174</td>
<td>2.083</td>
<td>.039</td>
<td>.885</td>
<td>1.130</td>
</tr>
</tbody>
</table>

8.7.3 Stepwise regression analysis results of the variation in the extent of using capital investment appraisal techniques (Model 3)

Total capital investment appraisal techniques were used as a dependent variable in this model. As shown in Table 8.4, the model was highly significant (F = 11.166, p = .000), with an explanatory power (adjusted R²) of .133 in explaining the variation in the dependent variable. Two explanatory variables, namely, sales (T = 3.830, p = .000) and foreign ownership (T = 2.895, p = .004) were found to contribute significantly in the model.

β coefficients presented in Table 8.4 show the relationship between these two independent variables and the dependent variable was positive, which suggests large Jordanian industrial companies that have a high proportion of foreign ownership use capital investment appraisal techniques more than others. However, the sales variable
made the most important contribution in explaining the dependent variable. It had the highest Beta value of .311, followed by the foreign ownership variable with a Beta value of .235.

Finally, multicollinearity statistics, the VIF values and Tolerance statistics presented in Table 8.4, provide evidence that the multicollinearity problem did not exist among the independent variables in this model.

Table 8.4: Summary of the final model of stepwise multiple regression analysis of the extent of using capital investment appraisal techniques

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R R Square (R^2)</td>
<td>.383</td>
</tr>
<tr>
<td>Adjusted R Square Std. Error</td>
<td>.133</td>
</tr>
<tr>
<td>Std. Error</td>
<td>1.0898</td>
</tr>
</tbody>
</table>

Variables in the Model (Coefficients)

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t-value</th>
<th>Sig. t</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-1.508</td>
<td>.426</td>
<td></td>
<td>-3.537</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>1.035</td>
<td>.270</td>
<td>.311</td>
<td>3.830</td>
<td>.000</td>
<td>.999</td>
<td>1.001</td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>.597</td>
<td>.206</td>
<td>.235</td>
<td>2.895</td>
<td>.004</td>
<td>.999</td>
<td>1.001</td>
</tr>
</tbody>
</table>

8.7.4 Stepwise regression analysis results of the variation in the extent of using modern management techniques (Model 4)

Model 4 of the regression analysis presents modern management techniques as a dependent variable. The F-ratio of 9.319 and its significant value of .003 presented in Table 8.5 indicate that this model is a significant model. The adjusted R^2 of .059 shows the explanatory power of this model in explaining the variation in the
dependent variable. The only explanatory variable that shows a significant association with the dependent variable is industry type, represented by a dummy variable, the chemicals/pharmaceutical industry \( T = 3.053, p = .003 \). The \( \beta \) coefficient of the chemicals/pharmaceutical industry variable also shows a positive association with the dependent variable \( \beta = 1.603 \).

Table 8.5: Summary of the final model of stepwise multiple regression analysis of the extent of using modern techniques

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t-value</th>
<th>Sig. t</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.968</td>
<td>.120</td>
<td></td>
<td>8.037</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals/pharmaceutical industry</td>
<td>1.603</td>
<td>.525</td>
<td>.258</td>
<td>3.053</td>
<td>.003</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

8.7.5 Stepwise regression analysis results of the variation in the extent of using all management accounting techniques (Model 5)

The final model (model 5) was highly significant \( F = 11.300, p = .000 \), with an explanatory power (adjusted \( R^2 \)) of .281 in explaining the variation in the dependent variable, the extent of using all management accounting techniques. The results are shown in Table 8.6. Five explanatory variables were identified by the model as significantly associated with the extent of using management accounting techniques at least at the 5% significance level. These variables were sales \( T = 4.142, p = .000 \),
domestic competition ($T = 2.136, p = .035$), chemicals/pharmaceutical industry ($T = 2.801, p = .006$), international competition ($T = 2.290, p = .024$), and foreign ownership ($T = 2.230, p = .028$). These explanatory variables were the only factors that had a significant association with and influence on the extent of using management accounting techniques.

Further, $\beta$ coefficients shown in Table 8.6 indicate that all the five explanatory variables had a positive association with the dependent variable. In other words, large Jordanian industrial companies working in the chemicals/pharmaceutical industry, experiencing both domestic and international competition, and with a high proportion of foreign ownership tended to use management accounting techniques more than other companies. Moreover, the sales variable made the most important contribution to explaining the variation in the dependent variable. It had the highest Beta value of .314. The variable least associated with the dependent variable was foreign ownership, with a Beta value of .167.

Multicollinearity statistics, the VIF values and Tolerance statistics, reveal no multicollinearity problem existed among the independent variables in this regression model. These statistics are shown in Table 8.6 below.
Table 8.6: Summary of the final model of stepwise multiple regression analysis of the extent of using all management accounting techniques

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple R</td>
<td>F</td>
</tr>
<tr>
<td>R Square (R²)</td>
<td>.555</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>.308</td>
</tr>
<tr>
<td>Std. Error</td>
<td>.281</td>
</tr>
<tr>
<td></td>
<td>11.300</td>
</tr>
<tr>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

### Variables in the Model (Coefficients)

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t-value</th>
<th>Sig. T</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.741</td>
<td>2.186</td>
<td>-.339</td>
<td>.735</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>5.127</td>
<td>1.238</td>
<td>.314</td>
<td>4.142</td>
<td>.000</td>
<td>.947</td>
<td>1.056</td>
</tr>
<tr>
<td>Chemicals/ pharmaceutical</td>
<td>2.726</td>
<td>.973</td>
<td>.220</td>
<td>2.801</td>
<td>.006</td>
<td>.880</td>
<td>1.137</td>
</tr>
<tr>
<td>industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International competition</td>
<td>1.039</td>
<td>.454</td>
<td>.173</td>
<td>2.290</td>
<td>.024</td>
<td>.958</td>
<td>1.043</td>
</tr>
<tr>
<td>Domestic competition</td>
<td>1.016</td>
<td>.476</td>
<td>.168</td>
<td>2.136</td>
<td>.035</td>
<td>.876</td>
<td>1.142</td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>2.074</td>
<td>.930</td>
<td>.167</td>
<td>2.230</td>
<td>.028</td>
<td>.976</td>
<td>1.024</td>
</tr>
</tbody>
</table>

### 8.8 Further discussion

The results reported in this chapter show that all the regression models were highly significant. The regression models 1, 2, 3, and 5 were highly significant at least at the .001 level of significance, whereas model 4 was highly significant at least at the .01 level of significance, which means all the reported models are reliable. The overall explanatory power (adjusted R²) of these models ranged from 5.9% for model 4 to 28.1% for model 5. The low overall explanatory power (adjusted R²) of model 4 suggests other explanatory factors are involved in explaining the variation in using modern management techniques. It is normal to have such a low (adjusted R²) in regression analysis (see, for example, Abdel-Maksoud, 2003).
Table 8.7 below summarises the regression analysis findings. The regression analysis revealed that company size measured by sales had a significant positive effect on budgeting and control, performance measurement, and capital investment appraisal techniques. However, the analysis indicated that company size had no effect on the usage of modern management techniques. Overall, based on model 5, the results show that company size had a significant positive effect on the usage of management accounting techniques. The results are consistent with the bivariate results and prior studies reported in the previous chapter, section 7.2.1.1.
### Multivariate Analysis Results

#### Table 8.7: Summary of multivariate analysis results

| Models          | The explanatory variables | Sales | No. of employees | Product diversity | Percentage of exports | Company age | Government ownership | Foreign ownership | Domestic competition | International competition | Industry type |
|-----------------|---------------------------|-------|------------------|-------------------|-----------------------|-------------|---------------------|-------------------|------------------------|--------------------------|----------------|---|
| Model 1         |                           | ***   |                  |                   |                       |             |                     |                   |                        |                          |                |
| Sig. F = .000   |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Adj. R² = .178  |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Model 2         |                           | *     |                  |                   |                       |             |                     |                   | *                      |                          | **  Chemicals/pharmaceutical industry |
| Sig. F = .000   |                           |       |                  |                   |                       |             |                     |                   | *                      |                          |                |
| Adj. R² = .186  |                           |       |                  |                   |                       |             |                     |                   | *                      |                          |                |
| Model 3         |                           | ***   |                  |                   |                       |             |                     |                   | **                     |                          |                |
| Sig. F = .000   |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Adj. R² = .133  |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Model 4         |                           |       |                  |                   |                       |             |                     |                   | **                     |                          | **  Chemicals/pharmaceutical industry |
| Sig. F = .003   |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Adj. R² = .059  |                           |       |                  |                   |                       |             |                     |                   |                        |                          |                |
| Model 5         |                           | ***   |                  |                   |                       |             |                     |                   | *                      |                          | **  Chemicals/pharmaceutical industry |
| Sig. F = .000   |                           |       |                  |                   |                       |             |                     |                   | *                      |                          |                |
| Adj. R² = .281  |                           |       |                  |                   |                       |             |                     |                   | *                      |                          |                |

*** Significant at 0.001 level.

** Significant at 0.01 level.

* Significant at 0.05 level.
Further, the bivariate analysis results (see chapter 7: section 7.2.1.1.1) indicated that number of employees (another proxy of company size) had a significant positive association with management accounting techniques. Moreover, the regression results confirmed that company size measured by sales had a significant positive effect on these techniques. Thus, it was expected that regression results would also confirm that number of employees had a significant positive effect on management accounting techniques. Surprisingly, however, the regression results revealed that number of employees did not have a significant (positive) effect on management accounting practices. This finding may be partly due to minor multicollinearity effects among the independent variables and the fact that bivariate statistics are not as accurate as multivariate statistics, especially when more than one independent variable is examined against the dependent variable. Another possible explanation is that number of employees in Jordanian companies may not represent company size, especially business size, since Jordanian industrial companies, especially large ones, are managed and controlled by government agencies because of their capital share in these companies, and such companies may have more employees than needed to accomplish their business objectives. For example, a company could have 700 employees, hence would be classified as a large company (by Jordanian standards), but in reality 300 employees would be sufficient to run the business, hence it should be reclassified as a medium size company. Thus, total annual sales is a more reliable and suitable proxy for measuring Jordanian companies' size, at least until such companies have completed the privatisation process and their targets change to minimising costs and maximising revenues.
Moreover, the regression analysis also indicated that two other explanatory variables, namely, number of products and percentage of exports of total sales, reported by bivariate analysis to have a significant positive association with management accounting practices, were not significantly associated with these practices. This finding could also be due to the reasons mentioned above.

However, the regression analysis results revealed that company age and government ownership did not have a significant effect on the use of management accounting practices in Jordanian industrial companies, which supported the bivariate analysis results (see sections 7.2.1.4 and 7.2.1.5). Further, the bivariate analysis indicated that both domestic and international competition had a significant positive association with management accounting practices, and the same results were also supported and confirmed by the regression analysis in this chapter.

In the previous chapter, a significant positive association was found between foreign ownership (as an explanatory variable) and budgeting and control techniques, performance measurement techniques, and overall (total) management accounting techniques, whereas the regression analysis results revealed a significant positive association between foreign ownership and capital investment appraisal techniques. Unlike the bivariate analysis, the regression analysis did not report a significant positive association between foreign ownership and budgeting and control techniques, and performance measurement techniques. However, the regression analysis supported the bivariate analysis result of a significant positive association between foreign ownership and management accounting practices overall.

The regression analysis also supported bivariate analysis results of a significant positive association between industry type (chemicals/pharmaceutical industry) and
performance measurement techniques and overall (total) management accounting practices. The two analyses also found no significant association between industry type and capital investment appraisal techniques. Unlike the bivariate analysis, regression analysis revealed a significant positive association between industry type (chemicals/pharmaceutical industry) and modern management techniques. Moreover, the regression analysis did not reveal a significant association between industry type and budgeting and control techniques.

Importantly, there was agreement between the bivariate and multivariate analysis in relation to the direction of the relationship between the explanatory variables and management accounting practices. β coefficients showed a positive relationship between these variables.

**8.9 Summary**

This chapter has reported the multiple regression analysis findings of the association between a number of contingent variables and the extent of using management accounting practices in Jordanian industrial companies. As has been mentioned earlier in chapter five, the extent of using management accounting practices was measured using five types of practices/techniques (indexes), namely, budgeting and control techniques’ index, performance measurement techniques’ index, capital investment appraisal techniques’ index, modern management techniques’ index, and overall (total) management accounting techniques’ index. Consequently, five models of regression analysis were developed. Each model examined the association between one of the mentioned indexes and all the independent explanatory variables.
Contingent factors that might explain the variation in the level of using management accounting techniques within Jordanian industrial companies were subsequently examined. The regression analysis results confirmed some results in the previous chapter. However, variation between bivariate and multivariate analysis results might be partly due to interrelationships between explanatory variables in the regression models in explaining the variation in the dependent variable. This seems to suggest that multivariate analysis results are more reasonable, acceptable and reliable than bivariate ones. Differences between bivariate and multivariate analysis results have also been reported in many previous relevant studies (see, for example, Abdel-Maksoud, 2003; Suwaidan, 1997; Al-Mulhem, 1997; Abu-Nassar, 1993).

The results of both bivariate and multivariate analysis revealed the significant association between different management accounting practices and four explanatory variables, namely, company size (measured by sales), competition (both domestic and international), industry type (chemicals/pharmaceutical industry), and foreign ownership. Further, both bivariate and multivariate results indicated no significant association between management accounting practices and both company age and government ownership at least at the 5% significance level.

Further explanation of the significant association between industry type (chemicals/pharmaceutical industry) and management accounting practices, may be due to the fact that this industry type is a high-technology manufacturing one that requires a well-educated workforce, a resource of which Jordan has an abundance. Moreover, Jordan is the only Arab country that exports its pharmaceutical products to European and American markets. A number of multinational companies have set up joint ventures with Jordanian pharmaceutical companies, which, as a consequence,
must conform to international standards, even in their accounting information practices/techniques. Pharmaceutical products made up a third of Jordan’s total exports in 2002, with sales reaching US$275 million to 60 different markets. Management accounting would have played a large role in appraising good projects and providing the information necessary to achieve such high levels of sales. Moreover, with Jordan’s accession to the WTO, a Jordanian company has to play the role of an international company that works efficiently and carries its accounting duties to the highest levels.
Chapter Nine
Management Accounting Practices:
Personal Interviews
9 Management Accounting Practices: Personal Interviews

9.1 Introduction

The purpose of this chapter is to present the results of semi-structured interviews with thirty participants from a sample of Jordanian industrial companies. The objective of interviews was to gain further information and explanations about management accounting practices and possible factors that influenced their usage in order to help clarify and confirm information collected using the questionnaire survey. Moreover, interviews could provide the researcher with new issues and ideas to be investigated in the future.

The 30 companies interviewed were selected to represent different sectors and sizes of Jordanian industrial companies. However, the sample depended on companies' agreement to participate in interviews. Companies' classification is shown in Table 9.1.42

Interviews were carried out during January and February 2003 solely by the researcher. All interviews were conducted in Arabic, using some English accounting terms where necessary. The researcher commenced interviews in each company by introducing himself and providing information about the sponsor of the study, the research topic, its objectives, and its benefits. After this, the researcher asked interviewees to complete the questionnaire, during which procedure the researcher

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42 All company names are pseudonyms. More details of interviewed companies can be found in Appendix F.
answered, explained, and clarified any questions/queries raised by interviewee. The researcher also asked interviewees further questions and explanations during the interview. After completing the questionnaire, the researcher encouraged interviewees to discuss, add, or point out any additional related issues and ideas that the current study had not covered, particularly other factors influencing management accounting practices. Interviews lasted from 1½ to 2 hours.

Table 9.1: Industrial classification of interviewed companies

<table>
<thead>
<tr>
<th>Industry type</th>
<th>Frequency</th>
<th>Valid percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile, clothing and footwear</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Plastic and rubber products</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Typing, paper and packing</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Oil and gas industry</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Food products</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Chemicals/pharmaceutical industry</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>Tobacco</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Building materials and construction</td>
<td>9</td>
<td>30.0</td>
</tr>
<tr>
<td>Iron, steel and aluminium industry</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

This chapter is divided into three main sections: the first reveals details about management accounting practices in Jordanian industrial companies which the

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43 This technique has been used in previous studies, for example, Coates et al. (1983), and Mia and Clarke (1999).
questionnaire did not cover; the second reports some reasons for using or not using selected management accounting techniques mentioned by interviewees; and the last discusses factors that influence management accounting practices within Jordanian companies based on interviews.

9.2 Comments on management accounting practices

This section provides additional information and further explanations about management accounting practices. In other words, the following issues discussed during interviews supplement information derived from questionnaire survey.

9.2.1 Costing and pricing techniques

9.2.1.1 Using costs for making decisions

Almost half of interviewees (14 out of 30) commented on the usage of costs for making different decisions. They stated that top management, in most cases, made decisions not based on accounting information and without consulting the finance department.

"Many of our decisions are made by our general manager without consulting the finance department and using accounting information to make those decisions."

(Company No. 4)
“Sometimes I receive a copy of decisions taken by our top management and I know nothing about them. I think some decisions are made just to resolve personal issues, for example, as a personal favour, and do not rely on accounting numbers.”

(Company No. 10)

Almost all 14 respondents made similar comments and emphasised top management’s negligence of accounting information for decision-making purposes. One possible explanation for this finding is top management’s lack of awareness of the importance of management accounting information, given the fact that many Jordanian companies are family businesses and therefore top management is likely to consist of family members. In other companies, where the government owns capital shares, top management and especially general managers are appointed by government agents, in other words, they are not professionals or qualified managers. Managers’ failure to use accounting information for decision-making purposes is referred to later (in section 9.3.2 of this chapter) as one of the factors influencing the non-use of selected management accounting techniques.

9.2.1.2 Determining the price of products

Regarding product prices, in addition to what had been revealed in the questionnaire survey, twelve interviewees stated that pricing decisions were decided after studying the costs, the target profit, and the market prices.
“In order to determine the final price for any of our products, we use full cost + profit margin and consider the market prices.”

(Company No. 1)

“For pricing decisions we use the manufacturing costs, margin of profit, and study competitors’ prices.”

(Company No. 17)

The remaining 18 participants only mentioned and answered one of pricing options in the questionnaire (see chapter 6, section 6.3.1.5) without further comments. The results seem reasonable given that many Jordanian companies are price takers from other large companies, especially international ones, or even from the government. This is consistent with and confirms the results in chapter six where market price was revealed to be the most common pricing technique. The 12 companies mentioned above seemed to be more independent in their pricing policy than those who took their prices from the government and/or the market.

9.2.1.3 Allocate overhead costs

All interviewed companies claimed they allocated overheads by one or more of the allocation techniques mentioned in the questionnaire. Just over half of interviewed companies (16 of 30) were using blanket overhead rates. Some interviewees stated they used specific percentages to allocate the overheads. Some of these percentages were calculated from experience, and others were based on the company’s policy to
allocate these overheads. Interview findings supported questionnaire survey results reported in chapter six, section 6.3.1.3. One possible explanation for companies' reluctance to calculate the actual costs of their products is that such companies were producing a few simple products only. Another possible reason is that they did not have a high percentage of overhead costs and most of their costs were direct/variable ones, therefore, they did not consider using more sophisticated techniques, especially after assessing the cost and benefit of using such techniques.

9.2.2 Budgeting and control techniques

9.2.2.1 The frequency of preparing budgets

Seventeen of the interviewed companies that used budgeting techniques, especially master budget, stated they prepared their budgets annually at the beginning of each year. Other types of budgeting techniques, such as sales, production and direct materials budgets, were prepared by some companies monthly, quarterly, semi-annually, annually. Table 9.2 below shows clearly that preparing budgets annually was the most popular method, probably due to the fact that many Jordanian industrial companies are familiar with the government budgeting style, especially those still under government agencies' management or recently privatised. In addition, annual budgeting costs less time and money to prepare than more frequent (i.e. weekly or monthly) budgets.
Table 9.2: The frequency of preparing budgets

<table>
<thead>
<tr>
<th>Budgeting techniques</th>
<th>Monthly</th>
<th>Quarterly</th>
<th>Semi-annually</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales budget</td>
<td>15</td>
<td>3</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Production budget</td>
<td>11</td>
<td>5</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Cash budget</td>
<td>16</td>
<td>-</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Direct materials budget</td>
<td>8</td>
<td>6</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Master budget</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>17</td>
</tr>
</tbody>
</table>

“Monthly sales budget is one of the main budgeting techniques that we utilise in our company.”

(Company No. 10)

“We prepare our sales, production, and raw materials budgets monthly and annually. They are very important tools for control and measuring our performance.”

(Company No. 27)

“Using and preparing budgets for a period less than one year is more effective and realistic than preparing a budget for one year. During 12 months many things can happen, therefore the short the period the better. Therefore, we prepare sales, production and cash budgets monthly.”

(Company No. 2)
9.2.2.2 The purposes of using budgeting and control techniques

Interviewees were asked about the purposes of preparing and using budgeting and control techniques, mentioned in the literature as: planning and forecasting, controlling, performance evaluation, motivation, coordination, and communication.

Interviewed company respondents indicated that planning, forecasting, and control were the main purposes of preparing and using budgets. Other purposes were less frequently mentioned by the interviewees.

"In my view, the most important purposes for using budgeting techniques are planning and forecasting our operations. Also, we use these techniques for control purposes. We will use the budgets in the future for other purposes, for example, to measure our company and departments' performance."

(Company No. 6)

"We prepare and use our operation budgets mainly for forecasting and for at least 5 years ahead."

(Company No. 29)

Thirteen interviewed companies, which used budgeting techniques, measured the variances and investigated the reasons behind these variances. Whereas others, which prepared and used budgets, did not study the variances that appeared against actual figures, in other words, they did not benefit fully from using such techniques.
“Unfortunately, we prepare and use budgets in a very simple way. For example, we do not
bother to measure the variances between the budgets and actual numbers.”

(Company No. 28)

“Our budgets exist on paper only. We do not use them to measure variances against actual
figures and the reasons behind these variances.”

(Company No. 1)

These results seem reasonable given the fact that Jordanian industrial companies, as
mentioned before, are more familiar with the government budgeting system where the
main objectives of preparing budgets are control and planning purposes.

9.2.2.3 The objective of using the standard costing system

Ten interviewed companies, which used standard costing, used it for costs control
and/or for performance measurement purposes. The results of interviews and
discussions established during interviews revealed standard costing was not a popular
and important technique for many Jordanian industrial companies. This is likely due
to the fact that this technique cannot be used successfully in all companies, especially
those which produce few and unique products, have a high percentage of fixed costs,
and highly automated production. Variance analysis in such companies will not be
useful for control and performance evaluation.
9.2.2.4 Reasons for not using the standard costing technique

Some reasons revealed during interviews for not using the standard costing system were:

1. The difficulty in calculating such standards for some companies.
2. Not suitable for some companies.
3. Lack of knowledge or/appreciation of its benefits.

"I don’t think that standard costing is an important technique for us. We only produce one product. We don’t have competitors in our local market which makes it very difficult to make standard costs."

(Company No. 28)

9.2.2.5 The frequency of revising standards

Nine of the 10 companies which used standard costing techniques revised their standards annually. One company only revised its standards every 3 years not every year. These findings seem reasonable since one would not expect standards to frequently change within a year.

"We use standard costs in our company and usually we revise them at least every three years. In the future we may change this and revise them every year."

(Company No. 14)
9.2.3 Performance evaluation techniques

9.2.3.1 Measuring the company's performance

More than half of interviewed company respondents (21 of 30) mentioned they used profit and/or sales as main tools to measure their performance during the year. More than three-quarters (26 of 30) also stated they compared their results with previous related numbers to measure performance. Nine interviewees mentioned benchmarking as one of the main techniques for measuring their company's performance (i.e. they compared their results with those of other companies). Interviews revealed accounting measurements for performance evaluation were not popular. Again, interview results were consistent with findings derived from the questionnaire survey in chapter six, section 6.3.3.1.

“As long as we achieve a good profit, we consider our performance good.”

(Company No. 28)

“In order to measure the performance of our company, we compare our sales and profit with other companies’ sales and profit.”

(Company No. 20)

“We have target sales and profit for the coming year and we have to reach these targets to consider our performance a good one. We consider this method one of the main tools for evaluating our company’s performance.”

(Company No. 30)
9.2.3.2 The daily performance report

Three interviewed companies (Companies No. 19, 25, and 27) stated they prepared a daily report for use by top management. This report included daily production, sales, cash, bank, and inventory figures. These three companies viewed this daily report as an important instrument for measuring their performance, and top management’s interest in it indicated the importance of top management support in management accounting practices. One of the mentioned companies (Company No. 27) included another table in its daily report which showed previous related numbers for the same day in the previous year. Also, company no. 25 prepared a special daily report for VIP customers directed to the top management. These results are consistent with findings in chapter 6 (section 6.4). It should be noted that these three companies were from drug and pharmaceutical industry and there were therefore similarities between them, namely, high market competition and relatively high product diversity.

9.2.4 Other issues and practices

The interviewees were more familiar with financial accounting practices than with management accounting ones. This finding confirms the assertion in chapter three, that financial accounting is more popular than management accounting, especially in developing countries.

Further, six interviewed companies stated they prepared and used cash flow statement and regarded it as an important tool for planning and control purposes. Three interviewed companies indicated they used a spread-sheet system.
9.3 Reasons for using and not using selected management accounting techniques

9.3.1 Reasons for using the selected techniques

Generally, the literature suggests that the most important reason for using management accounting techniques is the desire of companies to effectively and wisely use their economic resources in order to achieve the prescribed objectives (see Horngren et al., 2002).

Interviewees indicated, as shown in Table 9.3 below, that the most popular reasons for using the selected management accounting techniques were for controlling, planning, and performance measurement purposes. The use of management accounting information to help top management make decisions was only mentioned by 16 interviewees, which indicates its low importance for this purpose within Jordanian companies. A third of interviewees (11 of 30) indicated they were using these techniques for financial statement purposes. It was not surprising to find Jordanian industrial companies using management accounting techniques mainly for controlling, planning, and performance measurement purposes. Possible explanations for this have been mentioned in section 9.2.2.2. Possible reasons for the low interest in using accounting information for decision-making have been presented in section 9.2.1.1. A possible justification for the use of selected management accounting techniques for financial statement purposes is that some of these techniques are necessary for calculating products' cost, pricing policy, and stock evaluation.
Table 9.3: Reasons for using the selected techniques

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlling and planning purposes</td>
<td>25</td>
</tr>
<tr>
<td>Performance measurement purposes</td>
<td>23</td>
</tr>
<tr>
<td>Providing information for decision-making</td>
<td>16</td>
</tr>
<tr>
<td>Financial statement purposes</td>
<td>11</td>
</tr>
</tbody>
</table>

9.3.2 Reasons for not using selected techniques

During interviews, participants mentioned several reasons for not using selected management accounting techniques. Table 9.4 below shows that the reasons most commonly cited for not using selected techniques were: ‘no need for such techniques in our company’, ‘it is not important to use such techniques’, and ‘not required by top management’, respectively. The reason: ‘no need for such techniques in our company’ may be due to managers’ belief that such techniques are not important or will not yield new information, or the cost of employing these techniques. According to the Samman (2000), ‘management know-how’ is a common problem within Jordanian management culture. Managers make decisions without consulting all the requisite information. Further, managers do not appreciate the benefits of using these accounting techniques.

Some interviewees cited ‘not suitable for our companies’ and ‘work pressure’ as reasons for not using some selected techniques. One would not expect a company to use all the listed management accounting techniques in the questionnaire, therefore, some listed techniques would not be needed or considered important by some companies. Moreover, given such reasons does not convey criticism of a company or its management, or harm its reputation. Interviewees may not have wished their
answers to imply censure of their employers. Less frequently mentioned reasons for not using selected management accounting techniques were: 'shortage of financial resources' and 'lack of knowledge about these techniques'. A possible explanation for the low frequency mention of the former may be due to the size of interviewed companies. They were large and medium in size, therefore, lack of financial resources was unlikely to be a common reason for not using the selected techniques. The least mentioned reason for not using some techniques, namely, lack of knowledge about them, is not surprising since some interviewees would not want to admit they did not know or did not have sufficient information about some techniques. Therefore, they would mention other reasons, such as the first two most commonly cited reasons mentioned above.

### Table 9.4: Reasons for not using the selected techniques

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No need for such techniques in our company</td>
<td>26</td>
</tr>
<tr>
<td>It is not important to use such techniques</td>
<td>21</td>
</tr>
<tr>
<td>Not required by management</td>
<td>15</td>
</tr>
<tr>
<td>Not suitable for our company</td>
<td>14</td>
</tr>
<tr>
<td>Work pressure</td>
<td>11</td>
</tr>
<tr>
<td>Shortage of financial resources</td>
<td>9</td>
</tr>
<tr>
<td>Lack of knowledge about these techniques</td>
<td>6</td>
</tr>
</tbody>
</table>

Main reasons for not using the selected techniques are conveyed in the following comments from interviewees representing companies numbered 28, 17 and 4, respectively.
“We don’t use and apply ABC because we only produce one product and there is no need to use this new technique.”

(Company No. 28)

“We don’t use and prepare forecasting budgets because they are not that important for our business.”

(Company No. 17)

“In this company we don’t need standard costing because it is not important and suitable for the company.”

(Company No. 4)

9.4 Factors that influence management accounting practices

One of the main purposes of conducting interviews was to investigate and confirm some of the factors that influence management accounting practices in Jordanian industrial companies. The researcher elicited interviewees’ opinions about possible factors that might influence their management accounting practices. Factors mentioned by interviewees can be classified into internal and external ones.
9.4.1 Internal factors

9.4.1.1 Top management support effect

Although this factor was included in the questionnaire, interviewees from six respondent companies (6, 20, 25, 28, 29 and 30) emphasised the important influence of top management support, especially from general managers, on management accounting practices within the companies. Comments from interviewees representing companies numbered 6 and 29 highlighting the important effect of top management support are presented below:

"Look, it's simply up to our general manager whether he is interested in improving the accounting practices or not. If he is interested, he will supply us with all the facilities that we need to improve our management accounting system."

(Company No. 6)

"If our general manager does not use and consider the accounting information we produce as important information for his decisions, I don't see why we should improve our accounting system."

(Company No. 29)

This finding confirms the results in chapter six (section 6.4), that top management support plays a major role in and influence on a company's management accounting
practices, especially when there are no laws and regulations controlling and managing these practices within companies.

Three interviewees indicated that improving the accounting system was not one of the top priorities in their companies.

"We have priorities in our company, like other companies, but improving the accounting system by using new techniques is not one of the top priorities."

(Company No. 1)

Eleven interviewees revealed that the management in their companies did not use and consider management accounting information in their decision-making.

"Many of the decisions that our manager makes, I only know about them afterwards and not before."

(Company No. 10)

"I don't think top management considers accounting information as vital for making decisions."

(Company No. 28)
9.4.1.2 Ownership effect

One of the issues discussed with interviewees was the effect of government and foreign ownership on management accounting practices within interviewed companies.

Four interviewees only mentioned the effect of government ownership on management accounting practices in their companies. In their view, such ownership had a negative impact on accounting practices and on the companies' management in general.

“We used to be like other companies managed and run by the government, over staffed, routine work, mismanage, unqualified staff, and unprofitable decisions. But now since the government sold its shares, things are getting better.”

(Company No. 2)

“The government holds more than 50% of the company’s shares. The general manager has been appointed by the government. Each new manager brings his own crew. Our information system, including our accounting one, is not as it should be. Many decisions are taken by the management without consulting us. I know of some decisions that have resulted in considerable loss for the company. Some of these decisions were made simply for personal and social purposes, not for the sake of the company itself. Fortunately, there is a plan to sell the government’s shares to private parties in the near future.”

(Company No. 28)
Three interviewees made mention of the influence of foreign ownership on their companies. In their view, such ownership had a positive influence on their companies' management accounting practices, especially those related to decision-making. This is consistent with and confirms the results of both bivariate and multivariate analyses reported in chapter 7 and 8, sections 7.2.1.5, 7.2.1.6, 8.7.3, and 8.7.5, respectively.

"After a foreign company bought the government's shares, our accounting and information system changed and improve to a much better one to maximise the company's profit and minimise our costs."

(Company No. 2)

9.4.1.3 Accountants' qualifications and skills effect

Fifteen participants during interviews commented on the qualifications of accountants and their level of skills. They indicated that accountants in their companies lacked the necessary skills and were not fully qualified professional accountants. They expected their accountants to be more creative and good at problem solving rather than mere book-keepers. They also made mention of the shortage of qualified management accountants in their companies and the lack of English language and computer skills among accountants. This is consistent with the descriptive results presented in chapter 6 (section 6.2.1.11) which revealed very few companies reported the availability of qualified professional accountants among their personnel. Interviewees from companies numbered 28, 29 and 27 expressed the following opinions regarding accountants' qualifications and skills:
“An accountant should be qualified, with an accounting qualification. He should learn how to be creative rather than work simply as a book-keeper. We have a shortage of expert and qualified management accountants. Accountants with good qualifications are in great demand outside the country, where they have very good job opportunities and incentives.”

(Company No. 28)

“Lack of English and computer skills among our staff is a common problem and our accountants also suffer from this problem. In my opinion, these skills are important to improve ourselves.”

(Company No. 29)

“During 1985 – 1986 the company made a loss rather than a profit for one simple reason, that we produced less than the break-even point. In my view, the only reason behind such a problem was unqualified accountants.”

(Company No. 27)

9.4.1.4 Company systems and management

Although the effect of management accounting training programmes was elicited in the questionnaire survey, 10 interviewees highlighted the importance of implementing a good accounting training programme in their companies during subsequent interviews. They complained that the current training programme for accountants was not well organised and randomly managed. They also complained that the policy for appointing new staff, and the promotions, reward, and incentive systems did not rely
on qualifications, experience, and performance, but on other factors, such as personal relationships (personal favours) and the duration of an employee’s employment in the company.

“We have training courses for our accountants. Unfortunately, these courses are not programmed very well. They are randomly managed and run at the whim of staff. For the benefit of the company, these courses should be better organised and designed, and provide more comprehensive training.”

(Company No. 6)

“The proper man is not in the proper place. We have non-accountants in our department. I wonder why?”

(Company No. 5)

“Our salaries and incentives are low. This does not encourage our staff to do any extra work or motivate them to think about improving the accounting system.”

(Company No. 29)

“A good incentive system and rewards for staff are very important for improving their performance.”

(Company No. 8)
Interviewees also mentioned other issues, such as not using outside consultants to improve accounting practices (Companies No. 6, 10). They also complained about work pressures and their negative impact on efforts to improve accounting practices used by the company (Companies numbered 4, 7 and 30).

Reviewing the results of interviews and the questionnaire survey reported in chapter six, section 6.4, indicates and confirms both management accounting training programmes and the incentive system within a company have an important effect on management accounting practices in that company.

9.4.2 External factors

9.4.2.1 Accounting education effect

Although it was included and examined in the questionnaire survey, 14 interviewees mentioned and emphasised the importance of accounting education and its effect on management accounting practices within Jordanian industrial companies. They particularly commented on the type of accounting education provided in colleges and universities. They indicated that accounting graduates learned theoretical accounting only and were not provided with opportunities to gain practical experience. In their view, accounting graduates should receive both a theoretical and practical accounting education to enable them to start their careers with open minds and to become problem solvers and creative. Graduates who lack practical experience struggle to understand the new job environment.
“The accounting education that we have is restricted to old issues only and there is no
mention of new issues in accounting. This does not help our accounting students to be
creative and problems solvers.”

(Company No. 28)

“In my view, providing accountant students with practical experience during their
accounting education, in addition to theoretical knowledge, is very important. Accountants
are like other professionals, such as lawyers and doctors, so why don’t we educate them in
the same manner!”

(Company No. 17)

Other education issues were mentioned during interviews, for example, the need for
more conferences and seminars in accounting issues (Company No. 17). Another
company interviewee pointed to the need for journals specialising in management
accounting to be made available to accountants in Jordan (Company No. 24). Some
interviewees (Companies No. 19, 17, 24, 29) commented on the shortage of
management accounting research and PhD degrees in this area within Jordanian
universities.

“Our universities are not active in management accounting research. For example, this is
the first time I have seen a questionnaire or participated in an interview on this topic in such
detail like yours. I wanted to apply to do a PhD in accounting in Jordan but we do not have
such doctoral courses in our universities.”

(Company No. 19)
The above-mentioned findings, derived from interviews, support and confirm the questionnaire survey results reported in chapter six (see section 6.4). Both emphasise the important effect of the accounting education system and management accounting research and journals in Jordan upon management accounting practices within Jordanian industrial companies.

9.4.2.2 Competition effect

This factor was mentioned during interviews although it had been covered in the questionnaire. Its emphasis by interviewees suggests Jordanian companies have started to recognise the importance of competition and its influence on their accounting information systems. Some companies still enjoy government protection, but soon this will disappear and they will enter a competitive market place. Four interviewees from companies no. 2, 19, 25, 27 emphasised the importance of improving their accounting systems to cope with the high competition in their market.

"These days are not like the old ones. The competition is becoming more global and intensive. For example, look at the new free trade agreements with overseas countries, such as the USA, Canada, and EU. These force us to reconsider our situation and the importance of our accounting information systems. We need to produce good quality products at the lowest cost that we can manage. Without good accounting information we cannot effectively compete."

(Company No. 2)
The effect of competition on management accounting practices has been reported in chapters six, seven, eight, and this current chapter, using different tests and analyses. All have revealed and confirmed the important effect of high competition on the extent of using management accounting practices within Jordanian industrial companies.

9.4.2.3 Accounting bodies

The importance of professional accounting bodies in Jordan was highlighted during interviews. Although the questionnaire covered this point, seven interviewees emphasised the role and importance of such bodies for improving and organising the accounting profession in the country. The role and importance of such accounting bodies is very clear in other countries, such as the USA and the UK. However, in Jordan there is no professional management accounting body yet.

"We don't have well-established professional accounting bodies in Jordan. Such institutions would help to improve and organise accounting practices, like CIMA in the UK."

(Company No. 7)

Two interviewees from companies no. 19 and 24 pointed out the importance of cooperation between universities and companies. Both stated that such cooperation does not exist or is very weak at present. If promoted, such cooperation would undoubtedly improve accounting practices and knowledge in Jordan.
“Unfortunately, the relationship and cooperation between academics in universities and accounting professionals in the field is very weak. We only communicate when somebody comes to ask us to fill in a questionnaire or conduct an interview. I think we should communicate more often. But how? I don’t know. Maybe via accounting training courses.”

(Company No. 19)

Again, the results of interviews are consistent with questionnaire survey findings presented in chapter six, section 6.4. Both reveal and emphasise the important effect of professional management/accounting bodies and cooperation between academics and professionals upon management accounting practices in Jordanian companies.

9.4.2.4 Users’ beliefs and understanding

Two issues and complaints were mentioned frequently during interviews with some company respondents. According to twelve interviewees, accountants are not as well respected by people/users as other professionals such as lawyers, engineers, and doctors. In their view, many do not recognise the importance and role of accountants. One possible explanation may be the fact that in order to practise their professions, lawyers, engineers, and doctors, are required to hold their professions’ recognised degrees and qualifications. Therefore, nobody can work as a doctor without the appropriate degree and qualifications in this field. In contrast, anybody can work as an accountant within a company, consequently, there is a lack of respect and appreciation for the accounting profession in Jordan.
"People don't view accountants as proper professionals like other professionals, such as engineers and doctors. People do not yet understand the importance and role of accountants. Unfortunately, anybody can call himself an accountant. This may be why people do not respect the accounting profession."

(Company No. 28)

Interviewees from companies no. 6, 10, 20 and 30 mentioned the popularity of the CPA qualification in Jordan and also the popularity of US qualifications in general. They pointed to a growing interest in studying for the CMA qualification among Jordanian accountants. Two interviewees from companies no. 6 and 20 were preparing for the CMA qualification at the time of interviews.

Interviewees' comments revealed the greater popularity of US professional accounting certificates over others, including the Jordanian certified public accountant qualification. This is consistent with and confirming the descriptive findings of the questionnaire survey in chapter six, sections 6.2.1.11 and 6.2.2.4.

9.5 Summary

This chapter has provided further details and information about management accounting practices within a sample of 30 Jordanian industrial companies. The findings presented in this chapter support, clarify, and supplement those derived from the questionnaire survey. The chapter has also reported the results of open discussions with interviewees concerning possible factors that influence management accounting practices within Jordanian companies. Interviewees pointed out and confirmed several
factors influenced management accounting practices within their companies. Some of these factors have been previously reported in the questionnaire survey analyses detailed in chapters six, seven, and eight.

In summary, during interviews many participants mentioned and emphasised top management’s negligence of accounting information for decision-making purposes. Other interviewees revealed pricing decisions were decided after studying the costs, the target profit, and the market prices, altogether. Blanket overhead rate was the most popular technique for allocating overhead costs. Most interviewees’ companies used annual budgeting techniques. Most company interviewees indicated that planning, forecasting, and control were the main purposes of preparing and using the budgets.

Interviews also revealed that standard costing was not a popular and important technique for many Jordanian industrial companies. Those using this technique revised their standards annually. Moreover, some interviewees mentioned reasons for not using standards, including: ‘the difficulty for some companies to calculate such standards’, ‘not suitable for some companies’, and ‘lack of knowledge or/and appreciation of its benefits’.

The majority of company interviewees indicated that the profit and/or sales were main tools used to measure their companies’ performance during the year. A comparison of results with previous related numbers (i.e. results) was also a very common performance measurement. Accounting measurements for performance evaluation were not popular.

Interviewees indicated that financial accounting practices were used and considered more common than management accounting practices and they themselves were more familiar with financial accounting practices than with management accounting ones.
The most popular reasons for using selected management accounting techniques were controlling, planning, performance measurement purposes, and helping top management to make decisions, respectively.

Further, the most commonly cited reasons for not using the selected techniques were: 'no need for such techniques in our company', 'it is not considered important to use such techniques', and 'not required by top management', respectively. Some companies also mentioned 'not suitable for our companies' and 'work pressure' as reasons for not using some selected techniques.

Finally, interviews revealed several internal and external factors that influence management accounting practices within Jordanian industrial companies. Interviewees mentioned and emphasised the important effect of the following factors: top management support, accounting education, management accounting training programmes, incentive systems, professional accounting bodies, management accounting journals, management accounting research and PhD degrees, and cooperation between universities and companies. The results presented in chapter six had previously supported and emphasised the effect of these factors.

Interviewees also mentioned and emphasised the important effect of foreign ownership and competition. Again, results presented in chapters seven and eight had supported and emphasised the effect of these factors.

The important effect of other factors was also revealed during interviews, such as the effect of accountants' qualifications and skills, outside consultants, work pressures, and conferences and seminars in accounting issues. Overall, Jordanian industrial companies appeared to recognise the important effect of these factors upon their management accounting practices. It would be interesting to investigate in the near
future whether changes in management accounting practices have in fact occurred, especially after the major changes in the country business environment.
Chapter Ten
Summary, Conclusions, and Recommendations
10 Summary, Conclusions, and Recommendations

10.1 Introduction

This chapter summarises the main findings of the study, draws conclusions, and highlights implications and recommendations based on the findings. It also identifies the limitations, and possible areas for future research.

10.2 Summary of main findings

It has been argued in the literature that accounting practices are responses to the needs of particular environments; a response to economic and social factors of a specific country. During the last two decades, Jordan’s business environment has changed rapidly and fundamentally, from a domestic and protected market, to an open competitive one. Such fundamental business environment changes have influenced accounting practices in many countries (see chapter two).

This study has investigated the state of management accounting techniques/practices within a sample of 133 large and medium size industrial companies in Jordan. The study has examined the use of selected traditional and recently developed management accounting techniques/practices. It has also examined the influence of contingent factors on the use of these techniques/practices. A questionnaire survey and interviews were both used to collect the study data.

As mentioned in chapter one, this has been an exploratory study to investigate the state of management accounting practices within Jordanian industrial companies. The
collected data were analysed using descriptive statistical analyses and results reported in chapter six. The study also examined the relationship between selected contingent factors and the use of management accounting techniques/practices, using both bivariate and multivariate statistical analyses, the results were presented in chapters seven and eight. Further, the findings derived from the 30 interviews were reported in chapter nine. A summary of main findings is provided below:

> Questionnaire results revealed Jordanian industrial companies were relatively small, and young compared with overseas companies such as those in the UK and USA. Most companies were facing high competition. Accounting departments existed in all companies, but few had a cost department. The majority of accounting staff held accounting degrees and qualifications. Professional accounting qualifications, such as the CMA and CIMA, were not popular among Jordanian companies. A few respondents held the American Certified Public Accountant (CPA) qualification. Most respondents held Bachelor degrees (BSc.), accounting qualifications/degrees, and had lengthy and relevant work experience.

> Jordanian industrial companies applied various management accounting techniques and practices. Performance measurement techniques were the most prominent, and ‘Sales’ measurement was the most popular performance measurement technique. Customer satisfaction, product quality, and meeting the budget were also widely used. The second most widespread management accounting techniques were budgeting and control techniques. A sales budget was the most popular budgeting and control technique. Other budgets, such as production, cash, and master budgets, were also widely used. At the third level of popularity were advanced management techniques. Total quality management was
the most frequently used advanced management technique among companies. Less frequently applied management accounting techniques were capital investment appraisal techniques. Meeting the budget was the most popular capital investment appraisal technique in use.

- Blanket overhead rates and using the ‘number of units produced’ were the most popular techniques for allocating overhead costs. The most popular pricing method was ‘pricing by market’. Management accounting techniques, such as activity based costing, standard costing, and transfer pricing, were not popular within the Jordanian industrial companies surveyed.

- More than 50% of respondents who used the reported management accounting techniques considered them very important or above average importance for their companies.

- Questionnaire survey findings also revealed the extent of the importance of selected contingent factors on management accounting techniques/practices. Accounting education in Jordan was ranked as the most important factor influencing management accounting practices in Jordanian companies, whereas, the least important factor was specialist management accounting journals. However, all the selected and reported factors were ranked above average in importance, suggesting Jordanian industrial companies recognised the important effect of these factors on management accounting practices.

- Bivariate analysis indicated that among Jordanian industrial companies, those expected to use more management accounting techniques were large in size (measured by number of employees and total sales), had high product diversity (measured by number of products), high percentage of exports, high competition
(domestic and international), high foreign ownership, and operated in the chemicals/pharmaceutical industry sector. However, the bivariate analysis revealed only single relationships between each explanatory variable (contingent factor) and the extent of using management accounting techniques, it did not reflect interrelationships among these variables explaining the variation in the extent of using these techniques. Therefore, multiple regression analysis was employed to seek additional evidence about the effect of the explanatory variables on management accounting techniques/practices in Jordan.

➢ Both bivariate and multivariate analysis confirmed the significant association between different management accounting techniques/practices and four explanatory variables, namely, company size (measured by sales), competition (both domestic and international), industry type (chemicals and pharmaceutical industry), and foreign ownership. Both analyses also confirmed no significant association between management accounting techniques/practices and both company age and government ownership at the 5% significance level.

➢ According to the overview of findings, the following hypotheses can be supported:

1. Hypothesis 2: there is a positive association between total annual sales and the extent of using management accounting techniques within Jordanian industrial companies.

2. Hypothesis 7: there is a positive association between percentage of foreign ownership and the extent of using management accounting techniques within Jordanian industrial companies.
3. Hypothesis 8: there is an association between industry type and the extent of using management accounting techniques within Jordanian industrial companies.

4. Hypothesis 9: there is a positive association between domestic competition and the extent of using management accounting techniques within Jordanian industrial companies.

5. Hypothesis 10: there is a positive association between international competition and the extent of using management accounting techniques within Jordanian industrial companies.

➢ The most important and significant explanatory variable associated with the variation in the extent of using management accounting techniques was company size (measured by sales).

➢ Many interviewees mentioned and emphasised the lack of use of accounting information for decision-making by top management. However, others revealed that pricing decisions were decided after studying the costs, the target profit, and the market prices. The most popular technique for allocating overheads was blanket overhead rates. Most interviewees’ companies used annual budgeting techniques. Planning, forecasting, and control were the main purposes of preparing and using the budgets.

➢ According to interview findings, standard costing was not a popular and important technique for almost three quarters (73.7%) of respondent Jordanian industrial companies. Those companies which used this technique revised their standards annually. Some interviewees mentioned reasons for not using standards as 'the
difficulty in calculating such standards for some companies', 'not suitable for some companies', and 'lack of knowledge or/and appreciation of their benefits'.

More than 90% of interviewees indicated their companies used profit and/or sales as the main tool to measure their performance during the year, and comparing their results with previous related numbers for performance measurement was very common. Interviews revealed that accounting measurements for performance evaluation were not popular.

Interviewees indicated that financial accounting practices were used and considered more common than management accounting practices. They were more familiar with financial accounting practices than with management accounting ones.

The most popular reasons for using the selected management accounting techniques were controlling, planning, and performance measurement purposes, and helping top management to make decisions, respectively.

The most commonly cited reasons for not using selected techniques were: 'no need for such techniques in our company', 'it is not important to use such techniques', and 'not required by top management', respectively. Some interviewees also mentioned 'not suitable for our companies' and 'work pressure' as reasons for not using some selected techniques.

Interviewees emphasised the important effect of the following internal and external factors on management accounting practices within Jordanian industrial companies: top management support, accounting education, management accounting training programmes, incentive systems, professional accounting
bodies, management accounting journals, management accounting research and PhD degrees, and cooperation between universities and companies. Moreover, interviewees also mentioned and emphasised the important effect of government ownership, foreign ownership, and competition. Other factors highlighted during interviews were the effect of accountants' qualifications and skills, outside consultants, work pressures, and conferences and seminars on accounting issues.

Overall, Jordanian industrial companies appeared to recognise the important effect of the selected and reported factors upon their management accounting practices.

10.3 Discussion and conclusion

As discussed in chapter two, the Jordanian business environment has changed rapidly over the last two decades, especially during the last 10 years. Jordanian businesses have entered the global market as a result of new trade agreements signed with other countries, which facilitate investment by/for overseas businesses. These changes and others mentioned in chapter two, have increased competition for Jordanian companies, which have little experience because of the market protection they used to get from the government. Such changes increased the need for accounting information in companies in order to stay and survive in a competitive and global market.

One might argue that accurate product cost information may not be necessary in determining selling prices, despite the fact that Jordanian companies operate within a competitive environment. This could be due to the fact that many companies are price-takers and therefore may not use advanced management accounting techniques, such as ABC, this may result in producing distorted product cost information and
influence decision-making. Other companies use different management techniques, such as target costing, to improve their accounting information in such circumstances. For example, some Jordanian pharmaceutical companies which are price-takers - due to their competitive environment and government regulations - employ the target costing technique in order to improve their decision-making. This may explain the use of some techniques and not others (see, for example, Bhimani and Pigott, 1992).

Although Jordanian companies did not use ABC techniques widely, they used non-financial and financial information for measuring their performance. Adopting both measures is considered to be one of the features of modern management accounting techniques, such as the balance scorecard technique. The findings therefore suggest Jordanian companies do not use the modern techniques as they are known in the literature, but use some of them and some of their features without giving them those names.

It has been mentioned in the literature (see chapter 4) and confirmed by this study that company size is one of the main factors influencing management accounting practices. Thus, one explanation for the differences in the results of this study and those of prior studies (reported in chapters 3 and 6) is that Jordanian companies are much smaller than their counterparts in developed countries, such as the UK and USA. Therefore, Jordanian industrial companies would be expected to employ fewer management accounting techniques.

As part of the management culture, Jordanian managers tend to avoid risk, and are more cautious and conservative in adopting new management accounting techniques (see chapter two, section 2.4.1). This may explain the lack of investment in long-term projects and the lack of research and development.
Study findings indicated that using blanket (or plant-wide) overhead rates was very popular within Jordanian companies, reflecting the simplicity of allocating overheads to products. One reason for using such method is due to calculating costs within these companies is for financial reporting/statements, since for financial accounting requirements it is not necessary to allocate overheads accurately to individual products as long as the total costs of these products is approximately correct. However, for decision-making purposes, using blanket overhead rates will produce distorted cost information, especially when products produced absorb resources from different production departments in different proportions. Such distorted cost information may lead to inappropriate decisions, such as the dropping of profitable products or continuing to produce unprofitable ones. This explanation of the use of management accounting practices for financial accounting/reporting is consistent with the huge attention paid to financial accounting/reporting in Jordan (see chapter two) and consistent with findings in prior studies such as those of Drury et al. (1993), Drury and Tayles (1994) and Brierley et al. (2001).

The present study supports and emphasises the main criticisms of management accounting practice mentioned in the literature and reported by Brierley et al. (2001, p. 216) as follows:

1. “product costs computed to meet financial accounting inventory valuation requirements are also used for decision making.”

2. “over-simplistic allocation methods (such as blanket overhead rates) are used to compute product costs and, as a result, distorted product costs are reported.”
3. “external financial reporting conventions encourage a financial accounting mentality that has resulted in product costing practice following, and becoming subservient to, financial accounting practice.”

Further, this study’s findings revealed that Jordanian industrial companies tend to employ traditional management accounting practices rather than recently developed techniques. This result is consistent with and emphasises the results of previous studies such as those of Ernst & Young and IMS (2003), Joshi (2001), Chenhall and Langfield-Smith (1999), Alebaishi (1998), Chenhall and Langfield-Smith (1998a), and Chenhall and Langfield-Smith (1998b). One possible reason for Jordanian companies not using recently developed management accounting techniques may be the time lag between the introduction of new ideas, techniques, and practices, and their actual implementation. It takes time for new ideas and techniques to be accepted and implemented by companies, particularly in developing countries where there is not a developed financial press (see Scapens, 1983; Bjørnenak, 1997b).

One of the factors influencing management accounting practices in Jordan is the lack of cooperation between professional accounting bodies and university researchers. There are two possible reasons for such lack of cooperation: 1) there are no active professional accounting institutions such as the CIMA in the UK; and 2) there are no active accounting researchers such as those in the UK. One possible explanation for the lack of active accounting researchers in Jordanian universities is work pressure. Teaching loads were a problem in England up until the 1950s (see Hopper et al., 2001). Professional accounting bodies, such as the Chartered Institute of Management Accountants (CIMA) have played a vital role in developing management accounting in the UK.
It should also be borne in mind that most of the literature on management accounting research comes from developed countries and provides a general image of a democratic and international society, thus, one would expect management accounting systems operating in companies in these countries to enjoy a high degree of innovation and willingness to change. Further, companies in these countries operate in a highly competitive environment. Those companies which cannot compete successfully will suffer and earn less profit and may finally go out of business. However, such market discipline does not exist in most Jordanian large companies. They used to work in a protected and low competitive environment, and although some may have experienced financial crisis, very few have been bankrupted, possibly because large numbers of employees would lose their jobs, causing a major social problem, therefore, they have been protected and supported to survive. However, Jordanian industrial companies have started to be subject to 'the discipline of the market', especially since the fundamental changes in their business environment (see chapter two). Nevertheless, some still remain relatively protected. Therefore, managers in such Jordanian companies do not act efficiently and use management accounting information for decision-making as their counterparts in developed countries. Thus, it may be argued that unless these companies become fully independent economic entities, management accounting is unlikely to play a major role in their management.

Further, Jordanian industrial companies have shifted from a stagnant business environment, where companies have a low competitive market and a stable environment and customers' tastes, to a more dynamic and hostile business environment, where companies operate in very highly competitive market (see Gordon and Miller, 1976; Reid and Smith, 2000). This significant shift in the business
environment may need some time to be fully recognised by Jordanian companies which will, in turn, have to improve their accounting information and management for better decision-making.

Finally, it is worth mentioning that there are no ideal management accounting practices/techniques for companies. Each company faces and has different environmental conditions, which lead them to employ different management accounting practices and decisions.

10.4 Implications and recommendations

The study's findings provide an overview of the state of management accounting practices in Jordanian companies. Such an overview is necessary before conducting any meaningful improvement to current management accounting practices in the future.

As chapter two indicates, Jordanian companies are in need of a management accounting system within their information system. The vast changes in the economic, political, and business environments require an improvement in management accounting practices in order to cope with the challenges presented by these changes, otherwise companies may find it difficult to remain profitable and stay in the market.

The current results are important for both academics in universities and practitioners in Jordanian industrial companies (i.e. both managers and accountants). They highlight the importance of their cooperation in order to improve management accounting in the country. Academics should pay attention to companies' suggestions and complaints and improve the quality of graduate accountants. Practitioners (both
managers and accountants) should actively participate in studies, seminars and workshops organised by universities, and vice versa.

This study confirms the vitally important role of management accounting professional bodies such as those in the UK and USA. Therefore, it is very important to consider establishing an effective and active Jordanian management accounting body in order to elevate this profession in the country.

The growing level of global competition intensifies the challenges for managers who need to consider more effective ways of achieving competitive advantage and improving organisational performance. One means of achieving this could be through adopting innovative management accounting techniques.

Companies may find it very useful to understand and recognise the practice of other companies, especially those of the same industry and size. They may recognise that some management accounting practices are very useful. Findings may also be very useful for those companies that are planning to extend the size of their business. They may indicate changes that will be helpful as they grow larger.

Jordanian companies have to recognise the impact of the new environment and improve their accounting system in general and management accounting practices in particular in order to stay in business.

Academics should give more recognition to practitioners who represent the majority of the accounting community, and attract them by making them integral partners in research work.
Training programmes for practitioners, and especially managers, are vital to increase their awareness of the importance of management accounting information for decision-making.

More attention should be given to management accounting information instead of concentrating only on financial reporting/accounting.

10.5 Scope and limitations

Like any research study, this research has some limitations. In addition to the normal limitations associated with survey research, that were discussed in chapter five, it was not possible to extend the scope of the study for two reasons: firstly, this study employed a questionnaire as the main research methodology instrument because of its exploratory nature and the need to ask many (general) questions rather than ones requiring more considered responses to provide very detailed information. Secondly, management accounting practices within Jordanian industrial companies are basic; therefore, complex questions would have been inappropriate. The researcher conducted this study to gain a better understanding of management accounting practices in Jordan in general.

This is the first research study to investigate management accounting practices and factors that influence these practices in Jordan, thus has been an exploratory study. Moreover, because its main focus has been management accounting practices within

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44 Unstructured interviews (during the first visit to Jordan) revealed management accounting practices within Jordanian companies are basic (see chapter five).
large and medium Jordanian industrial companies, findings and conclusions can only represent the sampled companies.

Further, the study did not include all management accounting techniques and practices. The criteria for selecting the management accounting techniques for this study were presented in chapter 5 (section 5.2.1). In addition, the study focused on medium and large Jordanian industrial companies and excluded small ones (less than 50 employees). Moreover, the unstable political situation in the region (i.e. the US led war on Iraq) was not conducive to conducting research and contributed to poor response rates. As a result, the researcher consumed much time in collecting a reasonable number of cases.

The study was unable to identify and include all the contingent factors that may influence management accounting practices in Jordanian companies. The low adjusted R² for some regression models suggests that additional explanatory variables could be added to these models to improve their explanation of management accounting practices’ variation.

Despite these limitations, the study provides evidence of the state of management accounting practices in Jordanian industrial companies. In particular, it highlights the influence of some contingent variables on these practices. The study is a starting point for further investigations and analysis of management accounting practices in Jordan.

10.6 Future research

The present study will, hopefully, stimulate further research in this area. As has been mentioned before, the time gap between business environmental changes and changes
in management accounting techniques/practices requires further empirical studies in
the future to determine whether or not Jordanian companies have modified their
accounting practices to cope with the new surrounding environment and challenges,
and reasons for not changing and modifying their management accounting practices
(if they did not) which may require urgent solutions.

The next few years are likely to see increasing global competitiveness in the
Jordanian industrial market, therefore, it would be interesting to see in the near future
what changes in management accounting practices have occurred. However, Smith
(1987) found that Jordanian management culture was resistant to change and was not
forward-looking.

It has been recognised that the only way to validate the findings of an exploratory
study (i.e. this study) is by a process of replication. Future studies can add to our
understanding of the research problem by considering the role of additional relevant
explanatory variables and conducting case study research.

Similar exploratory studies are needed to investigate and provide a broad overview of
current management accounting practices in other important Jordanian sectors, such
as the financial services sector.
Appendix A

The Questionnaire Covering Letter
Dear

My name is Khaled Hutaibat, I am a doctoral programme researcher in the Department of Economics at the University of Bristol in England. I am writing to ask for your participation in my research project. My research aims to study management accounting practices and techniques within Jordanian industrial companies and to examine the factors that influence the development of these practices and techniques.

The result of this study will enable both professionals and academics to assess the current state of management accounting practices within Jordanian industrial companies thus, enabling them to make decisions and recommendations that would help Jordanian companies face the challenges in the new business environment.

I would truly appreciate your participation in this research which will take the form of answering a questionnaire. Your experience and knowledge are vital to this study and I believe that you will provide the information required.

Please be assured that the information and data you provide will remain confidential and will only be used for research purposes. A copy of the research result will be provided upon request. If you have any enquires, please feel free to contact me using my contact details above.

Thank you very much for your participation and co-operation.

Yours sincerely,

Khaled Hutaibat
Appendix B

Research Questionnaire
PART ONE: General Information

Section A

The information in this section is about the company in general. (Please try to answer all questions)

A.1.1) Your company has been established in (Please fill the gap): - 

A.1.2) Under which main industry sector does your company belong to: -
(please tick one box \( \square \) only)

- Textile, clothing and footwear
- Food products
- Plastic & rubber products
- Furniture and wooden products
- Typing, paper and packing
- Chemicals/pharmaceutical industry
- Oil and gas industry
- Tobacco
- Mining and quarrying
- Building materials and construction
- Electrical appliances
- Iron, steel and aluminium industry
- Other (please specify)

A.1.3) How many different products does your company currently produce?
(please tick one box \( \square \) only)

- 1-2 products
- 3-6 products
- 7-14 products
- 15-30 products
- 31-60 products
- 61-120 products
- Over 120 products

A.1.4) The current total number of employees in your company is: -
(please tick one box \( \square \) only)

- Less than 50 employees
- 50-100 employees
- 101-200 employees
- 201-500 employees
- 501-1000 employees
- 1001-2000 employees
- 2001-5000 employees
- More than 5000 employees

A.1.5) The annual sales revenue of your company is (in Jordanian Dinar): -
(please tick one box \( \square \) only)

- Less than 1 million
- 1- less than 10 millions
- 10- less than 20 millions
- 20- less than 30 millions
- 30- less than 40 millions
- 40- less than 80 millions
- 80- less than 160 millions
- 160- less than 320 millions
- 320- less than 640 millions
- More than 640 millions

A.1.6) What is the percentage of your company’s exports from the total sales?
(please tick one box \( \square \) only)

- No exports at all
- 1%-5% of total sales
- 6%-14% of total sales
- 15%-30% of total sales
- 31%-50% of total sales
- 51%-70% of total sales
- 71%-90% of total sales
- More than 90% of total sales
A.1.7) Please indicate the percentage of ownership of the following parties in your company? (Please fill the gap)

<table>
<thead>
<tr>
<th>Owners</th>
<th>The percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordanian government</td>
<td>...........%</td>
</tr>
<tr>
<td>Other Jordanian individuals &amp; institutions</td>
<td>...........%</td>
</tr>
<tr>
<td>Arab individuals &amp; institutions</td>
<td>...........%</td>
</tr>
<tr>
<td>Non-Arab individuals &amp; institutions</td>
<td>...........%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>...........%</td>
</tr>
<tr>
<td>Total ownership of the company</td>
<td>100 %</td>
</tr>
</tbody>
</table>

A.1.8) The level of competition which your company faces from others is: (Please tick one box ☒ per row)

<table>
<thead>
<tr>
<th>Type of competition</th>
<th>Very low competition</th>
<th>Low competition</th>
<th>Moderate competition</th>
<th>High competition</th>
<th>Very high competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Domestic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) International</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.1.9) Does your company have the following sections/departments or not? (Please tick one box ☒ per row)

<table>
<thead>
<tr>
<th>The department</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Accounting department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Cost/management accounting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.1.10) Please classify the number of your employees who work in accounting in your company by filling the gap with relevant number in the following table:

<table>
<thead>
<tr>
<th>Accountants classification</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Employees with accounting degree</td>
<td></td>
</tr>
<tr>
<td>2) Employees with relevant degrees such as business administration</td>
<td></td>
</tr>
<tr>
<td>3) Employees with irrelevant degrees such as psychology</td>
<td></td>
</tr>
<tr>
<td>4) Employees with secondary school or diploma</td>
<td></td>
</tr>
<tr>
<td>5) Others (please specify)</td>
<td></td>
</tr>
<tr>
<td>Total number of employees in Accounting department</td>
<td></td>
</tr>
</tbody>
</table>

A.1.11) Please indicate the number of employees who hold each of the following professional qualifications in your company by filling the gap with relevant number in the following table:

<table>
<thead>
<tr>
<th>Professional qualifications</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Jordanian certified public accountant (JCPA)</td>
<td></td>
</tr>
<tr>
<td>2) Arabic certified public accountant (ACPA)</td>
<td></td>
</tr>
<tr>
<td>3) American certified public accountant (CPA)</td>
<td></td>
</tr>
<tr>
<td>4) British certified public accountant (ACCA)</td>
<td></td>
</tr>
<tr>
<td>5) American certified management accountant (CMA)</td>
<td></td>
</tr>
<tr>
<td>6) British certified management accountant (CIMA)</td>
<td></td>
</tr>
<tr>
<td>7) Others (please specify)</td>
<td></td>
</tr>
</tbody>
</table>
Section B

The information in this section is about **you in general**. (Please try to answer all questions)

B.1.1) What is your working position in this company? 
(Please tick one box ☑ only)

- Financial manager
- Assistant financial manager
- Head of accounting department
- Head of cost accounting department
- Accountant
- Other (please specify) ..................

B.1.2) Your highest academic qualification is: -
(Please tick one box ☑ only)

- PhD degree
- Master degree
- High diploma
- Bachelor degree
- Diploma
- Other (please specify) .............

B.1.3) In which field (major) was your degree? 
(Please tick one box ☑ only)

- Accounting
- Business Administration
- Economics
- Finance
- Other (please specify) .............

B.1.4) Which professional accounting qualification do you hold, if any? 
(You may tick ☑ more than one box)

- American certified public accountant (CPA)
- British certified public accountant (ACCA)
- Arabic certified public accountant (ACPA)
- Jordanian certified public accountant (JCPA)
- American certified management accountant (CMA)
- British certified management accountant (CIMA)
- None
- Other (please specify) .............

B.1.5) Your total experience in this field is: -
(Please tick one box ☑ only)

- Less than 2 years
- 2-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- Above 20 years

B.1.6) You are working in this company for: -
(Please tick one box ☑ only)

- Less than 2 years
- 2-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- Above 20 years

B.1.7) Your age is: -
(Please tick one box ☑ only)

- Less than 25 years
- 25-35 years
- 36-45 years
- 46-55 years
- Above 55 years
PART TWO: Management Accounting Practices In Jordanian Industrial Companies

Section A

The information in this section is about costing techniques in your company. (Please try to answer all questions).

A.2.1) Complete the following table by ticking the appropriate box ☐. Indicate whether your company uses each of the following techniques or not and how important they are to your company.

<table>
<thead>
<tr>
<th>Costing Techniques</th>
<th>Does your company use this technique?</th>
<th>If yes, how important is this technique to your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job order costing system.</td>
<td></td>
<td>Not important 1 Below average importance 2 Average importance 3 Above average importance 4 Extremely important 5</td>
</tr>
<tr>
<td>Process costing system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch costing system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity-based costing (ABC).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocating service department costs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify).............................</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.2.2) To allocate overhead costs which of the following techniques does your company use:

☐ Blanket overhead rate
☐ Personal judgement (experience)
☐ Activity-based costing
☐ Department rates
☐ Cost centre rates
☐ Other (please specify).................................

A.2.3) To what extent does your company use the following overhead basis: -

(please tick one box ☐ per row)

<table>
<thead>
<tr>
<th>The Basis</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Number of units produced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Direct labour hours/cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Direct machine hours/cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Direct material costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Cost drivers using ABC system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Other (please specify).......................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.2.4) How does your company determine its product price?

☐ The government determines prices
☐ The market determines prices
☐ Variable cost plus pricing
☐ Full cost plus pricing
☐ Other (please specify).................................
A.2.5) Please indicate to what extent does your company use the following costs in their decisions (such as pricing decisions and make or buy decisions): -
(please tick one box per row)

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Variable/direct manufacturing cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Total manufacturing cost (fixed and variable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Total variable cost (manufacturing and non-manufacturing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Total cost (including fixed non-manufacturing cost)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section B

The information in this section is about budgeting and control techniques in your company.

B.2.1) Complete the following table by ticking the appropriate box. Indicate whether your company uses each of the following techniques or not and how important they are to your company.

<table>
<thead>
<tr>
<th>Budgeting and Control Techniques</th>
<th>Does your company use this technique?</th>
<th>If yes, how important is this technique to your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Not important</td>
</tr>
<tr>
<td>Sales budget.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Production budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct materials purchase/usage budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct labour budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overheads budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexible budgeting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity-based budgeting (ABB).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero-based budgeting (ZBB).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental budgeting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)............</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Appendix B**

B.2.2) Does your company use standard costing system?

- ☐ No (please go to section C)
- ☐ Yes

B.2.3) Which of the following best describes your company’s standards?

- ☐ Ideal standards
- ☐ Historical standards
- ☐ Currently attainable standards
- ☐ Basic standards
- ☐ Other standards (please specify)...

B.2.4) Does your company use transfer pricing between divisions?

- ☐ No (please go to section D)
- ☐ Yes

B.2.5) To what extent does your company use the following transfer pricing methods:

(please tick one box ☑ per row)

<table>
<thead>
<tr>
<th>Transfer Pricing Methods</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Market pricing method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Full cost method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Variable cost method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Full cost-plus method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Variable cost-plus method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Negotiated pricing method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Standard costing method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Other (please specify)..........</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B.2.6) Does the buying division in your company have the right to buy from outside the company?

(Please tick one box ☑ only)

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
</table>
Section C

The information in this section is about performance measurement techniques for measuring performance of divisions and company. (Please try to answer all questions).

C.2.1) Complete the following table by ticking the appropriate boxes ☑. Indicate whether your company uses each of the following techniques or not and how important they are to your company?

<table>
<thead>
<tr>
<th>Performance Measurement Techniques</th>
<th>Does your company use this technique?</th>
<th>If yes, how important is this technique to your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Return on investment (ROI).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual income (RI).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic value added (EVA).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The market share.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The shares price.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division profit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product quality.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees' attitude.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget variance analysis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting the budgets.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchmarking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Section D**

The information in this section is about **capital investment appraisal techniques** in your company. (Please try to answer all questions).

D.2.1) Complete the following table by ticking the appropriate box [✓]. Indicate whether your company uses each of the following techniques or not and how important they are to your company.

<table>
<thead>
<tr>
<th>Capital Investment Appraisal Techniques</th>
<th>Does your company use this technique?</th>
<th>If yes, how important is this technique to your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>Payback period (PBP).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting rate of return (ARR).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net present value (NPV).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal rate of return (IRR).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting the budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)...................</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section E

The information in this section is about modern management techniques in your company. (Please try to answer all questions).

E.2.1) Complete the following table by ticking the appropriate box [ ]. Indicate whether your company uses each of the following techniques or not and how important they are to your company.

<table>
<thead>
<tr>
<th>Modern Management Techniques</th>
<th>Does your company use this technique?</th>
<th>If yes, how important is this technique to your company?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Total quality management (TQM).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity-based management (ABM).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value-chain analysis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just in time (JIT).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaizen costing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target costing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life-cycle costing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-engineering approach.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Please try to answer all questions).

3.1) In your opinion, how important have the following factors been in the influencing and change of the management accounting practices/techniques in your company.

(Please tick one box ☐ per row)

<table>
<thead>
<tr>
<th>The Factors</th>
<th>NA</th>
<th>Not important</th>
<th>Below average importance</th>
<th>Average importance</th>
<th>Above average importance</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management support.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management accounting training programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive systems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate financial resources for accounting development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using computer system for management accounting purposes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional accounting bodies in Jordan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting education in Jordan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting research in Jordan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-operation between universities (academics) and companies (professionals).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist management accounting journals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased competition.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART FOUR: General Questions

4.1) From your experience, what is the level of development of the management accounting profession in Jordan?

<table>
<thead>
<tr>
<th>Very low development</th>
<th>Low development</th>
<th>Average development</th>
<th>High development</th>
<th>Very high development</th>
<th>Do not know</th>
</tr>
</thead>
</table>

4.2) How important is the role of management accounting information in your company?

<table>
<thead>
<tr>
<th>Not important</th>
<th>Below average importance</th>
<th>Average importance</th>
<th>Above average importance</th>
<th>Extremely important</th>
</tr>
</thead>
</table>

4.3) Do you believe that the existing management accounting practices in your company need to be improved?

☐ No  ☐ Yes

4.4) Would you like to receive a copy of the research results?

☐ No  ☐ Yes

4.5) Would you like to participate in future interviews?

☐ No  ☐ Yes

4.6) Please indicate any additional information that you believe it is important for this study and the researcher did not mention it in this questionnaire.

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

Many Thanks for your Participation and cooperation in Completing This Questionnaire.

Khaled Hutaibat
P.O. Box 2116
Tla‘a Al-Àli (11953)
AMMAN-JORDAN

320
Appendix C
Letter from Stephen Lyne
(The researcher's supervisor)
To Whom it may concern

Re KHALED HUTAIBAT

The above-named student is currently working on his PhD thesis at the University of Bristol, and I am his supervisor. Khaled is investigating the use of accounting techniques in the management of companies in Jordan. To accomplish this he requires companies to complete a questionnaire and for some companies to grant him time to conduct a short interview.

The work he is doing will be useful in understanding ‘best practice’ among companies in Jordan, and many of the companies that participate will themselves benefit from thinking about these issues. May I strongly commend Khaled and ask that if at all possible you agree to participate in this worthwhile research project.

Stephen Lyne

Dr Stephen R Lyne
Appendix D

Letter from MU’TAH University
(The researcher’s sponsor)
Appendix D

جامعة مؤتة
عمادة البحث العلمي والدراسات العليا

من يهمه الأمر

تشهد عمادة البحث العلمي والدراسات العليا في جامعة مؤتة بان السيد خالد عبيدلحبيبات هو أحد مبوريها لتعيل درجة الدكتوراه في المحاسبة الإدارية وإن موضوع بحثه يختص بانظمة الحاسبة بشكل عام والمحاسبة الإدارية بشكل خاص في المؤسسات والشركات الأردنية، أرجو التلفظ بتسهيل مهمة الباحث في الحصول على المعلومات المطلوبة.

وتفضلوا بقبول فائق الاحترام

عميد البحث العلمي والدراسات العليا

MUTAH - JORDAN

TEL: (962 - 3) 372380 - 99
(962 - 6) 4617860 - 64
4617890 - 94

P. O. Box (7) Fax: (962 - 3) 370706
E-mail: cheditor @ center.mutah.edu.jo
Appendix E

Correlation Matrix
Appendix E
Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>NOP</th>
<th>EMP</th>
<th>ATS</th>
<th>POE</th>
<th>GOW</th>
<th>FOW</th>
<th>DC</th>
<th>IC</th>
<th>AGE</th>
<th>INDUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOP</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMP</td>
<td>0.053</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATS</td>
<td>0.032</td>
<td>0.561</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POE</td>
<td>0.040</td>
<td>0.024</td>
<td>-0.132</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOW</td>
<td>-0.153</td>
<td>0.249</td>
<td>0.333</td>
<td>0.128</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOW</td>
<td>-0.007</td>
<td>0.375</td>
<td>0.589</td>
<td>-0.188</td>
<td>-0.020</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC</td>
<td>0.096</td>
<td>-0.263</td>
<td>-0.478</td>
<td>-0.033</td>
<td>0.017</td>
<td>-0.358</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>-0.108</td>
<td>0.071</td>
<td>-0.035</td>
<td>0.129</td>
<td>0.010</td>
<td>0.160</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.009</td>
<td>0.106</td>
<td>0.340</td>
<td>-0.190</td>
<td>0.336</td>
<td>0.246</td>
<td>-0.285</td>
<td>0.005</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>INDUS</td>
<td>0.098</td>
<td>-0.066</td>
<td>-0.110</td>
<td>0.067</td>
<td>-0.197</td>
<td>-0.112</td>
<td>0.118</td>
<td>-0.135</td>
<td>-0.092</td>
<td>1.000</td>
</tr>
</tbody>
</table>

NOP = Number of Products; EMP = number of employees; ATS = Annual total Sales; POE = Percentage of the company’s exports; GOW = government ownership; FOW = foreign ownership; DC = Domestic Competition; IC = International Competition; AGE = Age of the company; INDUS = Industry type.
Appendix F

Personal Interviews
1) Age of interviewed companies

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10</td>
<td>3</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>10-20</td>
<td>12</td>
<td>40.0</td>
<td>50.0</td>
</tr>
<tr>
<td>21-30</td>
<td>5</td>
<td>16.7</td>
<td>66.7</td>
</tr>
<tr>
<td>31-40</td>
<td>1</td>
<td>3.3</td>
<td>70.0</td>
</tr>
<tr>
<td>41-50</td>
<td>7</td>
<td>23.3</td>
<td>93.3</td>
</tr>
<tr>
<td>51-60</td>
<td>1</td>
<td>3.3</td>
<td>96.7</td>
</tr>
<tr>
<td>More than 70</td>
<td>1</td>
<td>3.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

2) Number of employees

<table>
<thead>
<tr>
<th>Number of staff</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-100</td>
<td>4</td>
<td>13.3</td>
<td>13.3</td>
</tr>
<tr>
<td>101-200</td>
<td>14</td>
<td>46.7</td>
<td>60.0</td>
</tr>
<tr>
<td>201-500</td>
<td>8</td>
<td>26.7</td>
<td>86.7</td>
</tr>
<tr>
<td>501-1000</td>
<td>1</td>
<td>3.3</td>
<td>90.0</td>
</tr>
<tr>
<td>1001-2000</td>
<td>1</td>
<td>3.3</td>
<td>93.3</td>
</tr>
<tr>
<td>2001-5000</td>
<td>2</td>
<td>6.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
3) Annual sales of the companies

<table>
<thead>
<tr>
<th>Annual sales Millions (JD)</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 million</td>
<td>4</td>
<td>13.3</td>
<td>13.3</td>
</tr>
<tr>
<td>1 - Less than 10</td>
<td>17</td>
<td>56.7</td>
<td>70.0</td>
</tr>
<tr>
<td>10 – Less than 20</td>
<td>3</td>
<td>10.0</td>
<td>80.0</td>
</tr>
<tr>
<td>20 - Less than 30</td>
<td>2</td>
<td>6.7</td>
<td>86.7</td>
</tr>
<tr>
<td>40 - Less than 80</td>
<td>2</td>
<td>6.7</td>
<td>93.3</td>
</tr>
<tr>
<td>80 - less than 160</td>
<td>1</td>
<td>3.3</td>
<td>96.7</td>
</tr>
<tr>
<td>160 - Less than 320</td>
<td>1</td>
<td>3.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

The Questionnaire Covering Letter in Arabic
بسم الله الرحمن الرحيم

السيد

المحترم

التاريخ:

تحية طيبة وبعد:

أقدم إلى حضرتك هذا الاستماع، والذي يهدف إلى جمع المادة العلمية الضرورية لاستكمال دراسة الدكتوراه في المحاسبة، والتي أقوم بها في المملكة المتحدة، ودفع هذه الدراسة إلى التعرف على واقع المحاسبة الإدارية والموارد المؤثرة على تطورها في المملكة الأردنية الهاشمية، ومن أهداف الدراسة أيضاً التعرف على أهم المفاهيم المحاسبية الإدارية الحديثة المستخدمة في الشركات الصناعية الأردنية.

وقد تم اختيار عينة هذه الدراسة من الشركات الصناعية الأردنية، وتعتبر شركة واحدة من هذه الشركات التي ادرجناها في هذه الدراسة.

ارجعوا منكم مشكورين التفضل بتقديم مساهمة في جمع البيانات الضرورية لإتمام هذه الدراسة، وذلك بتعبئة هذا الاستماع، وأودكم لكم بأنه جميع البيانات الواردة سوف تكون هدف البحث العلمي فقط.

ولكن جزيل الشكر وührمان على وتفهم وجهودكم في تعبئة هذا الاستماع، راجياً منكم عدم التردد بالاتصال على هاتف رقم (215372453) أو (0777859705) للإتصال أو طلب أي معلومات إضافية.

وتنالوا بقبول فائق الاحترام والتقدير.

الباحث:

هلال عبد معمود

ضحى 216

تلاغ العلّي – عمان (رمز بريد 1953)

الاردن
Appendix H
The Questionnaire in Arabic
الفرع الأول: معلومات شركة

هذا الجزء من الاستبيان هو عبارة عن معلومات عامة عن الشركة. (الرجاء الإجابة على جميع الأسئلة):

1 - تاريخ تأسيس الشركة:

2 - تحت أي من القطاعات الرئيسية التالية تدرج طبيعة عمل شركتك (الرجاء الإجابة ووضع إشارة في المرفق المناسب):
   - الصناعات الثقافية والفنانية
   - الصناعات الثقافية والفنانية
   - الصناعات الثقافية والفنانية
   - الصناعات الثقافية والفنانية
   - الصناعات الثقافية والفنانية
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير
   - التحليل والتنبؤ والتصميم والتطوير

3 - يرجى مراجعة هذه المحتوى حاليًا ما بين (الرجاء وضع إشارة في فقر واحد فقط):
   - 1-2 مش، 3-6 مش
   - 60-120 مش
   - أكثر من 120 مش

4 - يرجى مراجعة عدد موظفي الشركة الحالي ما بين (الرجاء وضع إشارة في فقر واحد فقط):
   - أقل من 50 موظفا
   - 101-200 موظفا
   - 1001-2000 موظفا
   - أكثر من 5000 موظفا

5 - يرجى مراجعة ما بين (الرجاء وضع إشارة في فقر واحد فقط):
   - (اللغة بالدبلوم الأردني):
     - أقل من 1 مليون
     - 1-20 مليون
     - 20-40 مليون
     - 40-80 مليون
     - 80-160 مليون
     - أكثر من 160 مليون

6 - ما هي نسبة مشارات شركتك من إحصائيات الشركات السريعة (الرجاء وضع إشارة في فقر واحد فقط):
   - لا يوجد مشارات
   - 1-5% من المليارات
   - 6-14% من المليارات
   - 15-30% من المليارات
   - 31-50% من المليارات
   - أكبر من 50% من المليارات

7 - الرسم البياني السالب الشعبي لتسكين كل من الجهات الفاعلة المتبيلة لشركتك (الرجاء وضع إجابة في برنامج متقالي كل جملة):

<table>
<thead>
<tr>
<th>السائقة الرسمية القريبة</th>
<th>الفئات</th>
</tr>
</thead>
<tbody>
<tr>
<td>%...........</td>
<td>1-الحكومة الدولية</td>
</tr>
<tr>
<td>%...........</td>
<td>2-التعاون ومؤسسات أجنبية</td>
</tr>
<tr>
<td>%...........</td>
<td>3-التعاون ومؤسسات أجنبية</td>
</tr>
<tr>
<td>%...........</td>
<td>4-آراء و مؤسسات غير هيئة</td>
</tr>
</tbody>
</table>

%100 - مجموع المليارات
8 - الإجابة عن البنود المتعلقة بالتوابع التي تواجه شركة (1) ووضع الإشارة (6) واحدة فقط لكل صف):-

<table>
<thead>
<tr>
<th>نوع التوافع</th>
<th>حالة ممثله</th>
<th>حالة ممثلة</th>
<th>حالة قيّدة</th>
<th>حالة قيّدة</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-سانسبة من داخل الأردن</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-سانسبة من خارج الأردن</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9 - الإجابة عن وجود الأسمنة المالية في شركة (1) ووضع الإشارة (6) واحدة فقط لكل صف):-

<table>
<thead>
<tr>
<th>الأسماك</th>
<th>نعم</th>
<th>لا</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- هل يوجد صمم حاس أو نافذة بشكل عام؟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- هل يوجد صمم حاس أو نافذة؟</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 - الرسالة لتصنيف الموظفين الذين يعملون في مجال المحاسبة لديكم و ذلك بوضع العدد المناسب مقابل التصنيف الآتي:

<table>
<thead>
<tr>
<th>تصنيف الموظفين</th>
<th>عدد الموظفين</th>
</tr>
</thead>
<tbody>
<tr>
<td>########</td>
<td>1- عدد الموظفين الذين يعملون في المحاسبة و لهم مسؤول حاسم في المالية</td>
</tr>
<tr>
<td>#######</td>
<td>2- عدد الموظفين الذين يعملون في المحاسبة و لهم مسؤول حاسم في النشاطات التجارية و الدوام، و تعاطي الصالصة</td>
</tr>
<tr>
<td>#######</td>
<td>3- عدد الموظفين الذين يعملون في المحاسبة و لهم مسؤول حاسم في سلسلة المرشيد و تراجعهم</td>
</tr>
<tr>
<td>#######</td>
<td>4- عدد الموظفين الذين يعملون في المحاسبة و لهم مسؤول حاسم في مجال المحاسبة</td>
</tr>
<tr>
<td>#######</td>
<td>5- عدد الموظفين الذين يعملون في المحاسبة و لهم مسؤول حاسم في مجال المحاسبة</td>
</tr>
</tbody>
</table>

الإجابة (11) أن عدد الموظفين المسمى على كل من الشهادات المحاسبة الجامعية في شركة (1):-

<table>
<thead>
<tr>
<th>اسم لؤلؤ/ إشهادة المحاسبة المالية</th>
</tr>
</thead>
<tbody>
<tr>
<td>#######</td>
</tr>
<tr>
<td>#######</td>
</tr>
<tr>
<td>#######</td>
</tr>
<tr>
<td>#######</td>
</tr>
<tr>
<td>#######</td>
</tr>
<tr>
<td>#######</td>
</tr>
</tbody>
</table>

الفرع الثاني: البيانات الشخصية

هذا الجزء من الاستمارة هى عن موظمون عامة وحدهم مصلى الاستمارة (واحة محاولة الإجابة عن جميع الأسلاك):-

1- ما هو الاسم الرسمي للموظف؟-
- [ ] رئيس قسم تكاليف
- [ ] مدير
- [ ] مساعد مدير
- [ ] محاسب
- [ ] آخر (رجاء التحديد)

2- ما هي عائلة الموظف تجربة سابقة على (1) رفع واحد فقط؟-
- [ ] محترم
- [ ] مستمر
- [ ] فصول دراسة علمية
- [ ] بكالوريوس
- [ ] آخر (رجاء التحديد)
Appendix H

3 - في أي مجال كان تخصصك العلمي (الرجاء وضع إشارة ☑ لربع واحد فقط):
☐ الإدارة الإدارية ☐ الإدارية ☐ الاقتصادية ☐ غير أو مالية

4 - أي من الشهادات المهنية المذكورة التالية تحمل:
☐ ACCA (أكوا بيديانا) ☐ CPA (أكوا بيديانا أمريكية) ☐ ACPA (أكوا بيديانا أردي)
☐ CIMA (أكوا بيديانا) ☐ CMA (أكوا بيديانا أمريكية) ☐ غير أو مالية (الرجاء التحديد)

5 - تبلغ عدد سنوات خبرتك في مجال النشاط ما بين (الرجاء وضع إشارة ☑ لربع واحد فقط):
☐ أقل من 2 سنة ☐ 2-5 سنة ☐ 6-10 سنة ☐ أكثر من 20 سنة

6 - تبلغ عدد سنوات عملك لدى هذه الشركة ما بين (الرجاء وضع إشارة ☑ لربع واحد فقط):
☐ أقل من 2 سنة ☐ 2-5 سنة ☐ 6-10 سنة ☐ أكثر من 20 سنة

7 - تبلغ عمرك في أي من الشركات المذكورة التالية (الرجاء وضع إشارة ☑ لربع واحد فقط):
☐ أقل من 25 سنة ☐ 25-35 سنة ☐ أكثر من 35 سنة
☐ 36-45 سنة ☐ 45-55 سنة ☐ أكثر من 55 سنة

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الجزء الثاني: تطبيقات المحاسبة الإدارية في الشركات الصناعية الأردنية

الفرع الأول: أنظمة التكاليف

هذا الجزء من الاستمارة هو استفادات عن أنظمة التكاليف المستخدمة لدى شركتك ووجهات المحاسبة الإدارية عن جميع الاستمارات:

1- بين الجدول أعلاه في العمود الأول بعض الرسومات ونماذج التكاليف. فصيح في العمود الثاني بيان ما إذا كانت شركتك تطبق وتستخدم هذه الأنظمة

<table>
<thead>
<tr>
<th>رقم</th>
<th>نظام التكاليف أو الرسوم (السجلات)</th>
<th>شرح</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>نظام تكاليف أوامير الإنتاج (السجلات)</td>
<td>Job order costing system</td>
</tr>
<tr>
<td>2</td>
<td>نظام تكاليف الربع</td>
<td>Process costing system</td>
</tr>
<tr>
<td>3</td>
<td>نظام تكاليف العادة</td>
<td>Batch costing system</td>
</tr>
<tr>
<td>4</td>
<td>نظام توزيع التكاليف على أساس الأنشطة</td>
<td>Activity-based costing (ABC)</td>
</tr>
<tr>
<td>5</td>
<td>تخصيص تكاليف أساس الفعالية</td>
<td>Allocating service department costs</td>
</tr>
</tbody>
</table>

2- الرسم حتى الأسرة (السجلات) المستخدمة في تخصيص التكاليف الصناعية عبر مباشر (فرعاء) وضع إدارة (الإحصاء) في شركتك:

<table>
<thead>
<tr>
<th>رقم</th>
<th>اسم النظام (ABC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>استعمال أسس (أ Alf) تفعيل واحد أو البنك للكتابة شركة</td>
</tr>
<tr>
<td>2</td>
<td>استعمال أسس (أ Alf) تعيين لحسابات التكلفة</td>
</tr>
<tr>
<td>3</td>
<td>استعمال نظام نظام (ABC) (التخصص على أساس الأنشطة)</td>
</tr>
<tr>
<td>4</td>
<td>تخصيص تكاليف أساس الفعالية</td>
</tr>
<tr>
<td>5</td>
<td>تخصيص رؤوس كتابة المسرحية</td>
</tr>
</tbody>
</table>

3- الرسم حتى الأسرة (فلاك) وأيادة فقط لكلا صفة ما بنفس شركتك:

<table>
<thead>
<tr>
<th>رقم</th>
<th>اسم النظام (ABC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>عدد الوحدات المحصورة</td>
</tr>
<tr>
<td>2</td>
<td>عدد الملاحظات المالية القادرة</td>
</tr>
<tr>
<td>3</td>
<td>عدد الحالات الراقصة المستخدمة</td>
</tr>
<tr>
<td>4</td>
<td>عدد الحالات الراقصة المستخدمة</td>
</tr>
<tr>
<td>5</td>
<td>مراعات (ABC) تطبيق نظام (ABC)</td>
</tr>
<tr>
<td>6</td>
<td>أخرى (فلاك)</td>
</tr>
</tbody>
</table>

---

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- يتم تحديد أعمار متحف شركتك بالطرق التالية (فرجاه ووضع إشارة 4 للإجابة التي تطابق على شركتك):-
  - يتم تحديد أعمار المحتوى بناء على أعمار الحوكمة
  - يتم تحديد أعمار التسلسل بناء على أعمار الكفاءة العامة
  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

- يتم تحديد أعمارกก متحف شركتك بالطرق التالية (فرجاه ووضع إشارة 4 للإجابة التي تطابق على شركتك):-
  - يتم تحديد أعمار المحتوى بناء على أعمار الحوكمة
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  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

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  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

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  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

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  - يتم تحديد أعمار التسلسل بناء على أعمار الكفاءة العامة
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  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

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  - يتم تحديد أعمار التسلسل بناء على أعمار الكفاءة العامة
  - يتم تحديد أعمار الكفاءة العامة بناء على إجابة 4 للإجابة المقدمة

الفرع الثاني: الموازنة التقديرية وأنظمة الرقابة

هذا الجزء من الأسئلة هو استعراض عن الموازنة التقديرية وأنظمة الرقابة المستخدمة لدى شركتك ونجاح تجاوز الإجابة على جميع الأسئلة:

1- بين الأدوار الأولي في الموتال الأول بعض الموازنة التقديرية. فرجاه في الموتال الثاني بناء ما إذا كانت شركتك تطبق واستخدم هذه الموازنة بالحالة الفعلية أو لا (لا) في حالة استمرار هذا التوزيع في المستقبل. أما إذا كانت الإجابة ب (نعم) فرجاه بناء استمرار هذه الموازنة بالنسبة لشركتك وذلك من خلال اختيار أحد الأرقام من 1 إلى 5 حيث أن: الرقم 1 يشير إلى عدم تجربة الموازنة، الرقم 2 يشير إلى نحو 10% من موسمت الموازنة، الرقم 3 يشير إلى نحو 40% من موسمت الموازنة والرقم 4 يشير إلى نحو 60% من موسمت الموازنة ورقم 5 يشير إلى نحو 80% من موسمت الموازنة، ورجاه الإجابة من خلال وضع الإجابة في النموذج الذي يلي (جواب):-

إذا كانت الإجابة ب نعم، ما هو مقدار أعلاه هذه الموازنة لدى شركتك؟

<table>
<thead>
<tr>
<th>أنواع الموازنة</th>
<th>المشتملة في الموازنة</th>
<th>تم استخدامها وتطبيقها ؟</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- ميزانية المباني</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- ميزانية الإنتاج</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3- الميزانية العقارية</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5- ميزانية التكاليف العامة غير المباشرة</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6- الميزانية الغير مباشرة (مباشرة)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7- الميزانية الرأسمالية (مباشرة)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12- ميزانية الموارد الأخرى</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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2- هل تم استخدام نظام التكاليف المثالية (Standard costs) في شركةكم؟
3- ما هو نوع التكاليف المثالية المستخدمة لدى شركةكم؟ (إجابة تدفق إجابة تدفق على شركةكم):
   □ معبرة مالية
   □ معبرة تاريخية
   □ معبرة أساسية
   □ أخرى (إجابة التحديد)
4- هل تقوم شركةكم باستخدام أسماء تحوير بين الأساح ومركزة المسؤولية المختلفة؟
5- الرجاء بيان مدى استخدام شركةكم لكل من أسماء التحويل المحترفة أدناه:

<table>
<thead>
<tr>
<th>إطلاعات</th>
<th>نادرًا</th>
<th>بعض الأرقام</th>
<th>مختلف الأرقام</th>
<th>داخليًا</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- أسعار تحوير يسر السوقي</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- أسعار تحوير بالتكلفة الكلية (الإجمالية)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3- أسعار تحوير بالتكلفة المتفئة</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4- أسعار تحوير بالتكلفة الكلية (الإجمالية) + نسبة ربح</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5- أسعار تحوير بالتكلفة المتفئة + نسبة ربح</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6- أسعار تحوير على أساس الفوارض (سعر تدريجي)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7- أسعار تحوير على أساس التكاليف المثالية</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8- أخرى (إجابة التحديد)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6- هل النصم الذي يتم بالاشارة أو التحويل إليها من قبل اسم معرفي للحزم، والخدمات بالشركة من خارج الشركة لدينا؟

<table>
<thead>
<tr>
<th>إطلاعات</th>
<th>نادرًا</th>
<th>مختلف الأرقام</th>
<th>داخليًا</th>
</tr>
</thead>
</table>
الفرع الثالث: أنظمة قياس الأداء في الشركة

هذا الجزء من الاستناد هو استعراض عن أنظمة قياس الأداء المستخدمة لدى شركتك (راجعًا بحثًا الإحالة عن جميع الأسئلة):

<table>
<thead>
<tr>
<th>أنظمة قياس الأداء</th>
<th>تم استخدامها في شركتك؟</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on investment (ROI)</td>
<td>1</td>
</tr>
<tr>
<td>Residual income (RI)</td>
<td>2</td>
</tr>
<tr>
<td>Economic value added (EVA)</td>
<td>3</td>
</tr>
<tr>
<td>سANTA</td>
<td>4</td>
</tr>
<tr>
<td>معادلة قيمة الشركة</td>
<td>5</td>
</tr>
<tr>
<td>محددات النمو</td>
<td>6</td>
</tr>
<tr>
<td>متغيرات النمو</td>
<td>7</td>
</tr>
<tr>
<td>متغيرات رضا الزبائن</td>
<td>8</td>
</tr>
<tr>
<td>محددات نسبة المرتفعين</td>
<td>9</td>
</tr>
<tr>
<td>تحليل الاختلافات بين الشركات التقليدية</td>
<td>10</td>
</tr>
<tr>
<td>باقي الأهداف المرتفعة</td>
<td>11</td>
</tr>
<tr>
<td>تقرير الأفكار الأخرى</td>
<td>12</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>13</td>
</tr>
<tr>
<td>استخدام طاقة واستدامة الريادة</td>
<td>14</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td>15</td>
</tr>
<tr>
<td>آخر (الرجوع للتعديل)</td>
<td>8</td>
</tr>
</tbody>
</table>

1- بين اختيارات أدوار في العمود الأول بعض أنظمة قياس الأداء. تعرفوا على العمود الثاني بيان ما إذا كانت شركتك تحقق وتستخدم هذه الأنظمة ألا حاصل، أو إذا كانت تستخدم ب (لا) الحالة أو بال.tmp جب. إذا كانت الإيجابية B (نعم) الرجاء بخصوص هذه الأنظمة بالنسبة للشركات، و ذلك من خلال اختيار أحد الأرقام من 1 إلى 5 حسب أن: الرقم 1: إجمالا يمكن استعمال قيمة النظام، الرقم 2: قيمة أداة من متوسطة النظام، الرقم 3: قيمة متوسطة النظام، الرقم 4: قيمة أعلى من النظام، الرقم 5: قيمة عالية للنظام.

(إجابة):
الفرع الرابع - أنظمة و طرق تقيم مشاريع الاستثمار

هذا الجزء من الامتحان هو استفسارات عن أنظمة و طرق تقيم مشاريع الاستثمار المستخدمة لدى شركةكم (رجاء محاولة الإجابة عن جميع الأسئلة):-

1- بين الحلول أدناه في العمود الأول بعض أنظمة تقييم مشاريع الاستثمار. الرجاء في العمود الثاني بيان ما إذا كانت شركةكم تطبق و تستعمل هذه الأنظمة بالكامل ب (نعم) أو (لا) فإذا كانت أفاجكم (لا) الرجاء الإجابة الزائد إلى النظام الذي بيله، أما إذا كانت الإجابة ب (نعم) الرجاء بيان مقدار أهمية هذا النظام بالنسبة لشركةكم وذلك من خلال اختيار أحد الأرقام من 1 إلى 5 حيث أن: الرقم 1 يشير إلى عدم أهمية النظام، الرقم 2 أهمية أدنى من موسومة للنظام، الرقم 3 أهمية متوسطة للنظام، الرقم 4 أهمية عالية للنظام، و الرقم 5 أهمية عالية للغاية للنظام. (الرجاء الإجابة من خلال وضع إشارة في المربع الذي ينسب إجابتك):-

<table>
<thead>
<tr>
<th>أنظمة تقييم مشاريع الاستثمار</th>
<th>هل شركةكم تستخدم و تطبق هذا النظام؟</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payback period (PBP)</td>
<td>لا</td>
</tr>
<tr>
<td>Accounting rate of return (ARR)</td>
<td>لا</td>
</tr>
<tr>
<td>Net present value (NPV)</td>
<td>لا</td>
</tr>
<tr>
<td>Internal rate of return (IRR)</td>
<td>لا</td>
</tr>
<tr>
<td>أخري (الرجاء التحدث)</td>
<td>لا</td>
</tr>
</tbody>
</table>

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الفقرة الخامسة: أنظمة وطرق أدارية حديثة أخرى

هذا الجزء من الإسهام هو استفادات من أنظمة وطرق أدارية حديثة أخرى مستخدمة لدى شركتك (واجوبك محاولة الإجابة عن جميع الأسئلة):

1- بين العمود الأول العمود الأول بعض أنظمة وطرق أدارية حديثة أخرى. فحاء الفحاء في العمود الثاني بيان ما إذا كانت شركتك تطبق وتستخدم هذه الأنظمة. إذا كانت أنظمة إدارية (نعم) أو (لا) فإنما كانت شركتك تطبق أو تستخدم هذه الأساليب. إذا كانت الأساليب في العمود الثالث جزءًا من الإجابة الصحيحة، أما إذا كانت الإجابة (نعم) الراحة بين مقدار هذه الأساليب، فإن الرقم 1 يشير إلى عدم أهمية النظام في النظام 2 أمهده من متوسط تجسيد النظام، الработка 3 أهمية M، النظام السفلي للنظام، والرقم 4 أهمية عالية للنظام. والرقم 5 أهمية عالية للنظام. (الرقم 6 إجابة من خلال وضع إجابة في الرقم 7)

- إذا كانت الإجابة ب يتمع ما هو مقدار أهمية هذه النظام لدى شركتك؟

<table>
<thead>
<tr>
<th></th>
<th>مهم جدا 5</th>
<th>مهم متوسط 4</th>
<th>مهم متوسط الأهمية 3</th>
<th>مهم ضعيف متوسط الأهمية 2</th>
<th>ضعيف مهم 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>لا</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- إذا كنت تطبق وترجع هذه النظام؟

|    | إدارية الجسرة نقية
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total Quality Management</td>
</tr>
<tr>
<td>2</td>
<td>الإدارة على أسس الأنشطة</td>
</tr>
<tr>
<td>3</td>
<td>Activity-Based Management</td>
</tr>
<tr>
<td>4</td>
<td>أسلوب أدارة تقديم النبأ</td>
</tr>
<tr>
<td>5</td>
<td>Value Chain Analysis</td>
</tr>
<tr>
<td>6</td>
<td>Just In Time</td>
</tr>
<tr>
<td>7</td>
<td>Life-cycle Costing</td>
</tr>
<tr>
<td>8</td>
<td>Re Engineering Approach</td>
</tr>
</tbody>
</table>

- آخر (أجوبة التتحول):
## الجزء الثالث:

**العوامل المؤثرة على تطور تطبيقات وأنظمة المخاطبة الإدارية في الشركات الصناعية الأردنية**

هذه الجزء من الاستيعاب يستعرض عن وجود وأهمية بعض العوامل التي يمكن أن تؤثر على مدى استخدام وتطور مستوى الإحساس بشكل عام وعليها الإحساس بالشكل المحتشم في الشركات الصناعية الأردنية.

1. بين الجدول أدناه في العمود الأول بعض هذه العوامل المؤثرة. فرصة بيان لما إذا كان العامل قد أثر على مدى استخدام وتطور الإحساس في شرككم بيان

مصدر أهمي هذا العامل بالنسبة لشرككم ومدى من خلال اختيار أحد الأرقام من 1 إلى 5 حيث أن: الرقم 1 يشير إلى عدم أهمي العامل، الرقم 2 أهمي أدنى من متوسطه، الرقم 3 أهمي متوسط، الرقم 4 أهمي فوق متوسطة، و الرقم 5 أهمي عالية تأثير هذا العامل.

(فرصة الإجابة من خلال وضع إشارة ك في المربع الذي ياسبب (جاك))

### إذا كان له تأثير ما هو مقدر أهمية هذا العامل في التأثير على مدى استخدام وتطور الإحساس

<table>
<thead>
<tr>
<th>العوامل المؤثرة</th>
<th>المهم جداً</th>
<th>مهم جداً</th>
<th>متوسط الإحساس</th>
<th>أميته أدنىً من متوسطه</th>
<th>أهمي متوسطة</th>
<th>أهمي أدنىً من متوسطه</th>
<th>أهمي مهم</th>
<th>ليس له تأثير</th>
</tr>
</thead>
<tbody>
<tr>
<td>موافقة وتزويق الإدارة العليا</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>دورات وبرامج تدريبية خاصة بالإحساس الإدارة</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>أنظمة الاتصال والكمات</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>تطور المراد الفعلي للصحة للإحساس الإحساسية</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>استخدام النصائح للأعمال الإستراتيجية الإدارية</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>مؤسسات وجمعيات الإحساسية الناجحة في الأردن</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>قسم الإحساس في الأردن</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>البحث العلمي في مجال الإحساس في الأردن</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>تعاون الشركات بين الأكاديميين والأشخاص</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>الأفكار والثورات في الإحساس الإدارية في الأردن</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>تاثير وجود سلامة عالية ومتزاحمة</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>آخر (فرصة الحفظ)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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appendix h

الجزء الرابع: معلومات أخرى

1- من خلال حوارك، ما هو المستوى الذي يمكن أن تطبيهه لدى تطور المعايير الإدارية في الأردن؟
(الرد: الإجابة من خلال وضع إشارة ✓ في الرقم الذي ياسب إجابتك)

<table>
<thead>
<tr>
<th>تطور عالي جداً</th>
<th>تطور عالي</th>
<th>تطور متوسط</th>
<th>تطور أدنى</th>
</tr>
</thead>
<tbody>
<tr>
<td>لا أدرى</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2- الرجاء تحديد مستوى أهمية دور المعايير الإدارية في شركتك؟
(الرد: الإجابة من خلال وضع إشارة ✓ في الرقم الذي ياسب إجابتك)

<table>
<thead>
<tr>
<th>مهم جداً</th>
<th>مهم أدنى من متوسطة</th>
<th>متوسط الأهمية</th>
<th>أهمية أقل من متوسطة</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3- هل تعتقد أن تطبيقات و أنظمة المعايير الإدارية المستخدمة لدى شركتك تحتاج إلى تطور و تحديث؟

لا ✓
نعم □

4- هل ترغب في الحصول على نتائج هذه الدراسة؟

لا ✓
نعم □

5- هل ترغب بالمشاركة ببعض المعلومات الشخصية مع الباحث في المستقبل؟

لا ✓
نعم □

6- الرجاء ذكر أي ملاحظات أو ملاحظات أخرى ترغب بإضافتها حول موضوع هذا الاستماع:

________________________________________________________

________________________________________________________

شكراً جزيلًا على مشاركتكم في هذه الدراسة وعمل الاستبان الباحث: خالد عبد عمود

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