Determinants of Cost of Equity Capital Approaches: Evidence from Pakistan

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Abstract

The current survey research was conducted to identify and investigate the differences in theory and practices of capital budgeting decision (cost of equity capital approaches) in corporate sector of Pakistan. Developed countries researchers conducting regular surveys to highlight and minimize the gap between theory and practice, specially, US/UK finance researchers while, developing countries researchers has not shown much interest in this regard. Under the Positivist philosophical approach, this study has adopted quantitative survey method of research. The data was collected through convenient sampling from 173 CFOs/Directors Finance at one point in time. For analysis ordinal logistic and binary logistic regression was used. In case of cost of equity calculation approaches most of the firms depends upon the historical return on common stock approach than CAPM. CFOs adjust the discount rate for inflation risk and bankruptcy risk more frequently than for other risk factors.

Key words: Historical Return on Common Stock, CAPM with beta and CAPM with some extra Risk Factors.

Introduction

Grant, in 1930, explanied the concepts of present value, cost calculation and required rate of return for making capital budgeting decisions".[1] Ever since William Sharpe and John Lintner came up with the capital asset pricing model (CAPM) there has been an academic debate over its validity".[2]

Yet over 40 years later, the model is still widely used in academia as well as in practice. The model was the first successful effort to show how to evaluate the risk of the cash flow from a possible investment project and how to calculate approximately the project's cost of capital, which is the required rate of return that investors will demand

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if they are to invest in the project. In this model (CAPM) a stock's risk is summarized by its beta with the market portfolio of all invested wealth".[3]

Problem Statement

Capital investment and cost of capital are the important issues in corporate finance".[4] Discussion is available mostly from developed economies on how companies evaluate projects, cost of equity calculation and adjustment of discount rate".[5] Answers to such questions are difficult from secondary data the researcher used survey answer for fulfilling the research objectives. The most difficult decisions are the capital investment decisions for the emerging firms".[6]

The most difficult step in the capital budgeting is availability of funds at cheap rate; second step is about return of capital and interest/dividends to suppliers. The lost step of difficulty is duration, mostly the capital investment decisions are for long time . The main area for developing countries practitioners focus point is real options. Other segment for development are managerial procedures, using the weighted average cost of capital, adjusting the WACC for different risky projects or wings, The managers also focus on discounted cash flows techniques".[7]

Different studies have been conducted on selection/recommendation of projects/new investments with different independent variables".[8]

Activity based board decision are mainly associated with unit size, orientation innovation and control".[4] Response of larger 500 Portuguese non-financial firms towards the use of capital investment analysis techniques".[9]

Factors Influencing Calculation of Cost of Equity Capital

Managerial expertise of higher management has influence on investor expected rate of income. Concisely higher the managerial skills level higher the income demanded by the investors".[3] subsequently, executives with multiple proficiency have little incentives to overcome risks to those of expert executives".[10] At the end, increase in executives' expertise are directly proportional to expected income, this is the main phenomena that organization faces in merger and acquisition".[11]

The cross-sectional examination is specifically enlightening. Sizable organizations are more favorable to use capital asset pricing model rather than small organization (rating of 3.27 versus 2.49, respectively)".[12]

Organization with limited resources are more willing to use a cost of equity capital, which is decided by "what investors identify to us that they need executives with MBA's are commonly practice only one factor capital asset pricing model or the CAMP with additional risk factor than that of non MBA executives, but the distinction is only important for the one factor capital asset pricing model CAPM".[13]

H_1: The public firms are significantly more likely to calculate cost of equity capital through CAPM than the private firms.

H_2: Long term debt ratio has higher correlation with calculation of cost of equity capital through CAPM.

H_3: There is significant relationship of CEO education, age and tenure with calculation of cost of equity capital through CAPM.

Research Method

Under the Positivist philosophical approach, this study has adopted quantitative survey method of research. The categories of various variables involved in the study are well defined by the theories of capital budgeting decisions. The previous research studies, mostly conducted in developed countries, also informed us about the factors that can affect the process of selection of these methods.

Therefore, the data collected through this survey is in numerical form having fixed categories. Research methods refer to the techniques the researchers use in performing research operations.

Research methods involve interview surveys, case studies, experiments and observation. Research methods are mostly used to collect information so that the researcher can come across answers to the research problem.

In a survey research, the researcher focused on one group of people or items for collecting and analyzing data to be considered as representative of the entire Population. One advantage of using a survey approach is that it facilitates the researcher to collect a large amount of data from a sizeable population in an economical way.

Population of the Study

The study was conducted to understand the theory /practice gap of capital budgeting decisions in the corporate sector of Pakistan, therefore, all the publically listed firms on Pakistan Stock Exchange (PSE) total listed firms on PSE were 576 and all the private firms

registered with the Security Exchange Commission of Pakistan (SECP) total no. of private firms registered with Pakistan security exchange commission of Pakistan was 73207. Population of the study was 73783 firms.

Sampling and Sample Size

The current study used convenient sampling method as it was not possible for the researcher to collect the data from randomly selected firms. Convenience sampling is the rational choice in research where it is not possible to recognize all the members of a population.

During this process, the ratio of public and private firms was kept in mind. In the current study, initially, questionnaire was distributed among 500. These include 200 public firms and 300 private firms. But only 175 firms returned questionnaires. Among the returned questionnaires, two were not properly filled, therefore, removed from the analysis.

The final sample remained included 173 completely filled questionnaires; 91 were from publicly listed firms on Pakistan Stock Exchange and 82 were from private firms registered with Security Exchange Commission of Pakistan.

Data Collection

In this study the data was collected from CFO's/Directors Finance/GM Finance from the selected sample. For this purpose, a closed-ended questionnaire was distributed among the CFO's/Head of Finance to collect fresh and up to date data. The questionnaire was distributed through electronic mail system and also visited personally.

Design of the Questionnaire

This study adapted the questionnaire of Graham and Harvey (2001). But for the purpose of this study, only the related questions and variables are selected from the questionnaire. The questionnaire has 8 sections and each section has small questions, total number of questions was 43. The estimated time to fill the questionnaire was 10-15 minutes.

> *"Survey evidence on the popularity of calculating cost of equity capital approaches. The percentage of CFOs who always or almost always use a particular approach. The survey is based on the responses of 173 CFOs/Directors Finance".*

Cost of Equity Capital Approaches

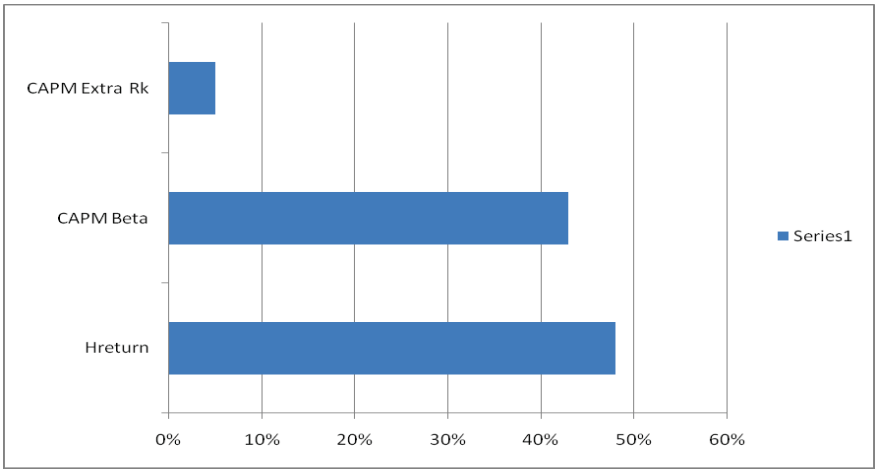

Figure 1, Percent of CFOs/Director Finance who always or almost used the CBT. "HRCS represent Historical return on common stock: CAPM Beta represents CAPM with beta approach: CAPM E R: CAPM with some extra risk factor".

Historical return on common stock approach is most popular approach 48% for calculating cost of equity capital in the corporate sector of Pakistan. CAPM with beta approach is dominenet approach 42% for calculating cost of equity capital than CAPM with some extra risk factor approach 5%.

Table 1: Determinants of HRCS using Ordinal Logistic Regression

HRCS	Never or Rarely	Occasionally	Always or Almost
Marginal %age	24%	26%	48%

		Estimate	Sig.
Dividend	Non-paying	-.702	.318
	Paying	0(a)	.
CEO Education	Non-MBA CEO	-.762	.008
	MBA/CA/ICMA CEO	0(a)	.

AGE of CEO	Young CEO	-.084	.887
	Senior CEO	.090	.822
	Most Senior CEO	0(a)	.
CEO Experience	Less than 5 years	-.228	.529
	More than 5 years	0(a)	.
Type of Firm	Private	.517	.528
	Public	0(a)	.
Total Sales	Small Firm	.167	.431
	Large Firm	0(a)	.
Total Assets	Small Firm	-1.356	.004
	Large Firm	0(a)	.

Nagelkerke $R^2 = .43$

Model Fitting Sig = .000

The Table 1 indicates the effect of Dividend, CEO characteristics, Type of Firm and Firm size on uses of cost of equity capital calculation approach of HRCS. The model for HRCS (as dependent variable) is statistically significant (p=.000). The Nagelkerke R-Square value (.43) is at high level; indicate that the independent variables explain 43% chances of calculating cost of equity capital through HRCS during new investment. It is observed that CEO education, and Assets, have significant impact on the selection of HRCS. Dividend, sales, type of firm, CEO experience and CEO age have insignificant effect on HRCS selection. CFOs/Directors Finance recommended HRCS, always or almost 48%, occasionally 26% and never or rarely 24%.

Table 2: Determinants of CAPM beta approach using Ordinal Logistic Regression

CAPM beta Marginal %age	Never or Rarely 36%	Occasionally 21%	Always or Almost 43%
		Estimate	Sig.
Dividend	Non-paying	-.702	.077
	Paying	0(a)	.
CEO Education	Non-MBA CEO	-.762	.008
	MBA/CA/ICMA CEO	0(a)	.
AGE of CEO	Young CEO	-.084	.
	Senior CEO	.090	.000
	Most Senior CEO	0(a)	.
CEO Experience	Less than 5 years	-.228	.061
	More than 5 years	0(a)	.
Type of Firm	Private	.517	.009
	Public	0(a)	.
Total Sales	Small Firm	.167	.047
	Large Firm	0(a)	.
Total Assets	Small Firm	-1.356	.000
	Large Firm	0(a)	.

Nagelkerke R^2 = .3 Model Fitting Sig = .000				

The Table 2 indicates the effect of Dividend, CEO characteristics, Type of Firm and Firm size on uses of cost of equity capital calculation approach of CAPM with beta approach. The model for CAPM with beta approach (as dependent variable) is statistically significant (p=.000). The Nagelkerke R-Square value (.34) is at moderate level; indicate that the independent variables explain 34% chances of calculating cost of equity capital through CAPM with beta approach in case of new investment or project acquisition. It is observed that CEO education, age of CEO, type of firm and Assets, have significant impact on the selection of CAPM with beta approach. Dividend and CEO experience has insignificant effect on CAPM with beta approach selection. CFOs/Directors Finance recommended CAPM with beta approach, always or almost 43%, occasionally 21% and never or rarely 36%.

Table 3: Determinants of CAPM with some extra risk factor approach using Ordinal Logistic Regression

CAPM ER Marginal %age	Never or Rarely 77%	Occasionally 18%	Always or Almost 5%	
			Estimate	Sig.
Dividend	Non-paying		1.789	.097
	Paying		0(a)	.
CEO Education	Non-MBA CEO		-.948	.013
	MBA/CA/ICMA CEO		0(a)	.
AGE of CEO	Young CEO		-19.973	.
	Senior CEO		1.232	.071
	Most Senior CEO		0(a)	.
CEO Experience	Less than 5 years		.234	.640
	More than 5 years		0(a)	.
Type of Firm	Private		-.310	.803
	Public		0(a)	.
Total Sales	Small Firm		.000	.091
	Large Firm		0(a)	.
Total Assets	Small Firm		-.451	.481
	Large Firm		0(a)	
Nagelkerke R^2 = .22 Model Fitting Sig = .000				

The table 3 indicates the effect of Dividend, CEO characteristics, Type of Firm and Firm size on uses of cost of equity capital calculation approach of CAPM with some extra risk factor approach. The model for CAPM with some extra risk factor approach (as dependent variable) is statistically significant (p=.000). The Nagelkerke R-Square value (.22) is at low level; indicate that the independent variables explain just 22%

chances of calculating cost of equity capital through CAPM with some extra risk factor approach in case of new investment or project acquisition. It is observed that CEO education has significant impact on the selection of CAPM with some extra risk factor approach. Dividend, sales, assets, type of firm, CEO age and CEO experience have insignificant effect on CAPM with some extra risk factor approach selection. CFOs/Directors Finance recommended CAPM with some extra risk factor, always or almost 5%, occasionally 18% and never or rarely 77%.

Conclusion

In case of cost of equity capital calculation Pakistani firms depends more on historical return on common stock approach as compare to CAPM with beta approach and CAPM with some extra risk factor approach. In cost of equity capital calculation approaches Pakistani firms react differently from the developed countries managers. Developed countries firm's show more interest towards the usage of CAPM with beta approach".12 Pakistan is developing country, so these models are developed for efficient/developed markets it will difficult for the Pakistani corporate managers to apply such models practically in the rising markets therefore Pakistan corporate sector depends more on traditional approaches.

Recommendations

1) In Pakistan corporate sector CFOs pay special attention in using the CAPM with beta approach as well CAPM with some Extra risk factor approach while calculating cost of equity capital. Although there is criticism on the CAPM but developing countries CFOs give preference to CAPM in the field than the other techniques. Business schools may be better in teaching the theories/models of capital budgeting techniques than cost of equity capital. Another reason is that such models and theories are developed by researchers from the developed economies while it will be difficult for using such models in emerging markets.

2) There is gap between rising markets and efficient markets so there is dire need to address the issue by a discussion forum consisting of finance experts both from developed and developing countries to develop such models that may be more suitable to apply in the rising markets.

3) Upcoming researchers may pay attention to specific sectors (Cement, textile and Oil) and also to qualitative research approach. In the future finance researchers can increase the factors (CFOs education, age of firm

and ownership structure) which may affect the uses of cost of equity capital approaches.

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