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MANAGERIAL JUDGEMENT VERSUS FINANCIAL TECHNIQUES IN STRATEGIC INVESTMENT DECISIONS: AN EMPIRICAL STUDY ON THE SYRIAN COASTAL REGION FIRMS

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ABSTRACT

While there has been extensive research on the use of financial appraisal techniques [Pay Back (PB), Return on Capital Employed (ROCE), Internal Rate of Return (IRR) and Net Present Value (NPV)] in Strategic Investment Decisions (SIDs), little research has been conducted on the role of the Managerial Judgement factors (MJ factors) – past experience, intuition and own judgement - in the SIDs. In practice, many investments are undertaken on the basis of financial returns with little or no analysis of the growth options embedded in the proposed investments. Essential to considering these options in the SIDs is the deployment of MJ factors in the SIDs. This research draws on a 36-firm survey of finance directors in Syrian coastal region firms to set out the relative importance of the MJ factors and financial techniques in the SIDs. The findings from the survey show high usage of the MJ factors in the SIDs but not at the expense of the financial techniques usage which are used regardless of the MJ adoption in the SIDs. However, There is a tendency towards using MJ factors more than financial techniques for investments with growth options. There is no relationship between neither the ownership nor the sector with the MJ adoption. ROCE and PB are the most frequently used financial techniques.

Keywords: Managerial judgement, Financial techniques, Growth options, Strategic investment decisions-making process, Investment appraisal, Finance directors, Syrian firms.

Contribution/ Originality

This study contributes to capital budgeting literature through identifying the relative importance of the managerial judgement compared to financial techniques when assessing new investments, especially when these new investments have strategic and non-quantifiable returns. It shows the crucial role the finance managers can play using their past experience, intuition and own judgement in the strategic investment decision- making process.

1. INTRODUCTION

The SIDs acts as a *filter* that rejects new investments that do not create sufficient value as poor assessment of the new investments may prove disastrous, and result in unprofitable projects being undertaken and potentially good projects being rejected. The central argument in this research is that, in the SIDs, the managerial judgement (MJ) can widen the scope of the benefits attached to the new investments and thus lead to a more informed investment decision about new investments. The failure to consider growth options embedded within new investments is considered as a shortcoming of financial techniques since this might lead to investments of great

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importance for the firm being rejected. Sharp (1991); Amram and Kulatilaka (1999) and Covin *et al.* (2001) suggest that such projects require a different approach in the SIDs. Insufficient attention has been paid to the way in which MJ factors influence the SIDs and how to integrate growth options attached to new investments into SIDs. The interaction between financial techniques and MJ factors is the focus of this study.

This study focuses on the current context of the SIDs carried out by the Syrian coastal region firms, examining the extent to which growth options are taken into account when assessing new investments and the role of MJ factors in this concern. The study conducted in the second half of the 2014.

2. LITERATURE REVIEW

Much of the criticism posed on the commonly and widely-used financial appraisal techniques [Pay Back (PB), Return on Capital Employed (ROCE), Internal Rate of Return (IRR) and Net PresentValue (NPV)] revolves mainly around their failure to accommodate growth options attached to risky new investment proposals. This criticism opens up a debate among academics and practitioners about the appropriateness of the financial appraisal techniques in providing a reliable decision about new investment proposals.

2.1. The Strategic Investment Decisions (SIDs)

The role of the SIDs is to provide an acceptable pre-decision rationalisation of judgements which have led the sponsoring managers to recommend proposed capital expenditures. In fact, this rationalisation is based on a comparison between the potential rewards of carrying out a project against the predicted costs (Maylor, 1999). This will allow managers to assess how far the benefits appear to be attractive and attainable by the firm, and then, propose capital expenditure accordingly. In the capital investment literature, this optimality is linked to the financial returns from the proposed projects. For example, Stark (2000) argues that optimality is typically defined by reference to the NPV rule. Therefore, project proposals with a negative NPV are not acceptable.

2.2. The SIDs within the Capital Budgeting System

In the literature, many models are developed to show the SIDs mechanism. Dyson (1990) suggested six main stages in the strategic decision making process. Harris (1999) depicted the strategic investment appraisal process as a vertical sequence of seven stages of analysis / decision activity accompanied by different data entry at each stage with feedback loops. Carr *et al.* (2010) offered an exception whereby attitudes towards incorporating less easily quantifiable factors are considered.

The interesting feature of this framework, which distinguishes it from previous ones, is the introduction of managerial judgement in the SIDs. This is reflected in the involvement of the analysts and the decision-makers in the SID. This involvement takes the forms of *team views* and *team judgement*. Another framework is developed by Pike and Neale (2006) that depicted a simple capital budgeting system as a five-stage process.

The main features of these frameworks are: 1- A tendency towards the financial focus of the SIDs. Future growth opportunities associated with new investment proposals are omitted from the SIDs and the *time dimension* is neglected. In other words, the project either can be approved or rejected at the time of the assessment. This reflect the absence of the Managerial Judgement (MJ) factors. Therefore, the *postponement option* and the option about the time of embarking on the investment have not been considered. 2- Project outcomes are expressed in terms of expected monetary or *tangible* benefits. Very little concern is paid to assessing "intangible" benefits from the proposed investments. Therefore, *options embedded* within the proposed projects are not considered in the appraisal process. 3- The treatment of risk associated with new investment is uni-directional *risk aversion* where high hurdle

rates are applied for projects with a high level of risk. 4- In many models, Harris (1999) the analysts are separate from the approval process and do not affect the investment decision-making process.

2.3. Financial Investment Appraisal Techniques

Most of the work in financial appraisal has focused on the use of four financial appraisal techniques to justify capital expenditure. These techniques are well documented in the literature [*i.e.*Krinsky and Miltenburg (1991); Pike (1996); Kaplan and Atkinson (1998); Rohrick (2007); Gotze *et al.* (2015)]. A summary of each technique in presented below:

1- PayBack (PB) The payback period for an investment refers to the amount of time it takes to recover the cash invested. According to this technique, projects with short payback periods are preferable to those with long payback period.

2- Return on Capital Employed (ROCE) Sometimes referred to as Return On Investment (ROI). It is calculated as the ratio of the accounting profit generated by an investment project to the required capital outlay, expressed as a percentage. A decision criterion is set in terms of a minimum acceptable level of ARR. The best project will only be accepted by the firm if it meets the set criterion, thus, profitability is the basis of the evaluation process (Lumby and Jones, 1999).

3- Internal Rate of Return (IRR) It is the discount rate which reduces the stream of net returns associated with the project to a present value of zero. Under the IRR method, in theory, a firm will accept all projects that offer a return more than the cost of capital.

4- Net Present Value (NPV) It is the difference between present value of cash inflows and present value of cash outflows. If the NPV is positive (that is, present value of cash inflows exceeds the present value of cash outflows), then the project should be accepted. When selecting one from a number of projects (having equal lives), the project with the largest NPV is selected (Krinsky and Miltenburg, 1991). Table (1) provides a summary and comparison of these techniques.

2.4. Research on Project Investment Appraisal

Many studies have been conducted to investigate and present the usage of financial techniques in the SIDs. Major studies are outlined in Table (2). The general findings of these studies show the popularity of the payback technique among firms and the tendency towards deploying more than one technique in the SIDs. In addition, these studies tried to link the use of these techniques with firm size and concluded that the importance and application of these techniques varies among firms of different sizes. The common features of these studies are the involvement of different companies from different industries and variable size definitions are used.

Although these studies have contributed to the capital budgeting literature, they can be criticised for being fairly superficial. Normally, only the results of the questionnaires and interviews are presented and the findings are seldom interpreted. The impact of the type of the project on the range and the intensity of these techniques has not been considered. These studies did not incorporate uncertainty and, as a consequence, cannot be thought of as capturing a full context of the SIDs. Therefore, the main drawback of these studies is that they have not uncovered how growth opportunities could be incorporated in the SIDs.

2.5. Managerial Judgement (MJ) and the SIDs

The financial techniques mentioned earlier are claimed to exclude the valuable options embedded within the proposed investments. Kulatilaka and Marcus (1992) claim that corporate investment projects often contain "embedded options" and the valuation of such options is difficult to accommodate within the conventional DCF

framework. While cash flows generated from an investment can be assessed by the financial techniques, the question remains as how to assess the growth opportunities from the investment. Many models are developed for this such as capital investment options (Pike and Neale, 2006).

Table-1. Pros and Cons of Financial Appraisal Techniques *

Techniques	Advantages	Disadvantages
1- PayBack method (PB)	- Reduced risk of severe cash flow in short term. - Increases liquidity in short term. - Safeguard against risk - Quick, simple and easy to understand	- No allowance for the time value of money. - Returns beyond the payback period are ignored.
2- Discounted PayBack (DPB)	- Takes account of time value of money.	- Ignores receipts after payback period.
3- Return on Capital Employed (ROCE)	- Reflects the market value of the company.	- Poor estimate of a company's cost of capital. - Fails to take account of the time value of money. - Wide-open field for selection of profit indicator might lead to misuse.
4- Discounted Cash Flow (DCF) techniques		
• Internal Rate of Return (IRR)	- Takes account of time value of money.	- may have multiple IRRs. - assumes reinvestment at the IRR.
• Net Present Value (NPV)	- Simple and clear. - Ease of data collection. - Takes into account the time value of money. - Theoretically superior to other traditional techniques.	- Conceptual weaknesses. - Inability to evaluate strategic investments with future growth opportunities. - Bias against long-term projects. - Neglects the timing issue of implementation when the environment is dominated by uncertainty. - Unable to capture the full complexity of the corporate investment decision.

(adapted from Mahmoud (2008)

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* For more details, see Arnold (2002); Lefly (1997); Smart *et al.* (2002); Drury and Tayles (1997); Kaplan (1986); Kaplan and Atkinson (1998); Arnold and Hatzopoulos (2000); Megginson *et al.* (2007); Serfas (2011)

Table-2. Reported use of Financial Techniques in Manufacturing Industry *

Author	Year & place	Firms involved	Findings
Pike	Longitudinal survey between 1975-1992 (UK)	100 large firms	-Substantial increase in the use of discounted cash flow techniques and risk appraisal techniques. - Tendency by the firms to use a combination of four different methods (PB,ROI,IRR,NPV).
McIntyre and Coulthurst	1986 (UK)	141 small and medium firms	- Increased use of DCF but not at the expense of PB which continued to gain support.
Sangster	1993 (UK)	Small and large Scottish companies	- PB is the most popular method, then IRR. - Use of more than one method. - Less usage of ARR. - High use of more sophisticated discounted cash flow techniques.
Drury and Tayles	1997 (UK)	866 firms (small and large firms)	- DCF techniques are used far more extensively by the larger organisations. - 90% of the larger and 35% of the smaller organisations "often" or "always" used either Net Present Value (NPV) or Internal Rate of Return (IRR) discounting methods.
Carr and Tomkins	1998 UK , USA, Germany and Japan	71 vehicle component manufacturers based in Britain, USA, Germany and Japan.	- Longer-term strategic orientation of German and Japanese companies and Anglo-American short-termism. - The short-term orientation in Britain and USA companies reflects a preponderance of strong financial control style. - Amongst the UK firms, the most significant financial measure in the investment appraisal process is PB, then ROCE, then DCF techniques.
Arnold and Hatzopoulos	2000 (UK)	300 firms (100 small, 100 medium, 100 large)	- Reduction in the use of PB but remains at a high level. - All large firms use either IRR or NPV. - Most small and medium-sized firms use IRR or NPV. - Most firms are using three or more methods.

(adapted from Mahmoud (2008)

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* See: Pike (1996); Ho and Pike (1991); Mcintyre and Coulthurst (1986); Arnold and Hatzopoulos (2000); Drury and Tayles (1997); Sangster (1993); Carr and Tomkins (1998).

This shift in thinking to view investments as options substantially changes the theory and practice of decision making about capital investment (Dixit and Pindyck, 1995). The role of MJ in the SIDs becomes more prominent. Studies in this respect (*e.g.*(Morone and Paulson, 1991; Northcott, 1995; Harris *et al.*, 2009)) brackets deleted showed a significant role of the *executive judgement* and cognitive analysis in the SIDs. This involvement of MJ is claimed to lead to more persuasive decision (Clarke *et al.*, 2003). Kester (1984) argues that many companies have turned to methods other than financial techniques. For example, isolating and evaluating strategically important projects *qualitatively*. Such analysis rests heavily on the *intuition* and *own judgement* of key senior executives. The isolation of strategic projects is helpful to the extent that valuable *executive experience* is brought into play and truly

important investments are not routinely rejected by simplistic quantitative techniques (*ibid*). Similar views are echoed by Sharp (1991) with regard to appraising strategically vital projects:

> *"If they (managers) follow control system requirements, they will reject projects that may be strategically important because the NPV analysis excludes options. If they follow their instinct and experience, they must override the formal, quantitative NPV analysis with the nebulous justifications that the project must be undertaken 'for strategic reasons.'"* [1991, p. 69]

Therefore, the deployment of these factors (past experience, intuition and own judgement)- which are known as *Managerial Judgement* factors- in the SIDs is linked to the existence of the options embedded in the proposed investment. MJ appears to be of great importance in realising these options. This importance is demonstrated by the fact that the recognition of these options will make the firm more willing to invest than it would be under calculations that result from the financial appraisal techniques. For example, the NPV rule dictates the discount rate but cannot judge on choices such as time of embarking on the investment, the postponement decision, and the abandonment decision. Such decisions are solely made by managers on the basis of *past experience, intuition and own judgement*. This concept was emphasised by Megginson *et al.* (2007) who claim that:

> *"The NPV approach fails to capture the value of this managerial flexibility as the passing of time resolves uncertainty surrounding a particular investment. Mangers usually have the option to abandon or to expand an initial investment, and that flexibility often adds to a project's value above and beyond its NPV. Smart managers understand this intuitively"* [2007, p. 709].

2.6. Types of Growth Options

In the literature, there are many classifications of options (see for example: Sharp (1991); Copeland and Keenan (1998). Given the overlapping features of the options, two main types of options reflecting the classifications presented by scholars mentioned above are identified:

1- Growth option: growth opportunities that require incremental investments (including creating additional capacity).

2- Flexibility: that include: option to defer, scale (expanding or contracting), abandon, stage, the proposed investment.

Busby and Pitts (1998) assert that flexibility appears in many guises: **Timing:** options to embark on an investment, to defer it or to abandon it. **Scale:** options to expand or to contract an investment. **Staging:** the option to undertake an investment in stages. **Growth:** options to make investments now that may lead to greater opportunities later, sometimes called *toe in the door* options, or technical importance of the project. The subject of these options is a single proposed project (specific investment) because investment models in the field of finance often confine the application of options analysis to decisions regarding a single project (Mcgrath *et al.*, 2004).

3. RESEARCH METHODOLOGY

3.1. Research Hypotheses

Based on the research problem and the literature review, five hypotheses were postulated and an operational definition was given to each research concept.

H1: The application of the financial appraisal techniques in the SIDs is not affected by the level of MJ adoption.

H2: Firms with high level of MJ adoption are more prepared to override financial techniques than those with low level of MJ adoption.

H3: MJ factors are critical in assessing investments with growth options.

H4: The adoption of MJ factors varies amongst firms depending on type of ownership.

H5 : The adoption of MJ factors varies amongst firms depending on type of sectors.

3.2. Population and Data Collection

A structured questionnaire was designed to provide quantitative data that enable statistical testing (using SPSS software), and thus, testing research hypotheses and answer research questions.

An academic statistician was consulted and the questions in the questionnaire were designed in a proper way to get the required data. The questionnaire was pre-tested in the field by conducting a pilot study. The questionnaire was handed in to financial manager or whoever acts on his behalf of a sample of 50 firms selected randomly from the population (the population here is all firms operation in coastal region which includes two provinces: Lattakia and Tartous, 25 questionnaires each). The main survey took place in the second half of 2014. A total of 36 valid responses were received, Therefore, the net usable response rate or *active response rate* (Neuman, 2000) was thus 72 % [36 / 50 * 100].

3.3. Reliability and Validity of the Research Instrument

Reliability refers to the extent to which data collection techniques or analysis procedures will yield consistent findings (Saunders *et al.*, 2007). The procedures followed in developing research instrument (the questionnaire) were designed to provide an acceptable level of reliability. The use of the standardized questionnaire in this study allowed for the comparison between sample members and yielded consistent data. The use of reliable software for analysing the responses (SPSS package) also helped in obtaining a reliable findings.

To ensure a sound validity of the questionnaire, the main concepts under investigation were conceptualised (collapsed into constructs) then these constructs were operationalised (given an operational definition to allow for their measurement) as shown in table 3. The procedures used in designing and preparing the questionnaire ensured an acceptable level of validity. The piloting process helped to ensure clear understanding of the questions and allowed for amendments to be made prior to the main study.

Table-3. Description of the Research Variables

The variables	Description
Managerial Judgement (MJ) (dependent)	The extent to which MJ factors (past experience, intuition and own judgement) are considered in the decision-making process about proposed investments with growth options.
Growth options (independent)	The extent to which the following factors are considered in the SIDs: 1- Timing (time of embarking on the project, delay the investment decision). 2- Technical importance (establishing a strong base for supporting other investments). 3- Staging (implementing the project in stages). 4- Flexible capacity (create additional capacity for future).
Financial analysis techniques (independent)	The use of financial techniques in the SIDs: 1- Payback period (PB). 2- Return On Capital Employed (ROCE). 3- Net Present Value (NPV). 4- Internal Rate of Return (IRR).

Source: Prepared by the author based on reviewing the related capital budgeting literature

4. RESEARCH FINDINGS

4.1. Descriptive Statistics

Responses came from a variety of people holding different positions in the firms (general manager 4; administrative manager 8, finance manager 22, and technical manager 2). This is because the SIDs is a collective process and all those people are involved in it. 66 % of sample members hold bachelor degree, 16 % hold diploma and 5 % hold college degree. Regarding the working experience, 69 % have experience of more than 5 years, of which 28% over 15 years and over. The reflects a good level of experience hold by the respondents. 32 % of firms employ more than a thousand of people and all firms have a capital of at least one million Syrian pound. Responses came from 24 private firms and 12 public firms from four main sectors (industrial 12, services 12, commercial 10, and construction 2)

4.1.1. Prevalence of Financial Appraisal Techniques in the SIDs

The respondents were asked to rank the four main financial appraisal techniques (PB, IRR, NPV and ROCE) on a scale from 1 (low usage) to 4 (high usage) in the SIDs.

Table-4. Incidence of Financial Appraisal Techniques

Techniques	Level of usage	Incidence	Valid percentage (%)	Cumulative percentage (%)
PB	High usage(4)	11	30.6	30.6
	Moderate usage(3)	9	25.0	**55.6**
IRR	High usage(4)	2	5.6	5.6
	Moderate usage(3)	14	38.9	**44.5**
NPV	High usage(4)	5	13.9	13.9
	Moderate usage(3)	4	11.1	**25**
ROCE	High usage(4)	1	2.8	30.6
	Moderate usage(3)	5	13.9	**56.9**

Source: Prepared by the author based on SPSS results

As can be seen from the table, two techniques dominating the SIDs.ROCE with56.9 % and PB with 55.6 %. The other two techniques are used less frequently in the SIDs.

4.1.2. Prevalence of MJ Factors in the SIDs

Table-5. Incidence of MJ factors in the SIDs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	2	5.6	5.6	5.6
	Rarely	4	11.1	11.1	16.7
	Frequently	13	36.1	36.1	52.8
	Always	17	47.2	47.2	100.0
	Total	36	100.0	100.0	

Source: Prepared by the author based on SPSS results

Table 5 shows a high level of usage of MJ factors in general with 30 respondents (83 %) of the sample seem to consider MJ factors in the SIDs. This forms the dependent variable (MJ adoption levels). Since there are small numbers in the first and second groups, both are combined as they imply similar attitude. Consequently, the dependent variablebecomes as follows: group 1: No adoption (or non adopters) [6], group 2: Moderate adoption (or moderate adopters) [13], group 3: High adoption (high adopters) [17].

Regarding using MJ factors for investments with growth options, it appears that there is a tendency to use MJ factors for such investments amongst the respondents as shown in table (6)

Table-6. MJ factors as techniques for assessing investments with growth options

		Intuition & Own judgement		Past experience	
		Frequency	Valid Percent	Frequency	Valid Percent
Valid	Strongly disagree	1	2.8		
	Disagree	2	5.6		
	Neutral	5	13.9	1	2.8
	Agree	17	47.2	19	52.8
	Strongly agree	11	30.6	16	44.4
	Total	36	100.0	36	100.0

Source: Prepared by the author based on SPSS results

4.2. Hypotheses Testing

H1: The application of the financial appraisal techniques in the SIDs is not affected by the level of MJ adoption. To test this hypothesis, Kruskal-Wallis Test is applied and the results are shown in tables (7 & 8).

Table-7. Mean ranks

Ranks			
	MJ adoption levels	N	Mean Rank
PayBack usage in appraisal process	No adoption	6	20.00
	Moderate adoption	13	15.77
	High adoption	17	19.06
	Total	36	
IRR Usage in appraisal process	No adoption	6	18.75
	Moderate adoption	13	17.35
	High adoption	17	18.25
	Total	36	
NPV Usage in appraisal process	No adoption	6	23.17
	Moderate adoption	13	13.77
	High adoption	17	19.50
	Total	36	
IRR Usage in appraisal process	No adoption	6	16.50
	Moderate adoption	13	17.31
	High adoption	17	19.13
	Total	36	

Source: Prepared by the author based on SPSS results

Table-8. Test Statistics[a,b]

	PayBack usage in appraisal process	IRR Usage in appraisal process	NPV Usage in appraisal process	IRR Usage in appraisal process
Chi-Square	1.105	.103	4.567	.459
df	2	2	2	2
Asymp. Sig.	.576	.950	.102	.795

a. Kruskal Wallis Test

b. Grouping Variable: MJ adoption level

The results show a close mean ranks for all three groups of dependent variable. The differences of these mean ranks at the 0.95% confidence interval are not significant, α values above 0.05. This means that these three groups are using financial appraisal techniques similarly regardless of the level of MJ adoption. In other words, the use of the financial techniques is not affected by the adoption of the managerial judgement and firms continue using these financial techniques. This does not give support to H1.

H2: Firms with high level of MJ adoption are more prepared to override financial techniques than those with low level of MJ adoption.

To test these hypothesis, Kruskal-Wallis Test is applied and the results are shown in tables (9 & 10).

Table-9. Mean ranks

	MJ adoption levels	N	Mean Rank
Overriding financial techniques	No adoption	6	27.33
	Moderate adoption	13	14.92
	High adoption	17	18.12
	Total	36	

Source: Prepared by the author based on SPSS results

Table-10. Test Statistics[a,b]

	Overriding financial techniques
Chi-Square	6.507
df	2
Asymp. Sig.	.039

a. Kruskal Wallis Test
b. Grouping Variable: MJ adoption levels

The results show that there is a significant differences at the 0.95% confidence interval with a significance level under 0.05 ($\alpha = .039 < 0.05$) between study groups regarding overriding the financial techniques. This means that the higher the MJ adoption, the greater the chance of overriding financial techniques. Consequently, firms with high level of MJ adoption are more likely to rely less on the financial techniques. On the other hand, firms with low level of MJ adoption are highly likely to rely on financial techniques. This gives support to H2.

H3: MJ factors are critical in assessing investments with growth options

To test this hypothesis, Kruskal-Wallis Test is applied and the results are shown it tables (11 & 12).

Table-11. Mean ranks

Ranks			
	MJ adoption levels	N	Mean Rank
Past experience for assessing growth options investments	No adoption	6	11.00
	Moderate adoption	13	14.27
	High adoption	17	24.38
	Total	36	
Intuition & Own judgement for assessing growth options investments	No adoption	6	9.67
	Moderate adoption	13	19.08
	High adoption	17	21.18
	Total	36	

Source: Prepared by the author based on SPSS results

Table-12. Test Statistics[a,b]

	Past experience for assessing growth option investments	Intuition & Own judgement for assessing growth option investments
Chi-Square	13.629	6.197
df	2	2
Asymp. Sig.	.001	.045

a. Kruskal Wallis Test
b. Grouping Variable: MJ adoption level

The results show that there is a significant difference at the 0.95% confidence interval with a significance level below 0.05 between study groups over using MJ factors for assessing projects with growth options. Where the higher the MJ adoption, the higher the chance for the use of MJ factors for assessing investments with growth options. This means that firms with high level of MJ adoption rely on MJ factors more than financial techniques in assessing projects with growth options. This gives support to H3

H4: The adoption of MJ factors varies amongst firms depending on type of ownership.

H5 : The adoption of MJ factors varies amongst firms depending on type of sectors.

To test these hypotheses, Kruskal-Wallis Test is applied and the results are shown it tables (13 & 14).

Table-13. Mean ranks

	MJ adoption levels	N	Mean Rank
Company` Ownership	No adoption	6	21.50
	Moderate adoption	13	16.65
	High adoption	17	18.85
	Total	36	
Type of Company	No adoption	6	13.00
	Moderate adoption	13	17.15
	High adoption	17	21.47
	Total	36	

Source: Prepared by the author based on SPSS results

Table-14. Test Statistics[a,b]

	Company` Ownership	Type of Company
Chi-Square	1.356	5.021
df	2	2
Asymp. Sig.	.508	.081

a. Kruskal Wallis Test
b. Grouping Variable: manjudg into 3 group

The results show that differences in mean ranks between study groups are not significant at the 0.95% confidence interval with significance levels above 0.05 for both hypotheses. This means that firm's ownership and the type of the sector it operates in, have no role to play in the adoption of the MJ factors. Therefore, there is no relationship between firm's ownership and the adoption of the MJ factors, also there is no relationship between type of company and the adoption of the MJ factors. This gives no support for H4 & H5.

5. CONCLUSIONS AND IMPLICATIONS

5.1. Research Conclusions

It appears to be that managerial judgement has an important role to play in the SIDs alongside the financial techniques. The MJ factors are used by majority of firms involved in this study. This usage is not restricted only for new investments in general but also for new investments with growth options. Moreover, the adoption of the MJ factors do not affect the use of the financial techniques in the SIDs. This stresses the need for assessing the financial

returns from any investments alongside the growth options (non financial returns) embedded in it. However, this study shows that high adoption of the MJ factors allows for the overriding of the low financial returns when the growth options outweigh the financial returns. In other words, MJ adopters are less committed to the financial outcomes from the projects than non adopters. In addition, MJ factors are more likely to be deployed in assessing such investments (investments with growth options and low financial returns) than financial techniques. Firms' s adoption of the MJ factors in not affected by neither the ownership nor the type of the sector it operates.

5.2. Research Implications

This study contributes to the capital budgeting literature by showing how the managerial judgement could be utilized in the SIDs compared to the financial techniques, as well as highlighting the conditions under which each type of assessment approach is applied. Therefore, this research furthers the discussion on the link between MJ factors and the financial techniques in the IAP. This study has also managerial implication for managers involved in the SIDs where they can appraise projects with growth options using managerial judgement and projects with financial returns using financial techniques.

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