

Evolution of Cost of Capital: An Appraisal

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INTRODUCTION

Capital is considered as the life blood of business. The employment of the capital in production, its generation into cost and its subsequent recovery through recovery of cost involve a delay and there is a time lag in the process. Therefore, the owner of capital is paid a price known as 'cost of capital' as compensation of such deprivation of funds for the said period of time. The overall cost of capital consists of cost incurred for different sources from which capital is raised by the firm. Here we focus on the evolution of available theories and models of cost of capital and evaluate those. For this purpose, in this paper, we have discussed 'Capital Structure' of a company in the light of capital, sources available for financing capital and basic factors which are considered for selecting the appropriate sources to finance capital. Then we will start source wise evaluation of the theories and models available for finding out the cost of capital in chronological order of their evolution and transformation. We conclude this paper with overall critical comments on the available models and theories of cost of capital.

CAPITAL STRUCTURE

Capital structure is known to be the composition of the entire capital with respect to different sources from where funds for capital are procured. Normally, a company funds its capital from various sources like taking loans and borrowings from financial institutions, issue bonds, debentures, equities, etc. to common people, making arrangements for self generated funds like reserve and surplus, etc.. All these sources of funds can broadly be classified into three categories depending on the nature of the sources. Those sources which are within the company and are created by way of operation of the company are grouped under the category 'Internal Source'. This source is generated by the company and it lies with the company itself and is used by the company as and when required. It is the ready stock of source of fund at the disposal of the company. Hence, for using such a source, a company needs to pay no extra cost or faces no extra hazard. As it is a ready source, the company uses it at the time of requirement and if and only if such fund is not sufficient for the requirement, the company has to look for other external sources and at that time only, comes the question of choice of a preferable source to finance capital. Hence for discussing the preferable source to finance capital, we ignore the category 'Internal Source'. As it always has the first priority, for the purpose of finding out the most suitable source to finance capital, actually, the company has to make a choice between the two categories, namely 'Debt' and 'Equity'. It makes the decision after considering *The cost of finance, The current capital gearing of the business, Security available, Business risk, Operating gearing, Dilution of earnings per share (EPS), Voting control and The current state of equity markets (S.Jay, 08 Sep 2003)*. But it is not possible to recommend an ideal source of finance for any project. What is important is to appreciate the advantages and disadvantages of different financing methods and providing reasoned advice to businesses. For this reason, it is essential to make detailed study of the cost involved for maintaining capital procured from different sources.

COST OF DEBT

The cost of debt capital is what the firm must pay to the purchasers of its 'debt' (e.g., debentures, loans, bonds, etc.). It would also represent the cost of raising additional 'debt' finance. A company with no debt capital can make the calculations using the information of another company which is judged to be similar as regards to risk (<http://cbdd.wsu.edu>). In this context, debt financing is favoured for it has a cheaper direct cost than equity, it is less risky to the investor than equity and interest payments are allowable against corporate taxation, whereas dividends are not. (*S.Maugham, 01 Apr 2000*)

Like securitized debts, bank borrowings do not have a market price with which payment of interest can be related in order to calculate their cost. Thus, to approximate the cost of bank borrowings, the interest rate paid on the loan should be taken, making the appropriate calculation to allow for the tax deductibility of the interest payments (<http://cbdd.wsu.edu>).

Campbell R. Harvey, Karl V. Lins and Andrew H. Roper. (*October 2004*) made a mindful analysis of the potential endogeneity between debt, ownership structure, value, and differences in the debt capacity of a firm's assets in

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place and future growth opportunities with traditional financial statement data and new data on global debt contracts. Their study indicates that: “.....the incremental benefit of debt is concentrated in firms with high expected managerial agency costs that are also most likely to have over investment problems resulting from high levels of assets in place or limited future growth opportunities. Subsequent internationally syndicated term loans are particularly effective at creating value for these firms.

In the real world, companies do not, generally raise their debt-to-equity ratios to very high levels. This suggests that in spite of lower costs of debt and tax relief on debt, there are **cost factors which are not considered in conventional cost of debt**. One such factor is financial distress risk. That is, if the firm hits a rough patch in its business activities, it may have trouble paying its bondholders, bankers and other creditors their entitlement. Other one, and perhaps the most vital one, is that the cost of debt does not consider the cash outflow for principal repayment of debt, either in part or full, as an element of cost (<http://cbdd.wsu.edu>). The basic additional factors which have a bearing on the gearing level are: agency costs; borrowing capacity; managerial preference; pecking order; financial slack; control; and industry group gearing.

Stewart Maugham (01 Apr 2000) criticized the conventional ‘cost of debt’ concept by putting up two specific disadvantages of debt financing. According to him:

..... any borrowing at all will cause the cost of equity capital to rise, off-setting the cheap direct cost of debt. The second disadvantage of borrowing is that if the company borrows too much, it increases its *bankruptcy risks*. At reasonable levels of gearing, this effect will be imperceptible, but it becomes significant for highly geared companies and results in a range of risks and costs which have the effect of increasing the company’s cost of capital.

Another major area (in my view) is left out from estimation of cost of debt, making it an incomplete estimation, is the risk factor. The conventional ‘Pure Expectations Theory’ regarding returns to the investors assumes that the investors will act only on the basis of the expected returns on the bonds of different maturities ignoring the risk factor for which the actual return may deviate from the expected one. ‘Liquidity Premium Theory’ regarding returns to the investors overcomes these limitations and provides for risk factor by charging higher rates than the expected future rates, if the maturity of the instrument increases (*The ICFAI University 2002*).

Here, the clearly stressed point is for risk factor in connection with debt, the investors charge higher price which is undoubtedly to be paid by the borrower i.e. the company. This hike in price may be considered as risk premium which ultimately increases the outflow of funds of the company for maintaining debt (or increases the cost of debt) for the underlying risk factors namely, ‘Default Risk’ and ‘Interest Rate Risk’ (*The ICFAI University 2002*). Considering all these disadvantages, it can be stressed upon that the conventionally estimated cost of debt is sure to deviate to the higher side from the actual one leaving a big question mark against each of the ‘hypothesis’, ‘decision’ and ‘conclusion’ put up by the proponents of debt financing.

COST OF EQUITY

Equity shareholders, unlike debt holders, do not demand an explicit return on their capital. However, equity shareholders do face an implicit opportunity cost for investing in a specific company, because they could invest in an alternative company with a similar risk profile. Thus, we infer the opportunity cost of equity capital which the shareholders suffer. By holding shares in one company, they are giving up the use of that money elsewhere. The firm, therefore, needs to produce a rate of return for those shareholders, which is at least equal to the return they could obtain by investing in other shares of a similar risk class. For shareholders, it is the dividend they expect to receive plus a capital gain on the value of their shares. It is the minimum return which an investor requires. Failure to pay such required return will result in the providers of finance transferring their holdings to other opportunities with a better rate of return and the firm will find raising equity capital by issue of shares difficult (<http://cbdd.wsu.edu>).

At present, we find that there are several methods for calculating cost of equity. From the inception of the idea of calculating cost of equity, the method of finding out the cost has undergone different distinct changes. New methods evolved and they replaced the formers. Starting from the fundamental work in this area by F.Modigliani and M.Miller in 1958, the evolution process of the methods to calculate cost of equity is still continuing. The entire evolution process has three distinct phases. ‘Phase 1’ started with the pioneering work of F.Modigliani and M.Miller in 1958 and continued till late 1970’s. In this stage, the simple cost of capital model (*F.Modigliani & M.Miller, 1958*) laid the foundation. Then it is refined by ‘dividend policy’, ‘growth’ and ‘value of shares’ (*F.Modigliani & M.Miller, 1961*) and corrected for ‘tax factor’ (*F.Modigliani & M.Miller, 1963*) and upgraded by introduction of the ideas of ‘Overall Cost of Capital (OCC)’. Refinement of the OCC gave us the concept of

'Weighted Average Cost of Capital (WACC)' and 'Phase 1' finally experienced different models for finding out cost of equity capital like 'earnings growth model', 'dividend growth model', etc. The 'Phase 2' started from late 1970's with the publications of Michael C. Jensen and William H. Meckling in 1976 and Stewart C. Mayers in 1977. The distinctive feature that marked the beginning of the 'Phase 2' was the identification and inclusion of the risk factor in cost of equity. The risk factor was incorporated in cost of equity through introduction of 'Capital Asset Pricing Method (CAPM)' and then it experienced up gradation with identification of risk coefficient ' β ', use of 'time series' and 'regression' techniques in measurement of risk, and finally introduction of "'q" theory' for risk measurement. The 'Phase 3' started from the early 1990's. Identification of "Long Run Performance" of a company marked the beginning of this stage where direct use of "market efficiency" was dropped (J.R.Ritter, 1991). This stage is characterized by NPV, EVA, etc. and risk factor is indirectly included through the discounting factor used to discount the future flow of income in order to find its present value. (J.R.Ritter, 2003)

In order to carry out our discussion in chronological order we will start with 'Phase 1'.

PHASE 1

The 'Phase 1' started with the foundational work by F.Modigliani and M.Miller (1958). There, Modigliani and Miller set out to show what ought to happen to the cost of capital when a company increases or decreases borrowing. The approach for normative theories of this type is to state a set of assumptions and then to deduce the logical conclusions. The effect of relaxing some of the assumptions can then be examined.

The Modigliani-Miller (MM) Theory developed a defense of the net operating income approach to WACC to the effect of gearing on the cost of capital. Their view was that investors would use arbitrage to keep the WACC constant when changes in the company gearing occur.

In order to demonstrate a workable theory, MM's 1958 paper made a number of simplifying assumptions which are common in the theory of finance: they assume that the capital market is perfect; there are therefore no transaction costs and the borrowing rate is the same as the lending rate and equal to the so-called risk free rate of borrowing; taxation is ignored and risk is measured entirely by volatility of cash flows and the capital market is perfect. Given the assumptions, they concluded that the value of a firm remains constant regardless of the debt level. As the proportion of debt is increased, the cost of equity will rise just enough to leave the WACC constant. If the WACC is constant, then the only factor which can influence the value of the firm is its cash flow generated from operations. Capital structure is irrelevant. MM argued that all companies with the same business risk and the same expected annual earnings should have the same total value because the '*value of a company should depend on the present value of its operations, not on the way it is financed*' (F.Modigliani & M.Miller 1958). Thus, according to MM, firms can only increase the wealth of shareholders by making good investment decisions. If there were no tax advantages for issuing debt, and equity could be freely issued, Miller and Modigliani showed that the cost of debt and the cost of equity should be the same.

This theory is highly objected for the unrealistic 'perfect capital market', 'no tax' and 'no risk' assumptions. (S.Maughan, 01 Apr 2000). The real world is somewhat different from that created for the purposes of MM's original 1958 model. One of the most significant differences is that individuals and companies do have to pay taxes. MM identified 'dividend policy', 'growth' and 'valuation of shares' in 1961 and corrected 'no tax' assumption in their 1963 version of the model – these changed the analysis dramatically. Most tax regimes permit companies to offset the interest paid on debt against taxable profit. The effect of this is a tax saving which reduces the cost of debt capital. From this situation, the concept of 'Overall Cost of Capital (OCC)' initiated which is then refined and modified to give us the concept of 'Weighted Average Cost of Capital (WACC)'.

The introduction of taxation in the previous no-tax analysis brought the advantage of gearing-up as an additional advantage to using debt capital: it reduces the tax bill. Now value rises as debt is added to the capital structure because of the tax benefits. The WACC declines for each unit increase in debt so long as the firm has taxable profits. This argument can be taken to its logical extreme, such that WACC is at its lowest and corporate value at its highest when the capital of the company is almost entirely made up of debt.

Though the basic restrictive and objectionable assumptions of the foundational work had been rectified and corrected in the concept of 'WACC', still it can be criticized for not considering 'principal redemption' of debt, risk related to debt and considering cost for retained earnings in a hypothetical manner.

Management will always seek to raise capital by the cheapest and most efficient methods, hence minimizing its cost of capital. This will have the effect of increasing the net present value of the company's projects and ultimately will have an upward thrust on its market value. From this value maximization concept, the growth

models for finding out cost of capital gained acceptance where the future earnings, dividend pay outs, etc. of the company are discounted to its present value. For this purpose of discounting, interest rates prevailing in the market proving themselves irrelevant, WACC of the company is considered the required rate for discounting. For using the WACC as a discounting rate all its demerits are inherited by the different growth models along with certain other restrictions which, if not followed, makes the use of WACC as discounting rate, irrelevant. Those restrictions are as follows-

1. The project should be small relative to the overall size of the company.
2. The weighted average cost of capital should reflect the company's long-term future capital structure and capital costs.
3. The project should have the same degree of business risk as the company has now.
4. New investments must be financed by new sources of funds, retained earnings, share issue, new loans and so on.

Application of the WACC as discounting rate to project evaluation reflects the marginal cost of new capital. But when the new project has a different business risk, the WACC cannot be used (<http://cbdd.wsu.edu>).

At this stage, the risk factor in calculation of cost of capital was identified with respect to use of certain ratios. David Otley (2002) stated:

.....finally, it is desirable to consider the raising of capital, as well as its uses, a further set of ratios based on financial structure can be calculated. For example, the ratio of debt to equity capital (gearing or leverage) is an indication of risk associated with the company's equity earnings (because debt interest is deducted from profit before profit distributable to shareholders is obtained). It is often stated that fixed assets should be funded from capital raised on a long term basis, whilst working capital should fund only short term needs. Again, this may seem to be a logical and prudent rule of thumb, but it is necessary to be aware that some very successful companies flout this rule to a very considerable extent.....Thus, the values of these ratios indicate the potential riskiness of such an arrangement, but this does not necessarily preclude such a financial strategy being adopted. Further development of the method of calculating cost of equity took place with the measurement and incorporation of the risk factor which marks the beginning of 'Phase 2' in this evolution process.

PHASE 2

'Phase 2', which was the distinct phase that measured and incorporated risk factor to cost of equity, the basic idea ruled over was the measurement of risk factor in terms of 'standard deviation' and 'variance' of the returns of the respective capital.

Such measure of risk factor of a share was first ever introduced by the approach called the 'Capital Asset Pricing Model (CAPM)'. It is a model based on the proposition that the return on any shares equals to the risk-free rate of return plus a risk premium on risk which cannot be diversified. This model says that equity shareholders demand a minimum rate of return equal to the return from a risk-free investment plus a return for bearing extra risk. This extra risk is often called the "equity risk premium", and is equivalent to the risk premium of the market as a whole *times* a multiplier-called "beta (β)"-that measures how risky a specific security is relative to the total market. Thus, the cost of equity capital gets the shape of the summation of Risk-Free Rate and Beta times Market Risk Premium (<http://cbdd.wsu.edu>).

The use of variance for measuring risk, however, stands irrelevant, for normally, the shares and securities are held not in isolation but in portfolio. And for measuring risk factor of a share held in portfolio, variability in the profits of the firm with respect to factor specific reasons of the industry and also that of the firm belonging to that particular industry is important. (*The ICFAI University 2002*).

The riskiness of a security held in isolation and that held in a portfolio are never the same. The first reference to, is perhaps owing to, the early works of William Sharpe in 1963 (*W.Sharpe, 1963*). For a well diversified portfolio, diversifiable risk gets eliminated. Only what matters is the non-diversifiable risk which is measured by ' β '. Thus, the β emerged as a vital-role-player in the field of cost of capital.

In spite of the immense importance conferred upon the β concept, it is objected for expected value of β to be estimated from explicit probability distribution. For estimating

- Daily returns to be considered for accuracy of the β estimate.
- To get good estimate of β using daily returns of at least 18 – 24 months is required.
- Exceptional and non-recurring price movements to be eliminated for good result. (*The ICFAI University, 2002*)

Fulfilling these conditions might be theoretically possible but always there will be a question that whether it is practicable or not, specifically with respect to the increasing trend of number of transactions in the stock exchange. Another question mark can be set against the self contradictory criterion that 'exceptional and non-recurring

movements to be eliminated' because the business world is full of risk and occurrence of exceptional movements in another form is not impossible and impractical.

Thus, further development of the method of measurement of cost of capital was necessitated. For the purpose of changing the paradigm, conventionalists started to work on modification of the use of β concept with inclusion of several statistical techniques. A step towards this direction was the use of 'regression' and 'time-series' techniques as we find in 'the Fama-French Three Factor Model' (E.F.Fama & K.R.French, December 1999). The Fama-French Three Factor Model is one of the most interesting multiple linear regression models. It is estimated by running a time series multiple regression for each stock in an investment universe. The dependent variable is the stocks' monthly excess stock returns over 'Treasury bill' returns and the independent variables are as follows:

- The monthly excess return on the market over Treasury bills.
- The difference between the monthly return on small-cap stocks and large-cap stocks.
- The difference between monthly returns on high book-to-market stocks and low book-to-market stocks.

Several researchers have identified that the traditional estimation of a project's cost of capital often requires leverage adjustments to beta. They empirically investigated the relationship between the debt/equity ratio (D/E) and beta implied by such leverage adjustments. A step in this direction is the use of 'Security Market Lines'. This simply represents the average or normal trade-off between risk and return for a group of securities – where risk is measured typically, in terms of securities betas, but the important aspect is that here the risk measure does not have to be limited to beta. For example, Kidder, Peabody & Co. constructs a 'security market line' using 'fundamental risk estimate' as its measure of risk. The fundamental risk estimate is a composite risk measure based on securities betas and other more traditional risk measures such as financial leverage (The ICFAI University, 2002). Another study in this direction was carried out by R. W. Faff, R. D. Brooks and Ho Yew Kee (May 2002). They tried to extend the relationship between the debt/equity ratio (D/E) and beta implied by such leverage adjustments by investigating the relationship between financial leverage and beta using a time-series approach. While, working with β , Nancy L. Beneda (2003) found out that *debt may allow a company to lower its cost of capital and accept more investments* and he established it by *estimating cost of capital using bottom-up betas*. While making critical comments on the available models and theories of 'cost of capital' regarding estimation of risk factor, market efficiency and firm-value, James Tobin suggested the "q" theory. The theory is developed in order to bridge the loopholes of the existing models and theories by reducing their restrictive assumptions. James Tobin and William C. Brainard (1977) put up the basis of the development of the "q" theory as:

..... the valuation of a firm's physical assets and their returns cannot be divorced from its financial structure. These include corporate income taxation, which is not neutral as between debt interest and dividends; the implications of leverage for probability of bankruptcy and loss of control;

The "q" theory is also not free from drawbacks as Melih Madanoglu and Michael D. Olsen criticized it for not considering the contributions of the intangibles towards the firm value (M.Madanoglu & M.D.Olsen, 22, December 2004).

Besides modifying β and reducing underlying restrictive assumptions, some researchers tried to find out alternate theories of cost of capital. We find the voice of Mike Dimpsey arguing that:

.... although a 'paradigm shift' may occur as *the refutation* of a prevailing paradigm, it is at least as likely to occur as the recognition that patterns of understanding can be structured *more readily* around an alternative set of keynote assumptions, a view that we support with examples of paradigm shifts as they have occurred in the physical sciences. In the context of these considerations.....(we assessed)..... the "cost of capital" paradigm of corporate financial theory, its contribution to development and understanding, as well as the case for dissatisfaction.....(He suggests).....for an alternative paradigm of key-note assumptions for corporate financial management, by which both theory and field-study investigations might continue to be stimulated and developed. (Dempsey M., December 1996)

The paradigm of cost of capital really got a drastic change when some researchers stressed upon 'long run performance' and dropped 'market efficiency' for the purpose of estimating 'Cost of Capital'. This brings up the third phase in the evolution process of 'Cost of Capital'.

PHASE 3

One of the main characteristics of the 'Phase 3' is dropping the concept of market efficiency and adopting the age old idea of using present value of 'long-run returns' for the purpose of finding out cost of equity. The first attention, perhaps, to the idea of finding present value was drawn years back in 1938 by John Burr Williams. For estimation of the value of stock, at that time, he proposed (J.B.Williams, 1938):

The intrinsic value of a stock is estimated by discounting the company's prospective earnings stream or the share holder's prospective dividend stream.

Later on, the principle of discounting 'long-run return' of this concept was used for building up the different growth models in 'Phase 1' and estimating cost of equity in 'Phase 3'. Principle remaining the same, re-acceptance of the old idea was considered with alterations, modifications and several adjustments of the two main key components, measure of 'long-run return' and 'discounting rate' of the idea.

In 'Phase 1', we found the use of 'expected net after tax cash flow' or 'the expected future dividends' as the 'long-run return' and usage of 'market rate of interest' or 'the WACC' as the 'discounting factor'. In 'Phase 3' it has been criticized and time to time changed or modified. A major step in this direction was taken by Magne Emhjellen and Chris M. Alaouze. They (*M.Emhjellen & C.M.Alaouze, September 2002*), working with *some North Sea oil projects*, criticized the usage of 'the expected net after tax cashflow of a project using the WACC' and proposed for separate discounting of different cashflows for calculating the 'Net Present Value (NPV)' of a firm. Then came the concept of 'Economic Value Added (EVA),' where expected future additions of economic values are taken as 'long-run return'. But it is found that it gets distorted for the effect of inflation and requires correction. (*R.S.Warr, 13 March 2005*).

Another typical aspect of the characteristics of the 'Phase 3' is *to take advantage of time varying relative costs of debt and equity caused by market inefficiencies*. This aspect came to light when some researchers tried to find out an alternate way of action to reduce cost of capital. Antonios Antoniou, Ian Garrett and Richard Priestley (*1 December, 1998*) found membership of the Exchange Rate Mechanism (ERM) helps to reduce cost of capital by reducing risk premium. Geert Bekaert and Campbell R. Harvey (*April 2000*), approaching from another side with the help of 'time-series' model found that market liberalization helps to reduce cost of capital.

While working on the effect of *International Diversification*, Manohar Singh and Ali Nejadmalayeri examined *the relationship between international diversification, financial structure, and their individual and interactive implications for the combined debt and equity cost of capital for a sample of French corporation* and reached the conclusion that *higher degree of international diversification reduces cost of capital* (*M.Singh and A.Nejadmalayeri, April 2004*).

Developing theories to correctly estimate 'cost of capital' and search for optimum capital structure is still continuing and, it being a dynamic subject, in the words of Jay R. Ritter and Ivo Welch (2002), *it will be the most important current research topic*. While Jay R. Ritter (*October 19, 2003*) commented "*I predict that the interaction of analyst recommendations with corporate financing activity will continue to be a major topic of research for years to come*".

CONCLUSION

With the foundational work of F.Modigliani and M.Miller (1958), the concept that started to flow was that 'Cost of Capital' was not dependant on capital structure. But with the modifications of the idea with 'dividend policy and growth' in 1961 (*Modigliani & Miller, 1961*) and with 'tax' in 1963 (*F.Modigliani & M.Miller, 1963*), debt was established as the cheaper source for procuring capital and this idea continues till now.

Ruben D. Cohen (*November 2004*) analytically intended to locate optimum capital structure for a company taking into consideration the relationship between debt, equity and taxes, and placing emphasis on the effects of default risk, as well as on the assumptions that underlie the firm's value and the weighted-average cost of capital. There he found that the conventional theory which is commonly used in practice *is flawed*.

In the present scenario, conventionally, it has been put up that using 'debt' as the source of procuring capital decreases 'Cost of Capital'. But it is found to be true up to a certain extent, as excessive debt can also increase the 'Cost of Capital' (*S.Maugham, 01 Apr 2000*).

While working with the effect of bank-firm relationship on firm-performance, David E. Weinstein and Yishay Yafeh (*April 1998*) observed the ill effect of dependency on debt financing and stated:

We examine the effects of bank-firm relationships on firm performance in Japan. When access to capital markets is limited, close bank-firm ties increase the availability of capital to borrowing firms, but do not lead to higher profitability or growth. The cost of capital of firms with close bank ties is higher than that of their peers. This indicates that most of the benefits from these relationships are appropriated by the banks. Finally, the slow growth rates of bank clients suggest that banks discourage firms from investing in risky, profitable projects. However, liberalization of financial markets reduces the banks' market power.

Besides revelation of the ill effects of debt financing through different works of different researchers, Hans Lööf

came out in support of equity financing. He (*H.Lööf, December 2004*) pointed out that equity based capital structure is more flexible to offer faster speed to the firm towards its target.

Thus, in the present situation, we observe that, regarding financing capital, suggestions offered by conventional theories go in one direction and findings of the recent studies in the other. Perplexed between such contradictory and confusing ideas, the companies are found to be using models and theories for financing capital as per their will rather than going for an optimum capital structure. John R. Graham and Campbell R. Harvey (*May 2001*) found a like result from their survey:

We surveyed 392 CFOs about the cost of capital, capital budgeting, and capital structure. Large firms rely heavily on present value techniques and the capital asset pricing model, while small firms are relatively likely to use the payback criterion. A surprising number of firms use firm risk rather than project risk in evaluating new investments. Firms are concerned about financial flexibility and credit ratings when issuing debt, and earnings per share dilution and recent stock price appreciation when issuing equity. We find some support for the pecking-order and trade-off capital structure hypotheses but there is little evidence that executives are concerned about asset substitution, asymmetric information, transactions costs, free cash flows, or personal taxes.

Their survey found some support for the pecking-order and trade-off capital structure hypotheses. As per Malcolm Baker and Jeffrey Wurgler (*2002*) and Ivo Welch (*2004*), this is only just because the pecking-order theory of capital structure gives first order importance to the inertia of capital structure financing.

COMMENTS

Standing in such a situation, the main question arises that why there is so much confusion in this field? Is it for not conceiving cost concept properly before and during the study? While I tried to answer the questions, I started right from the inception of the idea of cost of capital and the first thing I did is interpreting the term 'cost'. For this purpose I consulted dictionaries where it is found that 'cost' is something someone pays for gaining something. This makes it clear that cost of capital will stand for what companies have to pay for maintaining capital.

The next thing I did was to analyze what is done in the years' long study and found that a number of methods are introduced there to find the amount of expected return from the investment in terms of the value of those investments in the market and it is identified as cost of capital. To be more specific, in each phase of evolution of the concept of cost of equity, stress remained on estimation of prospective future earnings of the investments like future flow of dividends or earnings, and risk thereof measured by different techniques like discounting, β coefficient and other statistical forecasting techniques like time-series, regression analysis, etc. These approaches are very much similar to those used for valuation of securities and so far, what is done in the name of estimation of cost of capital is nothing but "Security Analysis" as per the definition provided by Graham B.D. Dodd and S. Cottle, way back in 1962, as:

Security analysis is the first step undertaken in the process of investment decisions. The task involves determining prospective benefits from investment in a security, the conditions subject to which they may be received, and the likelihood of such conditions.

In a sense, the task involves forecasting future conditions, the prospective benefits from holding a security given these conditions, and arriving at 'what ought to be' the price for the security, given these benefits and adjusting for the inherent time and risk. Security valuation is the end objective of security analysis in this sense.

Then I tried to find out the reason behind considering the security analysis indirectly for estimating cost of capital. There I observed that numbers of theories were introduced to find the cost of capital in terms of the market value of the investments and as the funds are supplied by the investors and shareholders, the entire amount is taken as the cost of capital and as an automatic choice, it is taken as granted, the company is to bear the cost. Here comes the all important and basic question of 'perspective'.

Analyzing all these, I find that conventionally, cost of capital is estimated from the market value of the returns from the investments and it is being derived from the point of view of the investors and shareholders. Now the most critical point comes up that whether whatever is receivable by the investors and shareholders is to be actually and exhaustibly paid by the company or not and whatever cost a company incurs to maintain that investment is entirely and exhaustibly included in the estimated cost of capital or not. If the answers of both the two questions are affirmative, the conventional methods of estimating cost of capital can be approved while negative answer of any one will put a question mark beside the conventional methods.

For finding the answers of the two questions mentioned in the previous paragraph, I intensively analyze all the conventional methods of finding out cost of capital and find the following points which individually are capable enough of putting the answers to the above mentioned questions in negation. The points are-

- Risk factor of debts like 'Default Risk' and 'Interest Rate Risk' are not measured and included in cost of debt though it should be paid by the company.
- From the receiving end, return from equity is considered as the summation of risk free return and risk premium while from the cost incurring end or from the company perspective, it is considered as the summation of dividend and capital growth. But, practically, does the summation of risk free return and risk premium equates the summation of dividend and capital growth? Moreover, this capital growth arises from the operation and functioning of the company and the company has to pay nothing to its shareholders for such growth. A shareholder can receive the value of such capital growth only from a person to whom he sells the shares owned by him and the buyer pays the price of the capital growth and purchases it. It is like a person holding a hundred rupee note getting its value in some certain terms from another person to whom he is giving that note. As this transaction costs nothing to the Reserve Bank of India, the note issuing authority, similarly, selling a share and getting the value of capital growth is completely an outside company transaction and the company, for this transaction, bears no cost or outflow of its funds.
- Conventional methods separately consider cost of equity capital and cost of 'reserve and surplus' for estimating cost of capital but actually, in practical situations a company has to incur cost only in form of dividend for maintaining equity holders fund i.e. the summation of 'equity capital' and 'reserve and surplus'.
- While finding out cost of equity through the use of conventional cost of capital theories, market value of equity shares are considered but due to heavy fluctuations in the market price, it becomes a subjective approach and a subjective approach can never give a definite result. Whereas cost of capital of a company being the cost incurred by the company should be a definite sum.

Moreover, in case of debt financing, the repayment of the principal of the debt is a very important aspect. Whenever a company borrows something, the capital increases and at the same time, it gets under legal bindings to repay it. So at the time of repaying a loan, always there exists a chance of capital reduction which is not at all desirable. Therefore, though repayment of debt is a capital expenditure to a company, it should be considered as a part of the cost of debt capital, which is not at all given due importance. However, on the other hand, the importance of this issue has been taken care of by the financial accountants by creating provisions for 'redemption reserve'.

Considering all these points, it can be said that the conventional theories of cost of capital failed to define cost precisely in its true sense and also could not ascertain the proper perspective from which it could be found out. Therefore, I strongly support the eminent scholars like J.R.Ritter, Ivo Welch, Mike Dimpse, etc having rightly predicted a paradigm shift in this field. In support of their expectation, a few years back, a study had been done (A.Mukhopadhyay, January-July, 2005) where the term 'cost' and the concept of 'perspective' were given due importance for estimating the cost of capital. There, a new model, namely 'Effective Outflow Rate (EOR)' model has been introduced for measuring cost of capital on the basis of effective outflow rate of funds. The final shape of the 'EOR model' has been put up very recently establishing its usage, utility and claiming to change the dimension of the socio-economic condition for the benefit of all (A.Mukhopadhyay, 2007). This being an entirely new approach, is subject to rigorous testing, criticism and modification. But in my view, it is likely to open up a new phase in this field that might reign as the most important research topic in near future.

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