

Al-Mutairi, Abdullallah; Naser, Kamal; Saeid, Muna

Article

Capital budgeting practices by non-financial companies listed on Kuwait Stock Exchange (KSE)

Cogent Economics & Finance

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Al-Mutairi, Abdullallah; Naser, Kamal; Saeid, Muna (2018) : Capital budgeting practices by non-financial companies listed on Kuwait Stock Exchange (KSE), Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 6, Iss. 1, pp. 1-18, <https://doi.org/10.1080/23322039.2018.1468232>

This Version is available at:

<https://hdl.handle.net/10419/194784>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>



Received: 29 November 2017
Accepted: 19 April 2018
First Published: 09 May 2018

*Corresponding author: Abdullah Al-Mutairi, Economic and Finance Department, Gulf University for Science and Technology, Kuwait
E-mail: mutairi.a@gust.edu.kw

Reviewing editor:
David McMillan, University of Stirling,
USA

Additional information is available at
the end of the article

FINANCIAL ECONOMICS | RESEARCH ARTICLE

Capital budgeting practices by non-financial companies listed on Kuwait Stock Exchange (KSE)

Abdullah Al-Mutairi^{1*}, Kamal Naser² and Muna Saeid³

Abstract: Purpose—The purpose of this study is to investigate various aspects of capital budgeting techniques adopted by Kuwaiti non-financial companies listed on the Kuwait Stock Exchange (KSE). **Design/methodology/approach**—A questionnaire is used to collect data from Chief Executive Officers (CEOs), Chief Financial Officers (CFOs) and other managers of manufacturing, service and real estate companies listed on the KSE. **Findings**—The result of the analysis unveiled that top management and people who used the assets are the main sources of capital budgeting ideas. The analysis also unveiled that net present value and profitability index are the most frequently used capital budgeting techniques and the choice of the technique is determined by the nature of the project under assessment, and the academic and professional capabilities of corporate staff. The analysis further demonstrated that factors such as uncertainty about the outcome of the capital budgeting techniques and lack of required data and information to use capital budgeting techniques could prevent Kuwaiti non-financial companies from adopting capital budgeting techniques. Finally, the analysis disclosed that non-financial factors such as strategic planning, corporate image, employees' capabilities and environment protection are taken into consideration when making capital budgeting decisions. **Practical implications**—Kuwaiti companies either possess

ABOUT THE AUTHORS

Abdulla Kh. Al-Mutairi (PhD) is an Assistant Professor in Economics & Finance Department at Gulf University for Science & Technology. His research interest lies in investors' behavior, educational quality and entrepreneurship.

Kamal Naser (PhD) is Professor of Finance and Accounting. He published numerous articles in the areas of accounting, banking and finance with reference to the Middle Eastern countries. He taught at several universities in the UK and the Middle East. He currently works as an economic and financial adviser.

Muna H. Saeid (MBA) works at the English Department of Arab Open University – Kuwait branch. Her research interests focus largely on educational quality and human resource management.

PUBLIC INTEREST STATEMENT

Capital budgeting assists in making the right investment decisions that ensures corporate profitability, financial structure and growth. Consequently, capital budgeting is of paramount importance to corporate financial decisions. In this study, the attempt is made to empirically examine capital budgeting practices in an emerging, but a unique, economy like Kuwait. To achieve this objective, a questionnaire was distributed to a sample of non-financial companies listed on the Kuwait Stock exchange. The results of the analysis revealed that capital budgeting practices are influenced by the background of corporate staff, their professional abilities, availability of the required data and uncertainty about the outcome of investment appraisal. Kuwaiti companies possess technology and have the required resources to install advanced technology to assist them in employing sophisticated capital budgeting techniques that take into account inflation and risk. This would ensure results that are more accurate and minimize uncertainty about the outcome of the capital budgeting decisions.

technology or have the required resources to install advanced technology to assist them in employing sophisticated capital budgeting techniques that take into account inflation and risk. This would ensure more accurate results and minimize uncertainty about the outcome of the capital budgeting decisions. **Originality/value**—This study is based on primary data collected directly from non-financial companies listed on the KSE.

Subjects: Finance; Corporate Finance; Investment & Securities; Business; Management and Accounting

Keywords: Capital budgeting practices; investment appraisal; project valuation; survey; Kuwait

1. Introduction

Capital budgeting is a planning mechanism used by an organization to make evaluation decisions on how to allocate resources among investment projects. Capital budgeting techniques assist in identifying a project feasibility. The importance of capital budgeting stems from the fact that it creates measurability and emphasizes accountability (Chartered Professional Accountants—Canada, 2017). Investing in the wrong project means committing corporate resources to a project without taking into consideration its risks and returns, thereby negatively affecting shareholders' wealth (O'Sullivan & Sheffrin, 2003). In addition, failure to appraise various capital budgeting projects effectively will negatively affect corporate competitiveness and this would jeopardize its survival (Johnson, 1999; Seitz & Ellison, 1999; Thompson & Strickland, 2001). According to the International Federations of Accounts (2013), to maintain a strong economy and ensure sustainable economic growth, it is important to adopt a systematic, analytical and thorough investment appraisal approach together with sound judgment. Hence, capital budgeting has been a subject of growing theoretical and empirical investigations in the finance literature. The central issue in this literature is to explore the most frequently used techniques and the reason behind using some techniques more frequently than others (see e.g., Arkovics, 2016; Block, 1997; Gitman & Forrester, 1977; Ryan & Ryan, 2002). Empirical research provided inconclusive evidence regarding the capital budgeting practices among users; while several studies showed the *payback period* (PP) as the most popular technique employed in evaluating projects in developing countries, other studies demonstrated that *Discounted Cash Methods* (DCM) such as the *Net Present Value* (NPV) and *Internal Rate of Return* (IRR) are the most frequently practiced capital budgeting techniques. These findings, however, are questionable in countries such as the Gulf Co-operation Council (GCC) where their governments possess control over major economic activities and companies, as well as exempting investors from paying tax. Given that companies and investors are exempted from paying income tax, tax on dividends or capital gains, this would impact the capital budgeting process adopted by Kuwaiti companies where the government provides all *necessary* infrastructure to businesses in Kuwait and the country has enough liquidity to facilitate making capital budgeting decisions.

The purpose of this study is to provide empirical evidence about the current capital budgeting practices being used by non-financial listed firms in Kuwait Stock Exchange (KSE). The focus will be on non-financial institutions since they maintain homogeneous sample and this avoids difficulties in controlling unsystematic impact. Moreover, financial institutions are mainly concerned with solvency and liquidity and their liabilities are mostly short-term in nature, payable on demand, have few fixed costs and lower operating leverage than other non-financial institutions.

The global financial crisis, oil price volatility and the significant progress in information technology have posed new challenges for corporate financial management in general and investment decision-makers in particular. Consequently, companies are expected to adjust

their investment appraisal approaches. Hence, there is a need to examine capital budgeting practices. This study is a departure from previous studies as it covers different aspects of investment appraisal techniques employed by companies operating in different sectors of the economy. The focus of most previous research was mainly on the factors influencing the choice of using a certain investment appraisal technique or identifying the frequently employed techniques in one or two economic sectors. In addition, most of the previous studies targeted CFOs (Chief Financial Officer), while this study targeted the person responsible for making investment decisions in the company. Hence, the current study is expected to make an important contribution benefiting both practitioners and academicians. For the former, it would help to make appropriate investment decisions by using the right capital budgeting appraisal technique. For the latter, it provides insights about the use of real options and enables them to identify problems faced by practitioners. This would assist them in conducting further research and updating the curriculum adopted by business schools operating in Kuwait and the neighbouring countries who share with Kuwait its level of economic development, nature of businesses and other economic activities. In addition, the current study is undertaken in a country with unique features where the government exercises control over economic activities. It provides an advanced infrastructure and offers financial support to the national businesses. The country has surplus of financial resources and businesses do not face problems in securing external funding to start new projects or to finance future growth. The unique features of Kuwait would affect different aspects of capital budgeting techniques adopted by the national non-financial companies. Hence, the findings of this study are expected to add a new dimension to the finance literature and contribute to the limited body of empirical studies about the capital budgeting appraisal techniques in the GCC region.

The remainder of the study is organized as follows. A brief review of related literature is offered in the following section. Data collection and methodology are discussed in section three. While the findings are explained in section four, the conclusion is presented in the final section.

2. Related literature and previous studies

In finance, capital budgeting techniques play a significant role in each business entity since they impact investment decision-making and project evaluations (Nishat & Haq, 2009). Hence, they are important to both managerial accounting and financial management (Khamees, Al-Fayoumi, & Al-Thuneibat, 2010). Chen (2008) considers capital budgeting practices as being fundamental criteria for company's investment planning. Capital budgeting is the process of shaping the future of the firm by allocating its scarce capital resources. Corporate success relies on capital budgeting decisions since large outlays of funds are required and long-term commitment as well as firms must ascertain the best way to raise and repay these funds. In empirical literature, capital budgeting practices have been examined in various countries (see e.g., **South Africa**: Brijlal, 2008; Maroyi & Poll, 2012; **USA**: Gitman & Forrester, 1977; Gitman & Mercurio, 1982; Moore & Reichert, 1983; Graham & Harvey, 2001; Hogaboam & Shook, 2004; Apap & Masson, 2004; **Colombia**: Velez & Nieto, 1986; **Canada**: Jog & Srivastava, 1995; Chan, 2004; **Croatia**: Dedi & Orsag, 2007; **UK**: Drury & Tayles, 1996, 1997; Pike, 1996; Arnold & Hatzopoulos, 2000; **Singapore**: Kester & Tsui, 1998; Kester and Chong, 1998; **Asia-Pacific region**: Kester et al., 1999; Wong, Farragher, & Leung, 1987; **US and Canada**: Jog & Srivastava, 1995; Payne, Heath, & Gale, 1999; **Sudan**: Eljelly & AbuIdris, 2001; **Sweden**: Sandahl & Sjögren, 2003; Daunfeldt & Hartwig, 2012; **Cyprus**: Lazaridis, 2004; **Australia**: Truong, Partington, & Peat, 2008; **India**: Babu & Sharma, 1996; Verma, Gupta, & Badra, 2009; Arora, 2012; Gupta, 2016; Batra & Verma, 2017; Mohan & Narwal, 2017; **Netherlands and China**: Hermes, Smid, & Yao, 2006; **Japan**: Shinoda, 2010; **Sri Lanka**: Ramesh & Nimalathan, 2011; **Jordan**: Khamees, Al-Fayoumi, & Al-Thuneibat, 2010; Al-Azawai, 2010; **Eastern European**: Andor, Mohanty, & Toth, 2015; **Pakistan**: Nishat & Haq, 2009; Zubairi, 2008; **Malaysia**: Abdulsamad & Shaharuddin, 2009 **Palestine**: El-Daour & Abu Shaaban, 2014; **Brazil**: Souza & Lunkes, 2016; **Spain**: Andrés, Fuente, & Martín, 2015). Previous studies can be classified into three main areas. In the first area, researchers looked into investment appraisal techniques most frequently used in practice. In the second area,

researches attempted to establish a relationship between the use of specific investment appraisal techniques and the attribute of the firm. In the third area, researchers attempted to compare the use of various investment appraisal techniques between public and private firms or across countries. The following section presents a brief review for most of these studies.

2.1. Studies investigating investment appraisal techniques most frequently used in practice

Velez and Nieto (1986) surveyed capital budgeting practices adopted by Colombian firms. They found investors using discounted methods for investment decisions as they suit the Colombian economy that experiences a considerably higher rate of inflation and the country's monetary policy, which was designed to restrict borrowing. Similarly, Jog and Srivastava (1995) used a survey to identify the use of capital budgeting practices by large Canadian companies. They found the discounted cash flow (DCF) methods to be the most frequently used techniques by the surveyed companies. They noticed a high use of subjectivity and judgment in the estimation of inputs into the capital budgeting process. Pike (1996) showed that British companies employ more than one method of investment appraisal. He added that the majority of investors used PP method and there is a growing interest in employing IRR and NPV. Arnold and Hatzopoulos (2000) also examined the capital budgeting techniques employed by UK companies and revealed that the majority of these companies have increasingly adopted advanced methods to enhance their decision making in their evaluation of new projects. Babu and Sharma (1996) surveyed firms in and around Delhi and Chandigarh in India. They found that more than 90 per cent of the firms adopted capital budgeting methods and the majority of them used DCF methods. They also found that the popular investment appraisal methods are the IRR and the PP used either individually or jointly. An additional study undertaken in India by Arora (2012) observed that most of the surveyed firms prefer the discounted PP method and consider it as the most important capital budgeting technique. Arora provided evidence that major firms in India are utilizing many of the tools of analysis presented in the financial theory for analysing capital budgeting. In a more recent study, Batra and Verma (2017) investigated capital budgeting practices in a sample of 77 Indian companies listed on Bombay Stock Exchange. The researchers found that the surveyed companies adopt capital budgeting practices described by academic theories. They also found that DCF flows methods (NPV and IRR) together with risk adjusted sensitivity analysis to be the most frequently used investment appraisal techniques by the surveyed companies. In a similar line of research, Hogaboam and Shook (2004) observed that firms prefer the use of DCF techniques, particularly NPV method. They provided evidence that some big firms employ more sophisticated evaluation methods. Apap and Masson (2004) surveyed publicly traded utility companies in USA and found that PP, NPV and IRR are the commonly used investment appraisal techniques. Truong, Partington, and Peat (2008) examined the capital budgeting practices of Australian listed firms and found NPV, IRR, and PP to be the most popular evaluation techniques. Nishat and Haq (2009) used a questionnaire survey to identify the present application of quantitative capital budgeting methods followed by Pakistani firms. They found that the most popular capital budgeting techniques in Pakistan are NPV and IRR. Khamees et al. (2010) used a questionnaire and an interview to examine capital budgeting practices by Jordanian Industrial Corporations (JIC). They found that respondents do not rely on one technique. JIC give almost equal importance to the discounted and un-DCF methods in evaluating capital investment projects. They also observed that the most frequently used technique is the profitability index (PI) followed by the PP. Another study by Al-Azawai (2010) that explored the use of capital budgeting techniques by Jordanian listed services firms found that they use DCF techniques, as well as Non-DCF, when assessing capital investment projects. He also found that PP is the most frequently used capital budgeting technique, followed by NPV, PI, accounting rate of return (ARR), and IRR. However, Al-Azawai provided evidence that these practices are not widely used by capital budgeting decision makers of the listed Jordanian services companies since they widely use subjective judgment. Abdulsamad and Shaharuddin (2009) examined the use of capital budgeting techniques in publicly listed firms in Malaysia. They found that PP is the most popular technique for those who do not use DCF technique. Shinoda (2010) surveyed people in charge of capital budgeting at firms listed on Tokyo Stock Exchange, with a focus on capital budgeting practices. He found that Japanese firms manage their decision-making by a combination of PP method and NPV methods.

Shinoda observed that Japanese firms invest in projects in which their investment can be recovered in a short period. Hence, they tend to adopt the PP. El-Daour and Abu Shaaban (2014) examined the capital budgeting techniques in Palestinian public corporations in the Gaza Strip. They found that the Palestinian publicly owned corporations in Gaza strip use the capital budgeting techniques when selecting investment projects. They also found that the PI is the most frequently used technique, while the NPV was found to be the least used technique. They recommended that managers increase the use of the NPV for evaluating proposed investment projects. Andrés, Fuente, and Martin (2015) explored the use of capital budgeting practices in a sample of 140 non-financial Spanish companies. They detected that pp was the most frequently used method of capital budgeting. Souza and Lunkes (2016) studied capital budgeting practices in a sample of 51 large Brazilian companies traded on the Stock Exchange. They reported that companies frequently use the PP, NPV and the IRR to appraisal investment projects. The surveyed companies showed that they further conduct sensitivity analyses to assess investment risk. The researchers concluded that companies tend to adopt more sophisticated techniques at various stage of capital budgeting.

2.2. The relationship between the use of investment appraisal techniques and corporate attributes

Drury and Tayles (1996) examined the impact of company size on the use of financial appraisal techniques and the treatment of inflation by UK companies. They noticed that 63% of the large firms always employ IRR, 50% NPV and 30% always adopt the PP method. They also noticed 86% of the surveyed firms often/always employ the unadjusted payback approach together with a DCF method. They further observed that non-discounted methods continue to be employed by both small and large firms. Graham and Harvey (2001) surveyed Chief Financial Officers (CFOs) about the cost of capital, capital budgeting, and capital structure. They found that large firms rely heavily on the PV technique and the capital asset pricing model (CAPM), while small firms use the PP criterion. Grahama and Harveya provided evidence to support the pecking-order and trade-off capital structure hypotheses but little evidence that executives are concerned about asset substitution, asymmetric information, transactions costs, free cash flows, or personal taxes. Zubairi (2008) examined capital budgeting decision-making practices of Pakistani firms. He found that large sized firms give preference to IRR, while smaller firms rely more on NPV. He observed that smaller firms are keener in estimating the PP as compared to larger companies. Zubairi concluded that the firms relying more on debt financing or with high growth rates give more preference to the NPV technique, while low leveraged and low growth firms rely more on IRR. Similarly, Nishat and Haq (2009) noticed that small firms in Pakistan used PP as their main criteria in the evaluation of capital budgeting proposal. They observed that a single factor CAPM model is used by large firms for ascertaining the cost of capital. Verma et al. (2009) surveyed CFOs/Chief Executive Officers (CEOs) of manufacturing companies in India to identify the preferred capital budgeting techniques by these companies. They found that there is a systematic relationship between company related factors like age of a company, CEO education/qualification and the capital budgeting method adopted by it. Ramesh and Nimalathan (2011) examined the use of capital budgeting techniques by a sample selected from manufacturing, pharmaceuticals and chemicals, and textile firms listed on the Colombo Stock Exchange. They found the NPV method to be the most dominant capital budgeting technique according to the perception of executives from all sectors. They also found most executives of manufacturing, pharmaceutical and chemical companies prefer the NPV and IRR methods. Ramesh and Nimalathan also observed that the executives of the textile sector prefer the NPV method for evaluating capital budgeting in Sri Lanka. Daunfeldt and Hartwig (2012) examined the choice of capital budgeting methods used by companies listed on the Stockholm Stock Exchange. They found that the choice of capital budgeting methods is influenced by leverage, growth opportunities, dividend pay-out ratios, the choice of targeted debt ratio, the degree of management ownership, foreign sales, industry, and individual characteristics of the CEO. Andrés et al. (2015) explored the use of capital budgeting practices in a sample of 140 non-financial Spanish companies. They found that corporate size, and industry are the most important determinant of the choice of capital budgeting

techniques. Gupta (2016) explored the relationship between capital budgeting practices and the size in a sample of 75 Indian companies. Gupta reported a positive association between the use of DCF techniques and corporate size.

2.3. Comparison of the use of investment appraisal techniques by public and private firms and across countries

Eljelly and Abu Idris (2001) examined the capital budgeting techniques in both public and private sectors in Sudan. They provided evidence that both sectors use capital budgeting techniques. They noticed that PP is the most frequently used method followed by the IRR among the private sector firms and the NPV among the public. Hermes et al. (2006) surveyed Dutch and Chinese firms to compare the use of capital budgeting techniques. They found that Dutch CFOs on average use more sophisticated capital budgeting techniques than Chinese CFOs do. They also found that the use of the IRR method does not seem to differ significantly between Dutch and Chinese firms as well as the use of CAPM as a method of estimating the cost of capital. They concluded that the difference between Dutch and Chinese firms is smaller than might have been expected based upon the differences in the level of economic development between both countries. Andor et al. (2015) surveyed firms' executives in 10 Central and Eastern Europe (CEE) countries, namely: Bulgaria, Croatia, Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia to explore their capital budgeting practices. They witnessed significant variations in the practices of large and small/medium firms, and between local firms and firms dominated by multinational culture. Andor et al. concluded that capital budgeting practices in CEE countries appear to be influenced mostly by firm size, multinational culture and by inside ownership to a lesser extent. Mohan and Narwal (2017) provided a review for all research related to capital budgeting practices they managed to retrieve from their electronic database, and noticed that there is an increase in DCF together with PP in both developed and developing countries. However, the authors claimed that there still need for more research about project identification, cash flows estimation and post-audit selected projects.

2.4. Previous studies undertaken in the GCC countries

As far as the GCC region is concerned, few studies have been conducted to examine the capital budgeting practices (see e.g., Qatar: Alhamoud & Ibrahim, 1997; Mustafa & Hindi, 2010; Kuwait: Al-Mutairi, Gary, & Tan, 2009; Al-Mutairi & Hasan, 2011; El-Sady, Hamdy, & Sultanova, 2011; United Arab Emirates (UAE): Ahmed, 2013). A brief review of these studies is offered in the following section.

Alhamoud and Ibrahim (1997) used a questionnaire survey to identify the capital budgeting techniques used by Qatari firms. They found insignificant differences among varying sectors in terms of the utilization of one method over another. They observed that the PP method is the most commonly used followed by the IRR, PI, NPV and the ARR. Mustafa and Hindi (2010) used a questionnaire survey to identify the capital budgeting practices employed by the largest firms in Qatar. They found that Qatari companies in general tend to adopt the DCFs methods, with NPV, PI and the IRR being the most widely used methods. They also found that the NPV and IRR are the most frequently used methods, and the PI is the most common method used to rank the different competing opportunities. Mustafa and Hindi also observed that most of the companies estimate the cost of capital, and adopt CAPM with inclusion of some extra risk factors.

In Kuwait, Al-Mutairi et al. (2009) used a questionnaire to survey 80 CFOs of Kuwaiti listed firms to examine the capital budgeting practices. They found that capital budgeting practices vary depending on firm and management characteristics. They noticed that there is high tendency to use IRR as a capital budgeting technique for investment decisions making. Another study by Al-Mutairi and Hasan (2011) to identify current corporate finance practices by Kuwaiti listed and non-listed firms. They found that the CAPM is in use to estimate the cost of capital. They provided evidence that weighted average cost of capital is the most popular rate used due to its simplicity. Also, El-Sady et al. (2011) used a questionnaire to survey listed and unlisted Kuwait companies.

They found that NPV and PP to be the most popular capital budgeting techniques used to evaluate capital investment among Kuwaiti companies. They concluded that there is no significant difference between listed and unlisted Kuwaiti corporations in their practices of capital budgeting techniques.

Ahmed (2013) surveyed a sample of companies listed on Dubai Financial Market (DFM) to explore capital budgeting methods. He noticed that a sizeable number of UAE companies use capital budgeting techniques in their capital investment decisions. He also found that the PP, NPV, and IRR are the most frequently used techniques by most UAE companies. Ahmed observed that other financial variables are likely to affect the selection of capital budgeting technique such as the firm size, revenues, profitability, and leverage level.

It is evident from the above brief literature review that a limited number of empirical studies have been undertaken to explain the capital budgeting practices in the GCC region. This emphasizes the need for additional empirical testing. Hence, it was important to conduct the current study.

3. Research methodology data collection

As mentioned earlier, the objective of this study is to offer empirical evidence on different aspects of capital budgeting practices in a sample of services, manufacturing and real estate companies listed on KSE. To achieve this objective, a questionnaire has been developed in line with previous studies undertaken in a similar area of research (see e.g., Ahmed, 2013; Alhamoud & Ibrahim, 1997; Al-Mutairi et al., 2009; Babu & Sharma, 1996; Daunfeldt & Hartwig, 2012; Eljelly & Abu Idris, 2001; El-Daour & Abu Shaaban, 2014; El-Sady et al., 2011; Nishat & Haq, 2009; Ramesh & Nimalathan, 2011; Shinoda, 2010). Utilizing a questionnaire similar to that used in previous research is important since it facilitates comparison. However, the questionnaire developed in the current study is different to those employed in previous studies in that it covers several aspects of capital budgeting, whereas previous studies mainly focused on the use of capital budgeting techniques and attempted to establish whether corporate sector and characteristics impact the choice of their use. The questionnaire consisted of two parts. The first part requested background information about the respondents; the second part asked respondents to express their level of agreement with different aspects of capital budgeting on 5-point Likert scale ranging between strongly disagree and strongly agree. The main purpose of the second part of the questionnaire was to seek answers to the following research questions:

3.1. Sources of capital budgeting ideas

Capital budgeting is viewed as an important financial management decision. It involves buying expensive assets to be used for a long time and this affects the future success or otherwise of the firm. Taking the right investment decision in the process of capital budgeting assists management and the company in maximizing shareholders wealth. Thus, identifying the right projects is an extremely important part of the capital budgeting process. It was, therefore important to ask the following research question.

Research question 1: What are the main sources of capital budgeting ideas?

3.2. Most frequently used capital budgeting techniques

The focus of previous research was on identifying capital budgeting techniques most frequently used in practice. While in some studies traditional capital budgeting techniques appeared to be the most frequently employed techniques, in others the DCF techniques were more in use. Other studies showed a combination between traditional, DCF and advanced techniques. It was, therefore, important to ask the following research question.

Research question 2: Which capital budgeting techniques are more frequently used by the Kuwaiti non-financial companies?

3.3. Factors affect the choice of the capital budgeting techniques

Previous studies attempted to establish the relationship between corporate attributes (size, age, management education, the level of gearing, etc.) and the use of specific capital budgeting techniques. In this study, the focus is made on simplicity and staff familiarity of the capital budgeting techniques. This is mainly affected by staff education and experience. This would shed new light on what determines the use of specific capital budgeting techniques and adds a new dimension to the existing body of the literature. It was, therefore, important to ask the following research question.

Research question 3: What are the main factors that affect the choice of the capital budgeting techniques?

3.4. Obstacles towards using capital budgeting techniques

Previous research ignored obstacles towards employing specific capital budgeting techniques. Corporate management might be deterred from appraising capital projects due to the difficulty of collecting the required data to facilitate the analysis and the cost associated with the appraisal. It is possible that some companies opt not to go through the capital budgeting process since it is difficult, time consuming and require highly trained staff to undertake it. Other corporate management might choose to avoid appraising investment projects due to the uncertainty about the outcome of the appraisal. Identifying the main obstacles towards the use of various capital budgeting techniques assists in findings the means to minimize these obstacles. It was therefore important to ask the following research question.

Research question 4: What are the obstacles towards using capital budgeting techniques?

3.5. Non-financial factors that affect capital budgeting decisions

Although maximizing profit and shareholder wealth are the main objectives of the firm, corporate management may consider non-financial factors when making capital budgeting decisions. Kuwaiti companies would consider strategic planning, social responsibility, protecting environment and maintaining employee morale are factors that would affect capital budgeting decisions and corporate image. It was therefore important to ask the following research question.

Research question 5: What are the non-financial factors that affect capital budgeting decisions?

3.6. Pilot Study and the distribution of the questionnaire

To increase validity and to ensure its simplicity, understandability and the suitability of the respondents, the questionnaire was piloted to a group of investors in KSE who provided valuable suggestions to enhance participation. The piloted investors' views helped in shortening the questionnaire and improved the quality of the translated Arabic version. Undoubtedly, this step ensured a relatively high response rate. After piloting the questionnaire and during the period between June and December 2016, the researchers distributed a questionnaire to all services, manufacturing and real estate companies listed on the KSE. The covering letter of the questionnaire explained the aim of collecting the data included the questionnaire. The respondents were assured that the collected data will be solely used to conduct scientific research and their anonymity is guaranteed. The questionnaire did not ask any information about the names of respondents or their respective companies. The respondents were only asked to identify their job title. A summary of their response is presented in Table 1.

The questionnaires were then entered in an SPSS file for analysis. Cronbach's alpha was used to measure the internal consistency of the collected data. Descriptive statistics have been employed to shed some light on the respondents and their response to various aspects of capital budgeting techniques. To identify possible differences in the respondents' answers to the questions included in the questionnaire due to their characteristics, Kruskal-Wallis *U* test was performed.

Table 1. Respondents response rate

Sector	Number of targeted companies	Number of companies responded	Response rate (%)
Services	60	35	58
Manufacturing	29	18	62
Real estate	41	25	61
Total	130	78	60

4. Findings

To measure the internal consistency (reliability) of the collected data, Cronbach's alpha (α) was executed and touched 0.854. In general, a commonly acceptable Cronbach's alpha (α) is ≥ 0.70 .

4.1. Respondents background

Analysis of the collected data disclosed that the average age of the companies where the respondents' work is 30 years. Companies' ages ranged between 7 and 57 years. Table 2 summarizes the main characteristics of the respondents who took part in the questionnaire. It can

Table 2. Respondents and business backgrounds

	Frequency	Percent		Frequency	Percent
Nationality			Gender		
Kuwaiti	38	48.7	Male	64	82.1
Non-Kuwaiti	40	51.3	Female	14	17.9
Total	78	100.0	Total	78	100.0
Age			Last academic qualification		
Less than 25 years old	1	1.3	Diploma	10	12.8
From 26 to 35	23	29.5	Bachelor	38	48.7
From 36 to 50	42	53.8	Master level	23	29.5
More than 50 years old	12	15.4	Ph.D.	7	9.0
Total	78	100.0	Total	78	100.0
Major			Industry type		
Business	22	28.2	Manufacturing	18	23.1
Accounting	15	19.2	Service	35	44.9
Finance	20	25.7	Real Estate	25	32.0
Others	21	26.9			
Total	78	100.0	Total	78	100.0
Level of occupation			Level of experience		
Chief Financial Officer	35	44.9	Less than 3 years	16	20.5
Chief Executive Officer	28	35.9	From 3 to 10	28	35.9
Others	15	19.2	From 11 to 15	22	28.2
Total	78	100.0	More than 15 years	12	15.4
			Total	78	100.0
Average annual number of capital budgeting projects your company considers			Your company's annual average capital budgeting (Kuwaiti Dinar)		
1-3	13	16.7	Less than 1 million	8	10.3
4-10	20	25.6	1-5 1 million	18	23.1
11-20	30	38.5	6-10 1 million	25	32.1
More than 20	15	19.2	More than 10 million	26	33.3
Total	78	100.0	Total	77	98.7

be witnessed from the table that 51% of the respondents are non-Kuwaitis and the vast majority (82%) are males. This reflects the features of Kuwaiti society where males dominate major business activities in the country and occupy high managerial positions. In addition, the table reveals that more than 80% of respondents are either CEOs or CFOs and fairly represent the services, manufacturing and real estate sectors. Most of them (73%) have academic qualifications in business related studies (accounting, business and finance) and more than 85% of them hold university academic qualifications. The table further showed almost 44% of respondents have more than 10 years of work experience. More than 55% of respondents indicated that their companies embark annually on more than 10 capital investment projects and more than 65% of the respondents claimed that their companies' annual average capital budgeting is more than 6 million Kuwaiti Dinars.

4.2. Kuwaiti companies sources of capital budgeting ideas

The respondents were asked to identify the sources of capital budgeting project ideas in their companies. The result of their answer is summarized in Table 3. Although the table shows that all ideas included in the questionnaire are considered to be good sources of capital budgeting as reflected by the median, the most important source of capital projects ideas was top management, followed by the people who used the assets. Other sources that appeared in the questionnaire seem to be less important sources of capital budgeting ideas. This result is not surprising since most of the capital budgeting decisions by Kuwaiti companies are mainly taken by top management. Even if the people who use the assets initiate some capital budgeting ideas, the final decision about whether to invest is still taken by top management.

4.3. Capital budgeting techniques employed by Kuwaiti companies

The respondents were asked to specify the technique(s) frequently employed when making capital budgeting decisions. The result of their answers is presented in Table 4. The table demonstrates that all capital budgeting techniques listed in the questionnaire are used by the Kuwaiti companies as mirrored by the resulted median. This result is in line with Drury and Tayles (1996) and Pike (1996) who found that British companies employ more than one method of investment appraisal. Arora (2012) also revealed that most Indian firms surveyed in his study utilize many of the capital budgeting methods. Furthermore, Khamees et al. (2010) and Al-Azawai (2010) noticed that

Table 3. Sources of capital budgeting ideas

	Mean	Median	St. Deviation	Minimum	Maximum	Rank based on the mean
The people who use the assets	3.94	4.00	1.049	1	5	2
Top management	4.06	4.00	1.049	1	5	1
Marketing people	3.37	4.00	1.229	1	5	4
Brainstorming groups	3.38	4.00	1.176	1	5	3

Table 4. Capital budgeting techniques employed by Kuwaiti companies

	Mean	Median	St. Deviation	Minimum	Maximum	Rank based on the mean
Accounting rate of return	3.71	4.00	1.186	1	5	3
Payback period	3.62	4.00	1.096	1	5	5
Net present value	3.83	4.00	1.144	1	5	1
Profitability index	3.81	4.00	1.064	1	5	2
Internal rate of return	3.71	4.00	1.141	1	5	3

industrial and services companies in Jordan rely on more than one investment appraisal technique and contended that they almost assigned equal importance to traditional and DCF techniques. The mean, however, illustrated that the NPV is the most frequently used capital budgeting technique followed by the PI. The result is predictable since after calculating the NPV, it is easy to obtain the PI for the appraised project and both give the same result. Consequently, the respective mean of each of the techniques are almost identical. What attracts attention in the table is that the DCF techniques are most frequently employed by Kuwaiti companies listed on the KSE. The result is consistent with results reported by Alhamoud and Ibrahim (1997) and Al-Azawai (2010). These studies have been undertaken in three Arab countries (Qatar, Jordan and Palestine) and reported both NPV and PI as the most frequently used capital budgeting techniques. Another study undertaken by El-Daour and Abu Shaaban (2014) showed that while PI is the most frequently used investment appraisal technique in Palestine, whereas, NPV appeared to be the least used technique. The result is, however, partially consistent with Babu and Sharma (1996), Apap and Masson (2004) and Truong et al. (2008) who demonstrated that PP, NPV and IRR are the most widely used investment appraisal techniques among utility companies in South Africa. The result is also partially consistent with Eljelly and Abu Idris (2001) who observed that NPV frequently used by public companies in Sudan. Similarly, Shinoda (2010) showed that Japanese companies frequently use NPV and PP methods. However, Arora (2012) found the discounted PP to be the most popular investment appraisal technique employed by Indian companies. Eljelly and Abu Idris (2001) found PP followed by the IRR to be used more frequently by private companies in Sudan. Ramesh and Nimalathasan (2011) surveyed the use of capital budgeting techniques in the manufacturing, pharmaceutical and chemicals and textile companies listed on Colombo Stock Exchange and detected that NPV the most frequently used technique by companies from all sectors. Yet, the result is inconsistent with Arnold and Hatzopoulos (2000), Hogaboam and Shook (2004) and Hermes et al. (2006) who conducted their studies in developed countries and found that the companies operating in these countries use more sophisticated investment appraisal techniques than the traditional and DCS ones. What attracts attention is the result appeared in this study is inconsistent with Al-Mutairi et al. (2009) and El-Sady et al. (2011) who conducted their studies in Kuwait. The former publicized IRR as the most frequently used investment appraisal technique, whereas the latter pointed to the NPV and PP. Inconsistent results might be due to the time difference, the surveyed companies and the respondents in the survey. Companies are expected to change their choice of investment appraisal techniques as time goes by. This study targeted services, manufacturing and real estate companies, while the other did not specify the sector(s) of the targeted companies. Finally, while those who took part in this study were CEOs, CFOs and other, participation in the other two studies was restricted to CFOs.

4.4. The choice of capital budgeting techniques

Table 5 sheds some light on the main factors that influence Kuwaiti companies' choice of capital budgeting techniques. The table highlights that all factors incorporated in the questionnaire are viewed as being important when choosing capital budgeting techniques as echoed by the reported median. Yet, the table illustrated that Kuwaiti companies' choice of capital budgeting techniques is mainly influenced by the nature of the project under assessment. The choice is also influenced by the academic and professional capabilities of corporate staff. The simplicity of the capital budgeting technique does not seem to affect the choice of its use. The respondents further do not believe that any adopted capital budgeting technique will serve the same purpose. It is rational to see association between the nature of the project under consideration and the adopted capital budgeting technique. Some projects require specific budgeting appraisal techniques and the staff should have the required knowledge and expertise to adopt it. To ensure the effectiveness of the adopted capital budgeting techniques, the Kuwaiti non-financial companies can train a specialized team within the finance department on how to use sophisticated computer programs containing various capital budgeting techniques including those that take into account the levels of inflation and depending on risk. The team can then adopt the appropriate techniques regardless of their difficulty. This would result in more effective capital budgeting appraisal. This result is different from what was reported by Zubairi (2008) who indicated that Pakistani companies relying on debt financing or realizing high growth rates tend to employ NPV technique, whereas low leveraged and

Table 5. Choice of using capital budgeting technique

	Mean	Median	St. deviation	Minimum	Maximum	Rank based on the mean
Method's Simplicity	3.45	4.00	1.142	1	5	5
Method's application cost	3.58	4.00	1.068	1	5	3
Any method used will serve the purpose	3.45	4.00	1.241	1	5	5
The nature of the project under assessment	3.92	4.00	.990	1	5	1
Time required to adopt the method	3.57	4.00	1.229	1	5	4
Staff academic and professional capabilities	3.77	4.00	1.111	1	5	2

low growth rate companies use IRR technique more frequently. Verma et al. (2009) documented that the choice of using specific capital budgeting technique is influenced by corporate age and CFOs/CEOs education and qualifications. Maroyi and Poll (2012) indicated that the main reason for using a specific investment appraisal technique was its superiority. Daunfeldt and Hartwig (2012) found that the choice of capital budgeting techniques is influenced by leverage, growth opportunities, dividend pay-out ratios, the choice of targeted debt ratio, the degree of management ownership, foreign sales, industry, and individual characteristics of the CEO. Ahmad (2013) demonstrated that the selection of investment appraisal techniques by companies listed on DFM is influenced corporate size, revenue, profitability and leverage. Andor et al. (2015) who looked into a sample from 10 Central and East European countries noticed that while corporate size and multinational culture affect the choice of investment appraisal techniques, but inside corporate ownership affect the choice but at a lower degree.

4.5. Obstacles towards the use of capital budgeting

The respondents were asked to identify possible obstacles that prevent them from using capital budgeting techniques. A summary of their answers are presented in Table 6. According to the table, the respondents agreed with almost all possible obstacles towards the use of capital budgeting contained in the questionnaire as reflected by the reported median except for lack of required experience to use capital budgeting techniques. This is anticipated since the vast majority of the respondents are academically qualified and have enough experience to adopt any capital budgeting technique. However, the respondents believe that factors such as uncertainty about the outcome of the capital budgeting techniques and lack of required data and information to use capital budgeting techniques may demotivate Kuwaiti companies from adopting capital budgeting techniques. In fact, uncertainty about the outcome of the capital budgeting appraisal is mainly due to lack of information. Companies can benefit from the revolution in information technology together with their marketing, research and development departments to collect data related to various capital budgeting projects. This would assist in making effective capital budgeting decisions.

4.6. Non-financial factors affect the use of capital budgeting techniques

Although there was a great emphasis on the financial aspects in the literature of capital budgeting, researchers such as Adler (2000), Meredith and Mantel (2000), Mohamed and McCowan (2001), and Love, Holt, Shen, Li, and Irani (2002) highlighted the need to consider financial and non-financial aspects when making capital budgeting decisions. These researchers believe that capital budgeting decisions is sophisticated and they go beyond financial aspects. Hence, the respondents were asked to ascertain whether non-financial factors are likely to influence the use of capital budgeting techniques.

Table 6. Obstacles towards using capital budgeting techniques

	Mean	Median	Standard Deviation	Minimum	Maximum	Rank based on the mean
If management is not convinced with capital budgeting appraisal	3.60	4.00	1.199	1	5	3
Uncertainty about the outcome of the appraisal	3.82	4.00	1.170	1	5	1
Investment appraisal techniques are time consuming	3.32	4.00	1.075	1	5	6
The cost associated with the use of capital budgeting techniques	3.44	4.00	1.100	1	5	4
Lack of required experience to use capital budgeting techniques	3.40	3.00	1.283	1	5	5
Lack of required data and information to use capital budgeting techniques	3.63	4.00	1.260	1	5	2

As appeared in Table 7, the respondents state that non-financial factors such as strategic planning, corporate image, employees' capabilities and protecting environment are considered when making capital budgeting decisions. This result is partially in line with the outcome of research undertaken Batra and Verma (2017) who showed that most of the companies covered in their study pay attention to the nonfinancial factors when they make capital budgeting decisions. The decisions take into account corporate objectives and strategy together with customer market/demand analysis. They also take into account availability of raw material, power, manpower, suitable project location, technology, employees and public safety, necessity to maintain existing product lines, meeting competition, government legislations and environmental factors. The result is also partially consistent with Petty, Scott, and Bird (1975) who reported corporate image and protecting environment as important non-financial factors influencing capital budgeting decisions. Given that corporate sustainability strategy (corporate social responsibility) is becoming an important component its competitiveness, it is not surprising to find Kuwaiti non-financial companies considering non-financial factors when making capital budgeting appraisal decisions. To improve its competitiveness position and increase its market share, corporate strategy must take into account social, environmental, ethical and consumer concerns. This reality becomes more important in a small society like Kuwait where information about corporate social

Table 7. Non-financial factors affect capital budgeting

	Mean	Median	Standard Deviation	Minimum	Maximum	Rank based on the mean
Strategic planning	4.01	4	0.919	1	5	1
Social responsibilities	3.53	4	0.99	1	5	6
Employees capabilities	3.72	4	1.115	1	5	3
Employees responsibilities	3.56	4	1.064	1	5	5
Employees morale	3.41	4	0.999	1	5	7
Protecting environment	3.68	4	1.087	1	5	4
Corporate image	3.86	4	1.066	1	5	2

responsibility can be quickly spread through social an effective use of social media and the gatherings (*dewaniat*) held regularly among Kuwaitis. Consequently, Kuwaiti companies are expected to pay more attention to non-financial factors when making capital budgeting decisions.

5. Differences among the respondents about the use of different capital budgeting techniques

To establish whether differences in the respondents' characteristics have any effect on the use of capital budgeting techniques, Kruskal–Wallis test was performed and the result is reported in Table 8.

Respondents' characteristics such as age, last academic qualifications, their academic major and the industry where they work were all tested. It is evident from the table that the respondents were consistent about the use of capital budgeting techniques except few cases. The respondents showed significant differences in using PI and IRR. These two techniques are more difficult than others and they can be estimated by using some software packages. New and young graduates are more technology literate and they are expected to utilize their skills to estimate the IRR. Respondents' last academic qualifications appeared to correlate with significant differences with the use of the IRR. Once again, IRR is relatively difficult to calculate and it requires possessing some computing skills. Postgraduates are expected to have advanced technological knowledge, skills expertise to enable them to estimate the IRR more than the undergraduate. Finally, significant differences appeared between industry and the use of PP and IRR. Given that the respondents represent three different industries and the companies they represent vary in their nature and the size of the targeted capital projects, it is normal to witness significant differences in the capital budgeting technique that they adopt.

6. Conclusion

In this study, the attempt is made to explore different aspects of capital budgeting practices of non-financial companies listed on KSE. The study looked at the sources of capital budgeting ideas, capital budgeting techniques most frequently used, what determines the choice of the capital budgeting technique, obstacles towards using capital budgeting techniques and non-financial aspects that might affect capital budgeting decisions. To achieve the objectives of the study, during the period between June and December 2016, a questionnaire was distributed to all services, manufacturing and real estate companies listed on the KSE. 60% of these companies completed the questionnaire. The result of the analysis revealed that top management and people who used the assets are the main sources of capital budgeting ideas. The analysis also revealed that NPV and PI are the most frequently used capital budgeting techniques and the choice of the technique is determined by the nature of the project under assessment and the academic and professional capabilities of corporate staff. The analysis further demonstrated that factors such as uncertainty about the outcome of the capital budgeting techniques and lack of required data and information to use capital budgeting techniques could prevent the Kuwaiti non-financial companies from adopting capital budgeting techniques. Furthermore, the analysis disclosed that non-financial factors such as strategic planning, corporate image, employees' capabilities and environment protection are taken into consideration when making capital budgeting decisions. Finally, Kuwaiti companies either possess technology or have the required resources to install advanced technology to assist them in employing sophisticated capital budgeting techniques that take into account inflation and risk. The companies should make use the detailed information published on the net to collect necessary data about various investment opportunities. This would ensure results that are more accurate and minimize uncertainty about the outcome of the capital budgeting decisions and encourage companies to used capital budgeting techniques more frequently. Although an additional study on capital budgeting sheds more light on the gap between theory and practices and assists both academics and practitioners to benefit from this study, the surveyed sample in the current study is not fully representative since it covers only 3 out of 14 industries that form KSE. In addition, the

Table 8. Kruskal Wallis test

Investment appraisal techniques	Age		Last Academic Qualification		Major		Industry type	
	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.	χ^2	Sig.
Accounting Rate of Return	2.51	0.474	3.72	0.294	0.13	0.989	2.15	0.543
Profitability Index	11.17	0.011	3.64	0.303	3.19	0.363	2.93	0.403
Payback Period	2.721	0.437	1.303	0.728	2.41	0.492	8.23	0.041
Net Present Value	5.59	0.133	4.331	0.228	4.26	0.235	1.41	0.703
Internal Rate of Return	8.517	0.036	11.21	0.011	4.96	0.175	12.72	0.005

focus of the current study was on companies listed on KSE. To give a complete picture about capital budgeting practices in Kuwait, unlisted companies need to be surveyed in future research. Thus, generalizations of the obtained results should be made with caution. Moreover, to increase the response rate, the questionnaire did not include questions about the company's name and its financial characteristics. Availability of such information would form a basis to studying the effect of various corporate characteristics on capital budgeting practices.

Acknowledgement

The views and opinions expressed in this article are those of the authors and do not necessarily reflect those of their employers.

Funding

This work was supported by the Kuwait Foundation for the Advancement of Science (KFAS) [P115-17IF-02].

Authors details

Abduallah Al-Mutairi¹

E-mail: mutairi.a@gust.edu.kw

Kamal Naser²

E-mail: profnaser@yahoo.co.uk

ORCID ID: <http://orcid.org/0000-0003-2691-0291>

Muna Saeid³

E-mail: Muna343@gmail.com

¹ Economic and Finance Department, Gulf University for Science and Technology, Kuwait.

² Financial Advisor, Kuwait Fund, Kuwait.

³ English Department, Arab Open University, Kuwait Branch, Kuwait.

Citation information

Cite this article as: Capital budgeting practices by non-financial companies listed on Kuwait Stock Exchange (KSE), Abdullah Al-Mutairi, Kamal Naser & Muna Saeid, *Cogent Economics & Finance* (2018), 6: 1468232.

References

- Abdulsamad, F., & Shaharuddin, R. S. (2009). The perception of risk and uncertainty and the usage of capital budgeting technique: Evidence from public listed firms in Malaysia. *Jurnal Pengurusan*, 29, 3–14.
- Adler, R. W. (2000). Strategic investment decision appraisal techniques: The old and the new. *Business Horizons*, 43(6), 15–22. doi:10.1016/S0007-6813(00)80017-8
- Ahmed, I. (2013). Factors determining the selection of capital budgeting techniques. *Journal of Finance and Investment Analysis*, 2(2), 77–88.
- Al-Azawai, A. (2010). *Capital budgeting techniques and firm's performance: Case study Jordanian service listed firms* (Master thesis), UMEA University
- Alhamoud, T., & Ibrahim, M. (1997). The extent of application of managerial accounting techniques by Qatari shareholding companies. *Arab Journal of Administrative Sciences*, 4(2), 243–269.
- Al-Mutairi, M., Gary, T., & Tan, A. (2009). Corporate finance practice in Kuwait: A survey to confront theory with practice (May 20, 2009). 22nd Australasian Finance and Banking Conference 2009. doi: 10.2139/ssrn.1456750
- Al-Mutairi, M., & Hasan, H. (2011). *Theory and practice of corporate finance: Evidence from the listed and non listed firms in Kuwait*, Australasian Finance and Banking Conference. doi: 10.2139/ssrn.1857851
- Andor, G., Mohanty, S., & Toth, T. (2015). Capital budgeting practices: A survey of Central and Eastern European firms. *Emerging Markets Review*, 23 (June), 148–172. doi:10.1016/j.ememar.2015.04.002
- Andrés, P., Fuente, G., & Martín, P. S. (2015). Capital budgeting practices in Spain. *Business Research Quarterly*, 18, 37–56. doi:10.1016/j.brq.2014.08.002
- Apap, A., & Masson, D. J. (2004). A survey of capital budgeting in publicly traded utility companies. *Southwest Business and Economics Journal*, 13, 45–52.
- Arkovics, K. S. (2016). Capital budgeting methods used in some European countries and in the United States. *Universal Journal of Management*, 4(6), 348–360. doi:10.13189/ujm.2016.040604
- Arnold, G., & Hatzopoulos, P. (2000). The theory-practice gap in capital budgeting: Evidence from the United Kingdom. *Journal of Business Finance and Accounting*, 27(5&6), 603–626. doi:10.1111/1468-5957.00327
- Arora, P. (2012). An empirical investigation on capital budgeting practices in India. *International Journal of Research in Commerce and Management*, 3(5), 166–169.
- Babu, P., & Sharma, A. (1996). Capital budgeting practices in Indian industry: An empirical study. *Journal of Management* 25, available at [http://journal.asci.org.in/Vol.25\(1996\)/v25_1_pra.htm](http://journal.asci.org.in/Vol.25(1996)/v25_1_pra.htm)
- Batra, R., & Verma, S. (2017). Capital budgeting practices in Indian companies. *IIMB Management Review*, 29, 29–44. doi:10.1016/j.iimb.2017.02.001
- Block, S. (1997). Capital budgeting techniques used by small business firms in the 1990s. *Engineering Economics*, 42(4), 289–302. doi:10.1080/00137919708903184
- Brijlal, P. (2008). The use of capital budgeting techniques in businesses: A perspective from the Western Cape, 21st Australasian Finance and Banking Conference. doi: 10.2139/ssrn.1259636
- Chan, Y. (2004). Use of capital budgeting techniques and an analytic approach to capital investment decisions in Canadian municipal governments. *Public Budgeting and Finance*, 24(2), 40–58. doi:10.1111/j.0275-1100.2004.02402003.x
- Chartered Professional Accountants – Canada. (2017, 26 12). Retrieved from <https://www.cpacanada.ca/en/career-and-professional-development/webinars/core-areas/management-accounting/planning-budgeting-and-forecasting/capital-budgeting-effectively-analyzing-business-decisions>
- Chen, S. (2008). DCF techniques and nonfinancial measures in capital budgeting: A contingency approach analysis. *Behavioral Research in Accounting*, 20(1), 13–29. doi:10.2308/bria.2008.20.1.13
- Daunfeldt, S., & Hartwig, F. (2012). What determines the use of capital budgeting methods? Evidence from Swedish listed companies. *HUI Working Paper* 57. HUI Research, Stockholm. Retrieved from <https://www.google.co.in/#psj=1andq=What+Determines+the+use+of+Capital+Budgeting+Methods%3F>
- Dedi, L., & Orsag, S. (2007). Capital budgeting practices: A survey of Croatian firms. *South East European Journal of Economics and Business*, 2(1), 59–67.
- Drury, C., & Tayles, M. (1996). UK capital budgeting practices: Some additional survey evidence. *The European*

- Journal of Finance*, 2(4), 371–388. doi:10.1080/13518479600000015
- Drury, C., & Tayles, M. (1997). The misapplication of capital investment appraisal techniques. *Management Decision*, 35(2), 86–93. doi:10.1108/00251749710160223
- El-Daour, J., & Abu Shaaban, M. (2014). The use of capital budgeting techniques in evaluating investment projects: An applied study on the Palestinian corporations working in Gaza Strip. *Journal of Al-Quds Open University for Research and Studies*, 32(2), 9–50.
- Eljelly, A., & AbuIdris, A. (2001). A survey of capital budgeting techniques in the public and private sectors of a less developed country (LDC): The case of the Sudan. *Journal of African Business*, 2(1), 75–93. doi:10.1300/J156v02n01_05
- El-Sady, H., Hamdy, H., & Sultanova, V. (2011). Capital investment practices: A survey of large corporations in a developing market. *Global Review of Accounting and Finance*, 2(2), 39–60.
- Gitman, L., & Forrester, J. (1977). A survey of capital budgeting techniques used by major US firms. *Financial Management*, 6(3), 66–71. doi:10.2307/3665258
- Gitman, L., & Mercurio, V. (1982). Cost of capital techniques used by major US firms. *Financial Management*, 11(4), 21–29. doi:10.2307/3665228
- Graham, J., & Harvey, C. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60(2–3), 187–243. doi:10.1016/S0304-405X(01)00044-7
- Gupta, D. (2016). Capital budgeting decisions and the firm's size. *International Journal of Economic Behavior and Organization*, 4(6), 45–52.
- Hermes, N., Smid, P., & Yao, L. (2006). Capital budgeting practices: A comparative study of the Netherlands and China. Retrieved from http://som.eldoc.ub.rug.nl/FILES/reports/themeE/2006/06E02/06E02_Hermes.pdf
- Hogaboam, L., & Shook, S. (2004). Capital budgeting practices in the US forest products industry: A reappraisal. *Forest Products Journal*, 54(12), 149–158.
- Jog, V., & Srivastava, A. (1995). Capital budgeting practices in corporate Canada. *Financial Practice and Education*. Retrieved from SSRN <http://ssrn.com/abstract=7474>
- Johnson, H. (1999). *Making capital budgeting decisions: Maximizing the value of the firm*. London: Pearson Education Limited.
- Kester, G., & Tsui, K. (1998). Capital budgeting practices of listed firms in Singapore. *Singapore Management Review*, 20(1), 9–23.
- Kester, G. W., & Chong, T. K. (1998). Capital budgeting practices of listed firms in Singapore. *Singapore Management Review*, 20(1), 9–23.
- Kester, W., Chong, T. R., Echanis, E. S., Haikal, S., Isa, M., Skully, M. T., ... Wang, C. J. (1999). Capital budgeting practices in the Asia-Pacific region: Australia, Hong Kong, Indonesia, Malaysia, Philippines, and Singapore. *Financial Practice and Education*, 9(1): 25–33. Spring/Summer.
- Khamees, B., Al-Fayoumi, N., & Al-Thuneibat, A. (2010). Capital budgeting practices in the Jordanian industrial corporations. *International Journal of Commerce and Management*, 20(1), 49–63. doi:10.1108/10569211011025952
- Lazaridis, I. (2004). Capital budgeting practices: A survey in the firms in Cyprus. *Journal of Small Business Management*, 42(4), 427–433. doi:10.1111/j.1540-627X.2004.00121.x
- Love, P., Holt, G., Shen, L., Li, H., & Irani, Z. (2002). Using systems dynamics to better understand change and rework in construction project management 25 systems. *International Journal of Project Management*, 20(6), 425–436. doi:10.1016/S0263-7863(01)00039-4
- Maroyi, V., & Poll, H. (2012). A survey of capital budgeting techniques used by listed mining companies in South Africa. *African Journal of Business Management*, 6(32), 9279–9292. doi:10.5897/AJBM12.747
- Meredith, J., & Mantel, S. (2000). *Project management: A managerial approach*. USA: John Wiley & Sons.
- Mohamed, S., & McCowan, A. (2001). Modelling project investment decisions under uncertainty using possibility theory. *International Journal of Project Management*, 19(4), 231–241. doi:10.1016/S0263-7863(99)00077-0
- Mohan, V., & Narwal, K. P. (2017). Capital budgeting practices: State of the art. *Asian Journal of Research in Banking and Finance*, 7(4), 57–74. doi:10.5958/2249-7323.2017.00021.9
- Moore, J., & Reichert, A. (1983). An analysis of the financial management techniques currently employed by large US corporations. *Journal of Business Finance and Accounting*, 10(4), 623–645. doi:10.1111/j.1468-5957.1983.tb00456.x
- Mustafa, M., & Hindi, N. (2010). Capital budgeting practices: The case of Qatar. *Studies of Business and Economics*, 15(2), 39–54.
- Nishat, M., & Haq, Z. (2009). Capital budgeting practices: A survey of Pakistani Firms, *Proceedings in South Asian Management Forum (SANF 10) held in Bhutan, 9–10th April 2009*
- O'Sullivan, A., & Sheffrin, S. M. (2003). *Economics: Principles in action*. Upper Saddle River, NJ: Pearson Prentice Hall. 375. ISBN 0-13-063085-3.
- Payne, J., Heath, W., & Gale, L. (1999). Comparative financial practice in the US and Canada: Capital budgeting and risk assessment techniques. *Financial Practice and Education*, 9, 16–24.
- Petty, J. W., Scott, D. F., & Bird, M. M. (1975). The capital expenditure decision making process of large corporations. *The Engineering Economist*, 20(3), 159–172. doi:10.1080/00137917508965140
- Pike, R. (1996). A longitudinal survey on capital budgeting practices. *Journal of Business Finance and Accounting*, 23(1), 79–92. doi:10.1111/j.1468-5957.1996.tb00403.x
- Ramesh, S., & Nimalathasan, B. (2011). Capital budgeting practices: A study of companies listed on the Colombo stock exchange Sri Lanka, *International Conference on Leading beyond the Horizon: Engaging Future* (pp. 6–10), Annamalai Nagar: Department of Business Administration, Annamalai University, Chiddamparam, India, 28–30 July 2011.
- Ryan, P., & Ryan, G. (2002). Capital budgeting practices of the fortune 1000: How have things changed? *Journal of Business and Management*, 8(4), 355–364.
- Sandahl, G., & Sjögren, S. (2003). Capital budgeting methods among Sweden's largest groups of companies: The state of the art and a comparison with earlier studies. *International Journal of Production Economics*, 84, 51–69. doi:10.1016/S0925-5273(02)00379-1
- Seitz, N., & Ellison, M. C. (1999). *Capital budgeting and long-term financing decisions* (3rd ed.). Orlando: Harcourt Brace College Publishers.
- Shinoda, T. (2010). Capital budgeting management practices in Japan: A focus on the use of capital budgeting methods. *Economic Journal of Hokkaido University*, 39, 39–50.

- Souza, P., & Lunkes, J. R. (2016). Capital budgeting practices by large Brazilian companies. *Contaduría Y Administración*, 61, 514–534. doi:10.1016/j.cya.2016.01.001
- The International Federation of Accountants (IFAC). (2013). *Project and investment appraisal for sustainable value creation*. ISBN 978-1-60815-162-2.
- Thompson, A. A., Jr, & Strickland, A. J., III. (2001). *Strategic management concepts and cases* (12th ed.). New York: McGraw-Hill/Irwin.
- Truong, G., Partington, G., & Peat, M. (2008). Cost-of-capital estimation and capital-budgeting practice in Australia. *Australian Journal of Management*, 33(1), 95–121. doi:10.1177/031289620803300106
- Velez, I., & Nieto, G. (1986). Investment decision-making practices in Colombia: A survey. *Interfaces*, 16(4), 60–65. doi:10.1287/inte.16.4.60
- Verma, S., Gupta, S., & Batra, R. (2009). A survey of capital budgeting practices in corporate India. *The Journal of Business Perspective*, 13(3), 1–17. doi:10.1177/097226290901300301
- Wong, K. A., Farragher, E. J., & Leung, R. K. C. (1987). Capital investment practices: A survey of large corporations in Malaysia, Singapore and Hong Kong. *Asia-Pacific Journal of Management*, 4(2): 112–123.
- Zubairi, H. (2008). Capital budgeting—decision making practices in Pakistan. doi:10.2139/ssrn.1308662



© 2018 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Economics & Finance (ISSN: 2332-2039) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

