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The Effects of the Corporate Life Cycle on Cost of Equity Capital in Listed Companies in Tehran Stock Exchange

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Abstract: The aim in this study is to examine the effects of the corporate life cycle on cost of equity capital in listed companies in Tehran Stock Exchange. Today, more than every time, managers lookforward to identifying factors influencing the decision's investors. In addition, investors are looking for ways to strengthen the investment. The concept of the life cycle the company in recent years has shown that it can be considered one of the key decisions. The firm life cycle theory suggests that firms, like living organisms, pass through a series of predictable patterns of development and that the resources, capabilities, strategies, structures and functioning of the firm vary significantly with the corresponding stages of development. Researcher used of Iranian companies in the sample with 1145 firm-year during years 2009 until 2013 and classified companies according to the life cycle Dickinson.

Key words: Firm life cycle, size firm, cost of equity capital, sample, development

INTRODUCTION

In accounting studies, the life cycle theory explains the differences in value relevance between earnings and cash flows across different life cycle stages (Anthony and Ramesh, 1992; Chen *et al*., 2010). A review of the literature suggests that firm life-cycle isan important determinant of many corporate decisions (Abdullah and Mohd-Saleh, 2014). During the past three decades, the concept of the corporate life-cycle has been widely applied into a variety of disciplines including microeconomics management, accounting (Dickinson, 2011) and finance (Berger and Udell, 1998). Companies have different characteristics within thedifferent stages of the life cycle which highly affect the valuerelevance and the measures of company performance (Mashayekhi *et al*., 2014). In addition, high growth firms are receiving much attention due to their crucial importance for regional economic growth (Nylund *et al*., 2016). The firm life cycletheory suggests that firms, like living organisms, passthrough a series of predictable patterns of development and that the resources, capabilities, strategies, structures and functioning of the firm vary significantly with the corresponding stages of development (Hasan *et al*., 2015). Life-cycle stages can be defined as distinct and identifiable phases that arise from changes in internalfactors such as strategy choices, financial resources and managerial ability and/or external factors such ascompetitive environment and macro-economic factors (Dickinson, 2011).

But the fact that companies in different stages of their life cycle has different abilities. In such circumstances, investors seek the best returns for investors. The concept of cost of equity capital is of paramount importance in accounting and finance research. It is frequently used in the estimation of equity risk premiums, firm valuation and capital budgeting and investment management practices (Camara *et al*., 2009). Documented that mature and profitable firms are more likely to pay dividends while young firms with higher growth options are less likely to do so. These archival studies suggest that the firm life cycle has important implications for corporate financing decisions, especially in the area of the cost of equity capital (Hasan *et al*., 2015).

MATERIALS AND METHODS

Based on the above study we consider the following hypotheses:

- H_1: in comparison between mature with shakeout stage, the cost of equity is lower at maturity stage
- H_2: in comparison between introduction stages with shakeout stage, the cost of equity is higher at introduction stage

In this study, the dependent variable is the Corporate Life Cycle (CLC). We used the model Dickinson (2011) for measure the corporate life cycle. Dickinson deployed data

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Table 1: Life cycle stages

Stages	Classification
Introduction	CFO<0, CFI<0, CFF>0
Growth	CFO>0, CFI<0, CFF>0
Mature	CFO>0, CFI<0, CFF<0
Decline	CFO<0, CFI>0, CFF = or = 0
Shake-out	Other cases

from the firm's cash flow statement. She argued that cash flow captures differences in a firm's profitability, growth and risk and hence that one may use the Cash Flow from Operating (CFO), Investing (CFI) and Financing (CFF) to group firms in life cycle stages such as 'introduction', 'growth', 'mature', 'shake-out' and 'decline'. The methodology is introduction, if CFO<0, CFI<0 and CFF>0; growth, if CFO>0, CFI<0 and CFF>0; mature, if CFO>0, CFI<0 and CFF<0; decline, if CFO<0, CFI>0 and CFF = or = 0 and the remaining firm years are classified under the shake-out stage (Hasan *et al*., 2015). Table 1 shows this classification.

Researcher use Easton (2004) and Ohlson and Juettner-Nauroth (2005) models: Easton used for measuring equity ratio of PEG and MPEG. Accordingly, PEG, MPEG and OJ calculated as Eq. 1-3.

$$r_{PEG} = \sqrt{\frac{(EPS_2 - EPS_1)}{p_0}} \quad (1)$$

$$r_{MPEG} = \sqrt{\frac{(EPS_2 + rdps_1 - EPS_1)}{P_0}} \quad (2)$$

$$r = \frac{\gamma - 1}{2} + \sqrt{\left(\frac{\gamma - 1}{2}\right)^2 + \frac{EPS_1}{p_0} \times (g_2 - (\gamma - 1))} \quad (3)$$

In this study, six factors (SIZE, BM, LEV, LOSS, ZSCORE and YEAR) were used as a control variable. We use the natural log of total assets to measure the firm Size (SIZE). We use the Booktomarket ratio (BM) as growth proxy. We measure financial leverage as (short-term debt+ long-term debt)/shareholders' equity. Firm loss (LOSS) is a dummy variable for measuring firm loss. So, if the net income before abnormal is negative in the previous years and 0 otherwise. Finally, (ZSCORE) Z-score is Altman's Z-score and calculated risk of bankruptcy. This study includes all companies listed to Tehran (Iran) Stock Exchange between 2009 and 2013. In this research to Management Company website and the Tehran Stock collect data of Tehran Securities Exchange Technology Exchange website. However, study sample shall be made with respect to following limitations (Table 2 shows these limitations). In this research, we use for the forecast of the Dickinson (2011) model. The method of measuring the variables of this model includes:

Table 2: Limitations and sample selection

Sample selection	No.
The total number of listed companies in Tehran Stock Exchange at the end of 2013 (firm-year)	1810
Limitations	
Listed companies after 2009 (firm-year)	155
Deleted companies for 2009-2013 (firm-year)	215
Investment and holding companies (firm-year)	225
Companies that were not fully disclosed (firm-year)	70
Final sample	1145

$$R_{i,t} = \alpha_0 + \sum_{i=t}^{4} \beta_i CLC\_DUM_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 BM_{i,t} + \beta_7 LOSS_{i,t-1} + \beta_8 LEV_{i,t} + \beta_9 ZSCORE_{i,t} + \varepsilon_{i,t} \quad (4)$$

Where:

$CLC\text{-}DUM_{i,t}$ = Life cycle-based view of firm i in the year t

$SIZE_{I,t}$ = Size firm i in the year t

$BM_{i,t}$ = Ratio of book value of equity to market value of equity firm i in the year t

$LOSS_{i,t}$ = Loss firm i in the year t-1

$LEV_{i,t}$ = Ratio of debt to total assets of firm i in the year t

$ZSCORE_{i,t}$ = Bankruptcy probability prediction of firm i in the year t

$\varepsilon_{i,t}$ = Error regression model

RESULTS AND DISCUSSION

In this study mentioned the effects of the corporate life cycle on cost of equity capital in listed companies in Tehran Stock Exchange during the years 2009-2013. We categorized the firm-year existed in the study sample based on Dickinsoncash flow's proxy (2011) separately, into five stages of introduction, growth, mature, shake-out and decline. The results showed that the firms in their different stages of life cycles are tended to follow different policies on cost of equity capital considering their financial conditions and motivations. In comparison between mature stages with shakeout stage, the cost of equityis lower at maturity stage and in comparison between introduction stages with shakeout stage, the cost of equity is higher at introduction stage. One of the important limitations in this study was cash flow effects fixed for classification companies. In other words, it can be considered progressivity stages of the life cycle cash flow for the classification of companies.

Table 3 shows the descriptive statistics data. Of 1145 firm-year in order 101, 435, 392, 175 and 42 companies are

Table 3: Descriptive statistics

	Total		Introduction		Growth		Mature		Shake-out		Decline	
Variables	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
PEG	0.55	0.18	0.08	0.20	0.54	0.16	0.54	0.18	0.56	0.21	0.50	0.19
MPEG	0.30	0.27	0.35	0.23	0.28	0.36	0.27	0.17	0.37	0.22	0.34	0.16
OJ	0.20	0.40	0.28	0.37	0.14	0.35	0.17	0.37	0.30	0.45	0.49	0.74
SIZE	27.50	1.51	27.50	1.55	27.50	1.44	27.40	1.49	27.40	1.68	27.70	1.68
BM	0.40	0.37	0.43	0.34	0.36	0.32	0.40	0.42	0.46	0.39	0.47	0.31
LOSS	0.09	0.29	0.05	0.23	0.09	0.29	0.08	0.27	0.13	0.34	0.16	0.37
LEV	0.61	0.23	0.70	0.18	0.60	0.18	0.61	0.25	0.60	0.26	0.61	0.33
ZSCORE	12.70	62.40	10.70	39.40	16.10	78.80	12.20	61.70	8.74	23.5	4.22	8.04
N	1145.00	-	103.00	-	435.00	-	392.00	-	175.00	-	40.00	-

Table 4: Chow-test

H_0	Model	F-statistic	Prob.	Results
Pooled data	PEG	46.76450	0.000	Rejected
Pooled data	MPEG	97.49110	0.000	Rejected
Pooled data	OJ	23.12586	0.000	Rejected

Table 5: Husmuns-test

H_0	Model	F-statistic	Prob.	Results
Random effects model	PEG	4.980749	0.4182	Accept
Random effects model	MPEG	0.842295	0.9743	Accept
Random effects model	OJ	5.647572	0.3420	Accept

Table 6: Results of mature stage

	OJ			MPEG			PEG		
Variables	Coefficient	t-values	Prob.	Coefficient	t-values	Prob.	Coefficient	t-values	Prob.
C	0.092799	0.327262	0.0272	0.206528	0.654636	0.0353	0.234089	0.521952	0.0467
MATURE	-0.048811	-1.633187	0.0103	-0.069218	-1.222351	0.0228	-0.049185	-1.630636	0.0150
SIZE	0.328094	0.517439	0.0145	0.348590	0.835880	0.0543	0.010191	0.782469	0.0321
BM	0.015877	3.822653	0.0000	0.000890	0.024904	0.0001	0.174227	3.824898	0.0007
LOSS	-0.115734	-2.257158	0.0240	-0.045781	-0.009053	0.0107	-0.114724	-2.250760	0.0240
LEV	0.356252	5.137259	0.0000	0.156061	1.276247	0.0001	0.035162	5.135581	0.0000
ZSCORE	7.834510	0.281990	0.0574	1.847403	0.041791	0.0567	0.789105	0.283261	0.0570
R^2		0.642000			0.672			0.738	
F-statistic		25.124000			24.40			28.07	
p-value		0.000000			0.000			0.000	
Durbin-Watson Stat.		1.677000			2.17			1.62	

at introduction, growth, mature, shake-out and decline stage. In the previous studies made in Iran and mainly "Anthony and Ramesh Model" classification of firm-years to the life cycle, different stage was used. In this study, the model introduced by Dickinson (2011) is used. As well as we used the following models the best performance will be investigated.

Researcher use in Table 3 mean and standard deviation. Because the average is the most important central indicator that shows the balance and center of gravity data distribution and the standard deviation shows each variable is how much dispersion. Results demonstrated that the major companies in the Tehran Stock Exchange are in the growth stage (37.99%) and very few (3.67%) are on the decline. Chow test applied to panel data set or combination. The results show that the probability in the research model is smaller than 5%. Thus, H_0 is rejected. In other words, the effects are individual or group and must be used panel data methods for estimating models. Hausman test will determine use of the fixed effects model or random effect, according to the probability of >5%. So, the hypothesis H_1 (fixed effects model) is rejected. Thus, appropriate method for estimating parameters and testing isthe hypotheses random effects model (Table 4 and 5).

It results in Table 6 shows, the maturity stage and the loss have significant negative correlation with the cost of equity. Furthermore, Size, BM, Leverage and Altman z have positive and significant relationship with the dependent variable. R^2 represents the explanatory power of the model. This coefficient shows how many percent of the dependent variable explained by the independent variable. F-statistics show the significance of the regression model used. In addition, the $p<0.05$. So, the null hypothesis is rejected, since hypotheses by comparing two steps. The results mature by stage show the recognition coefficient in shakeout stage is attributed to the higher maturity. Finally, percent variable

Table 7: Results of shake-out stage

	OJ			MPEG			PEG		
Variables	Coefficient	t-values	Prob.	Coefficient	t-values	Prob.	Coefficient	t-values	Prob.
C	0.055529	0.249208	0.0082	0.181519	0.356835	0.0213	0.559537	3.370391	0.0008
Shake-out	0.086390	2.631479	0.0086	0.030742	0.409967	0.0519	0.000863	0.321295	0.0480
SIZE	0.000188	0.091400	0.0369	0.000708	0.426833	0.0196	0.080105	0.013332	0.0894
BM	0.020930	6.282817	0.0000	0.000912	0.077684	0.0381	0.016981	0.683683	0.0493
LOSS	-0.019272	4.610559	0.0000	-0.038689	-0.416031	0.0000	-0.165933	-5.467356	0.0000
LEV	0.384957	7.059223	0.0000	0.161915	1.322355	0.0163	0.387303	9.692093	0.0000
ZSCORE	5.96E-05	0.302409	0.0574	3.21E-05	0.073010	0.0498	4.62E-05	0.322063	0.0574
R^2		0.642000			0.672			0.738	
F-statistic		25.124000			24.40			28.07	
p-value		0.000			0.000			0.000	
Durbin-Watson stat		1.677			2.17			1.62	

Table 8: Results of introduction stage

	OJ			MPEG			PEG		
Variables	Coefficient	t-values	Prob.	Coefficient	F-values	Prob.	Coefficient	F-values	Prob.
C	0.090185	0.404322	0.0061	0.191424	0.376690	0.0065	0.661361	2.221654	0.0266
Introduction	0.047059	0.144960	0.0255	0.000716	0.060332	0.0019	0.073662	2.544870	0.0110
SIZE	0.000442	1.007716	0.0318	0.000584	0.436598	0.0205	0.010254	1.203107	0.0236
BM	0.217155	6.528719	0.0000	0.000808	0.050153	0.0000	0.146088	4.119252	0.0003
LOSS	0.199906	4.782404	0.0000	-0.037023	-0.398281	0.6905	-0.066178	-2.249657	0.0250
LEV	0.370747	6.728108	0.0000	1.160603	1.301587	0.0003	0.288541	4.391971	0.0000
ZSCORE	4.51E-05	0.228283	0.0581	2.65E-05	0.060304	0.0551	4.66E-05	0.192631	0.0584
R^2		0.658			0.681			0.746	
F-statistic		67.01			0.373			26.99	
p-value		0.000			0.895			0.000	
Durbin-Watson stat		2.28			2.52			1.603	

independent provider is the more mature stage. Test results show that introduction stage is contrary maturity. In addition, like other stages, LOSS has a significant negative relationship with cost of equity. The coefficient of determination shows the explanatory power of the model in introduction stage is further of shakeout stage (Table 7 and 8).

CONCLUSION

The findings show there is a significant relationship between the stages of the life cycle of companiesand cost of equity.

REFERENCES

Abdullah, A.A. and N. Mohd-Saleh, 2014. Impact of firms' life-cycle on conservatism: The Malaysian evidence. Procedia-Social Behav. Sci., 145: 18-28.

Anthony, J.H. and K. Ramesh, 1992. Association between accounting performance measures and stock prices. J. Accounting Econ., 15: 203-227.

Berger, A.N. and G.F. Udell, 1998. The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. J. Bank. Finance, 22: 613-673.

Camara, A., S.L. Chung and Y.H. Wang, 2009. Option implied cost of equity and its properties. J. Futures Markets, 29: 599-629.

Chen, X., W. Yang and D. Huang, 2010. Corporate life cycle and the accrual model: An empirical study based on Chinese listed companies. Front. Bus. Res. China, 4: 580-607.

Dickinson, V., 2011. Cash flow patterns as a proxy for firm life cycle. Account. Rev., 86: 1969-1994.

Easton, P.D., 2004. PE ratios PEG ratios and estimating the implied expected rate of return on equity capital. Accounting Rev., 79: 73-95.

Hasan, M.M., M. Hossain, A. Cheung and A. Habib, 2015. Corporate life cycle and cost of equity capital. J. Contemp. Account. Econ., 11: 46-60.

Mashayekhi, B., O. Faraji and A. Tahriri, 2014. Accounting disclosure, value relevance and firm life cycle: Evidence from Iran. Int. J. Econ. Behav. Organ., 1: 69-77.

Nylund, P.A., X. Hernandez and N.A. Serrat, 2016. Hight-growth firms in low-growth regions: Internationalization as a predictor of growth. Int. Bus. Manage., 10: 320-323.

Ohlson, J.A. and B.E. Juettner-Nauroth, 2005. Expected EPS and EPS growth as determinantsof value. Rev. Account. Stud., 10: 349-365.