Are Smaller Private Sector Commercial Banks in India a likely target for takeover? An exploratory Investigation

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Abstract

With the banking sector in India set for heightened competition in the wake of issuance of new banking licences from the Reserve Bank of India (RBI), it is reasonable to anticipate a renewed interest in Mergers & Acquisitions (M&A) in the Indian banking industry. While the banking sector in India has witnessed sporadic acquisition events triggered by a larger banking conglomerate taking over the smaller private counterpart; the momentum is slated to only expand as we go forward. There have been numerous studies conducted in the past relating to determining the vulnerability of organizations becoming targets in the hands of acquirers; albeit, relating to international scenarios. Significant studies include (Hasbrouck, 1985); (Palepu, 1986); (Hannan & Rhoades, 1987); (Ambrose & Megginson, 1992); and (Barber & Palmer, 1995). The absence of discernible studies relating to the Indian scenario presents a strong motivation to carry out a research on the acquisition likelihood among the smaller private sector commercial banks in India. In the present study, an attempt is made to capture the vulnerability of smaller private sector banks operating in India by resorting to their underlying valuation. While corporate valuation framework presents fewer challenges in respect of non-baking organizations, the same needs to be modified when dealing with banks. As ultimately in scenarios pertaining to M&A the scope expands from a shareholder to a stakeholder, enterprise value (EV) assumes greater significance as compared to equity value (EqV). In this paper, the robust value multiple represented by EV/EBITDA is examined, which has been controlled for its respective companion variable represented by return on capital (ROC). The same is achieved with the help of multivariate analysis. Inferences on the vulnerability of smaller private sector banks are drawn by comparing the actual value multiple with the expected value multiple. Sample & Methodology: The sample consists of small listed smaller private sector commercial banks that have predominantly a regional focus. In taking this sample, we have kept the following factors in mind: size of the bank as determined by its total asset size; tier I capital of the bank as measured by its equity; bank having a predominantly regional focus concentrating on a particular geographic area; and classification of the bank as public or private, that is, whether listed in stock exchange or not The data towards this has been retrieved from Capitaline database[1]. The data comprising of the computed value multiples have been analysed using multivariate analysis for drawing relevant inferences. Our analysis uses the following statistical tools:Multivariate analysis comprising of Regressions approach to examine the relationship between a value multiple – EV/EBITDA and its key companion variable – ROC. We seek to test the following hypotheses: there is no evidence of statistically significant relationship between the value-multiple represented by EV/EBITDA and its key companion variable represented by ROC; and there is

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[1] Capitaline is a widely respected and robust financial database in India covering over 23,000 companies with over 2,500 unique financial data items and 300 industry specific items. (http://www. capitaline.com)

no 'buying' opportunity with the banks being fairly valued as determined by their respective value-multiples.

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1. Introduction

In light of the recent policy promulgations in respect of the banking industry in India, the sector has garnered significant attention among discussions in financial media, industry, and academia. Two of the foremost challenges of the banking sector in India are:

i)   Expansion of services of banking into the rural hinterlands; and

ii) Creation of banking behemoths that could rival the biggest banking giants in China comparable on total asset size.

Arguments on these lines have been echoed in successive budget speeches presented during recent years. A bank with a venerable asset size and capitalization is far better disposed in meeting the varied needs of the banking products and services exhibited by divergent economic groups of the society. It is of course certainly desirable to have specialized banking concerns that are dedicated in offering specialized services like microfinance & micro-insurance, SME financing, and so on. Existence of such specialized banking entities would necessarily compliment the universal banking activities performed by megabank conglomerates.

The objective of creation of a few large banking entities as against operation of a cluster of medium and smaller banks could be achieved by intensifying Mergers & Acquisitions (M&A) in the banking sector. While scouting for the right target candidates, acquiring banks could be looking at the likelihood of deriving operational optimization. In this paper, we seek to identify such targets, which could build synergy on these lines.

Academic research has been inundated with studies pertaining to motives for Mergers & Acquisitions (M&A) in the banking sector. Among the prominent motives for undertaking M&A in the banking sector include economies of scale and scope, and increased market power.

Economies of Scale and Scope – The main motive behind the wave of bank mergers in 1990s is primarily due to economies of scale resulting from horizontal and vertical combination of banks specializing and rendering different but related services. If the merging firms are to benefit from each other's' knowledge of specialized functions then economies of scope can be realized. These benefits could be particularly realized when the merging firms are inefficient prior to merger (Hughes, et al., 1999).

Another study has found that improvement of management efficiency could be achieved through economies of scope, which results when critical size is achieved (Copeland, et al., 2003). This is in consonance with many academic studies that have argued that realization of operating efficiencies and cutting costs are among the primary motivations for consolidation in the Banking industry.

It was noted that the wave of bank consolidations witnessed in developed regions comprising the North America, European and Japan regions were attributable to factors such as globalization of financial services, growing financial deregulation, and technological advancements that took place in the recent past (Bae & Aldrich, 2000)

Increased Market Power – Bank acquisitions result in accessing the vast market already captured by banks being acquired with no loss of time and effort (Hughes, et al., 1999).

2. Review of significant studies on takeover prediction models

There have been several studies in the finance literature that have sought to identify the likelihood of takeover by charting out sophisticated models for the purpose. These models have then been empirically tested with mixed success. Some such prominent models are discussed below.

The model suggested by Palepu (1986) has been reckoned as an important work in the realm of predicting takeover targets. In this influential study, the takeover prediction model is based upon the abnormal returns observed for a sample comprising of 625 targets. The ability of a portfolio constructed from sample target firms to generate positive abnormal returns is construed as an indicator of takeover likelihood. With the study concluding that the abnormal returns derived from the sample are not superior to the stock market; the robustness of the model appears to be not fully insulated from deficiencies. As ultimately, abnormal returns are based on stock prices, which in turn are influenced by vagaries of confounding events, the observed conclusion does not seem to be misplaced. In a further confirmation of the inadequacy of the stock-price based approach, statistical model (albeit, more powerful) based on abnormal returns to predict takeovers did not result in a profitable investment strategy (Powell, 2001). In another study, it was found that among all the financial variables that included growth, liquidity, leverage, P/E (price-to-earnings), and MTB (market-to-book value); firm size, variable proxying for tangible assets as a fraction of total assets, and the net percentage change in institutional shareholding were the only factors found to be significantly correlated with acquisition likelihood (Ambrose & Megginson, 1992). The fact that among multiple factors, only three of them were found to be statistically significant, achieved at a reduced power of test (10% level of significance), points to the fact that the acquisition prediction model is not completely robust. Incidence of low q-ratios (market/replacement value) observed for non-financial target firms, has been explained as a predictor of acquisition

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(Hasbrouck, 1985). Given the strict insistence on market value (with its own limitations) laid by q-ratio, it would be certainly more prudent to capture acquisition likelihood by considering a broader measure capable of reflecting the entire firm value. In another study, it was found that firms with large market shares, low capital/asset ratios, and operations in urban areas were relatively likely to be acquired but not firms with low profits or low growth (Hannan & Rhoades, 1987). While the results of the study are quite revealing, it would always certainly be more prudent in seeking to understand the relationship held between disparate factors in explaining the acquisition likelihood. Similarly, Barber & Palmer (1995), while attributing q-ratios as the most important factor in explaining the acquisition likelihood, bring out price-earning ratios (P/E) and return on equity (ROE) as siginficant factors contributing to the acquistion likelihood in case of takeovers initiated by firendly acquirers.

An overview of the above studies reveals that whilst there have been several factors attributed towards explaining the acquisition likelihood, an underlying gap is left when an attempt is made towards relating the seemingly disparate factors in the earnestness towards developing a robust takeover prediction model. It is also significant to observe that almost all the studies have attempted to develop acquisition models in the context of developed economies represented by U.S. and European regions. While holding the efficacy of these models in respect of their replication in the context of developing economies, it would be certainly more prudent to look at models that firstly, seek to encapsulate all the relevant factors into a single representative variable, and secondly, that renders ready application in the context of developing and emerging markets like India.

3. Takeover prediction model – the Enterprise Value (EV) model

In view of the above discussed deficiencies of the takeover prediction models, it may be worthwhile to consider a single variable that is representative of virtually all the key financial attributes. This variable could ultimately be rendered meaningful in gauging the acquisition likelihood of the target firm. Within the ambit of corporate finance, the literature surrounding firm valuation offers several alternatives that aid in determining the intrinsic value of the firm. These alternatives are well represented in the form of two prominent multiples – equity multiples and value multiples. Equity multiples (popularly, price-to-earnings and price-to-book value) by their very nature seek to determine the intrinsic value of an equity, which is of utmost consequence to principal shareholders of a firm. While the utility of equity multiples is well appreciated in the context of investment decisions, it becomes essential to broad-base the measure when the objective is to look at the entire firm value with the focus getting expanded from shareholders to stakeholders (Damodaran, 2006). With the focus hinging upon firm value, all the stakeholders including equity and debt holders assume significance in the

decision making process. Since acquisitions revolve around the entire firm, it is only prudent and logical to look more closely at value multiples.

Valuation assumes considerable importance while chalking out M&A deals. While the context of discussion may differ, the concepts and techniques underlying valuation are the same – there being no distinction between Investments and M&A. This implies that the acquiring management is still well placed to apply the same techniques of valuation with the only difference being that the focus shifts towards Enterprise Value (EV) as against the Equity Value: the parameter popularly employed for evaluating equity investments.

3.1 Framework underlying Enterprise Value (EV)

As delineated above, it is critical to consider EV while discussing valuation from the point of M&A primarily, as the focus is not only directed towards equity holder albeit all the stakeholders (including shareholders, creditors, bond holders & so on). In the process, the focus gets sufficiently expanded.

It is interesting, however, to observe that EV[2] by itself serves very restricted purpose. Ultimately, while evaluating the takeover potential of a target firm, comparison based on EV may not serve the real purpose as EV tends to differ according to differing Operating Incomes (OI). In order to facilitate comparison, it is only meaningful to read EV with a representative parameter of operating income. Here, the choices available are EBITDA, EBIT & NOPAT. While all justifiably represent OI, given the uneven distribution of capital assets across industries and across the firms, it is useful to consider OI that is before 'depreciation', which is EBITDA, and hence this stands as the most widely adopted measure to represent OI.

Comparing EV & EBITDA gives rise to a value multiple – EV/EBITDA. Comparison of EV/EBITDA, controlled for the most important variable – ROC, (on the same footing P/E and P/BV multiples have their key companion variables as pay-out and return on equity respectively) will enable a prospective acquirer to determine the 'attractiveness' of the target in terms of purchase decision. Before proceeding with the computation of value multiples for target firms, it is essential that the alternatives offered in terms of the modelling – maturity stage or supernormal stage, are evaluated critically.

The model used in this study is primarily dependent upon the objective for which the valuation exercise is carried. A typical valuation exercise is most predominantly carried in the context of portfolio investment and acquisitions. In the former case, the choice of model is ideally dependent upon the characteristics attributed by the firm. These attributes typically range from capital structure, risk propensity, growth avenues, competitive scenario and the ability to sustain profit margins. In a very simplistic scenario, a young firm, which is

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[2] Note that Enterprise Value (EV) is distinct from Firm Value (FV) in the sense that the latter incorporates both operating and non-operating assets.

predominantly having equity contributed by venture capitalists and facing significant risk in the market, would be an ideal candidate for a supernormal growth model.

In case of an acquisition, while there is merit in adopting a supernormal growth model, it is posited here that given the fragmented status of the banking industry in India with few large public and private sector banks dominating the scene, valuation of target banks would be most suitable when looked from a mature model perspective. Employment of constant model looks justified given the vast differential in the asset sizes of large and small banks. When a smaller target is acquired up by its larger acquirer, the prognosis that the smaller entity would continue to grow at a supernormal stage looks unreasonable. Given the monumental difference in the balance sheets of acquiring and target firms, it would also look far-stretched to hold that the target banks will wield any significant clout in deriving a value, which is based upon the assumption of supernormal growth rate. Ostensibly, for the acquirers too, it is prudential to not base the price on the growth rate, rather, base it on unique competitive advantages enjoyed by the target banking entity ranging from unique geographical spread, impeccable technological support, distinctive customer base, and so on. It is also relevant to observe that given the dynamic state of banking sector in India, the recent episodes of acquisition of smaller targets by larger banking entities were predominantly driven from the strength of the acquirer with the target entities only looking to survive the onslaught of competition. In light of the above arguments, the rationale to adopt a mature model, while computing the value multiple of a target banking entity, therefore, seems reasonable.

3.2 The Model

In this study, with the objective being to identify the takeover likelihood of private sector smaller banks operating in India, it is essential to modify the inputs surrounding computation of value multiple – EV/EBITDA. With a constant model, the multiple could simply be expressed in the form of an equation as reflected below[3] (Damodaran, 2006).

$$\left[\frac{EV}{EBITDA}\right]=\left[\frac{(1+g_n)\left[(1-t)-\left(\frac{Re\ investments}{EBITDA}\right)-\left(\frac{Depn(1-t)}{EBITDA}\right)\right]}{(WACC-g_n)}\right] \qquad \text{Eq. 1}$$

The notations used in the above equation are explained below.

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[3] The equation is an expansion of the growing perpetuity model of enterprise value, also known as the mature model. The model is depicted as $\frac{FCFF_1}{(WACC-g_n)}$ (Reilly & Brown, 2006), (Koller, et al., 2010). The derivation of (Eq. 1) appearing as a variant of stable model is shown in Appendix II.

EV　　　= Enterprise value

EBITDA = Total income − (Operating expenses − Depreciation) − Provisions & Contingencies

g_n　　　= maturity growth rate (equal to federal T − Bond rate)

t　　　= marginal tax rate (equal to corporate tax rate)

Depreciation in the context of a banking entity relates to bank's fixed property represented by property and furniture & fixture. There are two important terms that deserve detailed explanation.

Reinvestments – This is arrived as the product of Net Operating Profits after taxes (NOPAT) and Reinvestment rate (RIR %). While applying the mature model, the following expressions hold good.

$$\text{Re investments} = \text{RIR x NOPAT}$$
$$g_n = (\text{ROC x RIR})$$

(Koller, et al., 2010)　　Eq. 2

where

$\text{ROC} = \text{WACC}$ (as excess returns are equal to zero for a matured firm)

$\text{RIR} = \left[\dfrac{g_n}{\text{WACC}}\right]$ (dervied from the above expression)

Note that NOPAT may be derived from EBITDA as

$$\text{NOPAT} = \left[\text{EBITDA}(1-t) - \text{Depreciation}(1-t)\right]$$

Eq. 3

Another computational input that needs an elaborate mention is the weighted average cost of capital (WACC). Note that it assumes a much simpler form in the context of a non-banking entity. However, a typical definition of WACC as the sum of weighted costs of equity and debt is simply rendered meaningless in the context of a bank. This is because, for a bank the primary sources of capital are three – Equity, Deposits, and Borrowings. Deposits could be further classified into three – Demand, Savings, and Term. With each category of deposit coming at a specific cost, WACC merits redefinition, which may be expressed as shown below.

$$\text{WACC} = (W_E \text{ x } K_E) + (W_{DD} \text{ x } K_{DD}) + (W_{SD} \text{ x } K_{SD}) + (W_{TD} \text{ x } K_{TD}) + \left[W_D \text{ x } K_D (1-t)\right]$$

Eq. 4

where

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W_E = Weight of equity

K_E = Cost of equity (u sin g CAPM approach)

W_{DD} = Weight of demand deposits

K_{DD} = Cost of demand deposits (reckoned at 0%)

W_{SD} = Weight of savings deposits

K_{SD} = Cost of savings deposits (reckoned at 4%)

W_{TD} = Weight of time deposits

K_{TD} = Cost of time deposits (reckoned at 9%)

W_D = Wright of debt (borrowings)

$K_D(1-t)$ = After − tax cos t of debt (cos t of debt is computed as the sum of risk − free and default spread)

Appendix I reflects the WACC[4] values for all the sample target banks. All the inputs for the computation were retrieved from Annual reports, CRISIL default study report – 2013[5], and Capitaline database.

4. Sample Selection

The sample for the study consists of all the private sector commercial banks in India. Using the parameter, capitaline database generated a list of 117 banks. In keeping with the objective of the study, the sample was restricted to small banks with a small bank being defined as one that meets the following criteria:

a) Concentrated geographic presence within India

b) Equity is less than INR 3 billion and Gross block is less than INR 9 billion

c) Banks must be listed in one of the stock exchanges in India

An imposition of the above constraints generated a final sample of 8 banks upon which the above developed model is intended to be applied in order to determine the likelihood of acquisition. The financial data were retrieved from the annual reports of the respective banks.

5. Results and Discussion

Damodaran (2006) opines that a target firm is most likely to be taken over if it is percevied as undervalued by the prospective acquirer. Here, an undervalued firm will have an actual EV/EBIDTA multiple less than the predicted EV/EBITDA multiple. There have been instances where attempts have been made to identify the undervalued or ovrvalued signal by comparing the multiple of the firm with the mean multiple derived from the sample firms. The procedure is faulty in the absence of a controlling variable leading a firm with high EV/EBITDA multiple to look overvalued when compared against the mean value. As ultimately, the mutiple is dependent on ROC, subsequent to control of the key companion variable, it may turn out that the firm with a higher actual EV/EBITDA multiple is less than

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[4] The authors will be willing to share the modus operandi surrounding the computation of WACC values, which could be made available upon solicitation of an email request.

[5] Retrieved from http://www.cirsil.com/ratings/publications

the expected multiple leading the firm to be recharacterized as undervalued. The need to, therefore, control for at least the key companion varible, while evaluating a multiple becomes highly essential.

Predicted mutliples are arrived using the values of interecept and coefficient dervied from the regression of value mutliple (EV/EBIDTA) with its key companion vaariable (ROC). From the arguments presented earlier, there must exist a statistically significant relationship between a multiple and its key companion variable.

Here, it is useful to examine the regression results obtained by regressing the value multiple – EV/EBIDTA with the key companion variable –ROC. A summary of key statistical values is reflected below.

Table I: Regression statistics

Regression Statistics	
R^2	0.9804
Standard error	0.0481
F-statitic	299.7051

Source: Excel analysis

Table II: Regression parameters

Dependent variable	Statistical parameters	Regression coefficients	
	Constant/Coeeficient	Intercept	ROC (retun on capital)
EV/EBITDA	Coefficient	17.6691	-106.4978
	Standard error	0.4851	6.1517
	t-value	36.4230	-17.3120
	p-value	0.0000	0.0000
	Confidence Interval (lower)	16.4821	-121.5504
	Confidence Interval (upper)	18.8562	-91.4452

Source: Excel analysis

From the Tables I, it is abundantly clear that there exists a statistically significant relationship between the variable – ROC and the value multiple – EV/EBITDA. With p-value < 0.01 for ROC, the null that there is no relationship between EV/EBITDA and ROC gets emphatically rejected at 1% level of significance. While the observance of a very high R^2 value at 0.98 is not unexpected, the regression results aid in computing the predicted values using the coefficient values of intercept and the independent variable. The utility of a regression, as a result, gets substantially extended from establishment of statistical relationship to aiding in predictive capabilities of the value multiple. From the above tables, it is clear that ROC as a key companion variable could be employed for the purpose of

determining the predicted values of EV/EBITDA. The computed values of expected EV/EBIITDA are reflected in the table given below.

Table III: Expected EV/EBITDA values using regression parameters

Sample Banks	EV/EBITDA	ROC	Exp EV/EBITDA	Undervalued/Overvalued
City	9.1700	0.0798	9.1630	Overvalued
DCB	9.7457	0.0747	9.7087	Overvalued
Federal	9.0988	0.0802	9.1236	Undervalued
Dhanalaxmi	9.5986	0.0750	9.6759	Undervalued
Karnataka	9.1595	0.0804	9.1060	Overvalued
Karur Vysya	9.5385	0.0766	9.5112	Overvalued
Lakshmi Vilas	8.8006	0.0828	8.8438	Undervalued
South Indian	9.0967	0.0806	9.0761	Overvalued

Source: Excel analysis

In order to identify the acquisition likelihood of a target bank, the actual and expected values of EV/EBITDA are compared. From the above, three banks are identified to be potential takeover candidates – Federal Bank, Dhanlaxmi Bank, and Lakshmi Vilas Bank. For each of the three banks, the actual multiple is less than expected multiple rendering them undervalued from the eyes of a prospective acquirer. To the extent that these target entities have been in the news in the financial media as prospective target candidates; the results reflected above seem to be in congruity. However, it will be utterly futile to draw comparisons between the observed results and instances of acquisition likelihood appearing in financial media, as the latter may be driven more on the strength of non-pecuniary aspects, which is beyond the scope of the present study. As a meaningful exercise, it would certainly be a worthwhile exercise to identify the tangible attributes that might explain the vulnerability of these banks as likely takeover candidates.

6. Summary & Conclusions

In this study, an attempt was made to develop a robust takeover prediction model by highlighting the plausible deficiencies in the previously advocated approaches. The motivation towards engaging in the same comes from the fact that almost all the models presented earlier identify multifarious factors that might explain the acquisition likelihood. In the presence of barrage of factors, researchers are often at odds in attempting to understand the key variables that might explain such a phenomenon. The study, therefore, adopted the enterprise value approach in seeking to identify the acquisition likelihood of target firms. By using a robust value multiple like EV/EBITDA, it is possible to characterize a firm as undervalued or overvalued by comparing the actual multiples with predicted multiples. The significance of controlling for at least the key companion variable using a regression based approach need not be overemphasised. From the results, three banks – Federal Bank, Dhanalaxmi Bank, and Lakshmi Vilas Bank are identified as likely takeover candidates as they are observed to be undervalued. The objective of this study being not necessarily

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restricted to identification of vulnerable targets, would be to motivate discerning researchers to critically examine the utility of several alternative models used to predict takeovers by evaluating them in a rigorous empirical framework.

Lastly, the study to determine the acquisition likelihood being restricted to small private sector commercial banks could be further expanded to small public sector banks, thereby expanding the scope of the study sufficiently.

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Appendix I

Computed values of WACC for sample target banks

	Demand			Savings			Time			Borrowings			Equity				
	Amt	Weight	Cost	Amt	Weight	Cost	Amt	Weight	Cost	Amt	Weight	Cost	Amt	Weight	Cost	Total amt	WACC
City	13353424	0.0596	0	20692654	0.0923	0.04	169001474	0.7537	0.09	4767391	0.0213	0.0469	16406685	0.0732	0.1004	224221628	0.0799
DCB	8992417	0.0826	0	13723741	0.1260	0.04	60922227	0.5593	0.09	15256195	0.1401	0.0524	10030593	0.0921	0.1307	108925173	0.0747
Dhanalaxmi	9472922	0.0699	0	15687173	0.1157	0.04	86861225	0.6406	0.09	15920910	0.1174	0.0524	7659978	0.0565	0.1174	135602208	0.0751
Federal	29074329	0.0421	0	127431909	0.1844	0.04	419605470	0.6071	0.09	52390452	0.0758	0.0422	62651148	0.0906	0.1658	691153308	0.0802
Karnataka	24623549	0.0608	0	65199703	0.1610	0.04	270738961	0.6686	0.09	15797608	0.0390	0.0469	28570814	0.0706	0.1695	404930635	0.0804
Karur Vysys	30533493	0.0668	0	43857965	0.0959	0.04	312138333	0.6825	0.09	39993424	0.0874	0.0422	30851941	0.0675	0.1135	457375156	0.0766
Lakshmi Vilas	7384987	0.0432	0	15240744	0.0891	0.04	133564048	0.7805	0.09	4800000	0.0280	0.0524	10143445	0.0593	0.1281	171133224	0.0829
South India	15473534	0.0319	0	66854744	0.1377	0.04	360294745	0.7421	0.09	12845545	0.0265	0.0469	30062168	0.0619	0.1155	485530736	0.0807

Source: Computed values using Excel

Appendix II

Deriving the EV/EBIDTA multiple from a Mature Firm Model

Mathematically, enterprise value in a mature model is represented as given below.

$$EV = \frac{FCFF_1}{(WACC - g_n)}$$

We also know that,

$$FCFF = NOPAT - Re\,investment$$

NOPAT could be expressed in terms of EBITDA as show below.

$$NOPAT = EBITDA(1-t) - Depn(1-t)$$

FCFF could be expressed as shown below.

$$FCFF = EBITDA(1-t) - Depn(1-t) - Re\,investments$$

$$EV = \left[\frac{EBITDA(1-t) - Depn(1-t) - Re\,investments}{(WACC - g_n)}\right]$$

Dividing both sides of the equation by EBITDA

$$\frac{EV}{EBITDA} = \left[\frac{(1-t) - \left(\frac{Depn(1-t)}{EBITDA}\right) - \left(\frac{Re\,investments}{EBITDA}\right)}{(WACC - g_n)}\right]$$

We also know that,

$$FCFF_1 = FCFF_0 \left(1 + g_n\right)$$

The value multiple could therefore be alternatively expressed as shown below.

$$\left[\frac{EV}{EBITDA}\right] = \left[\frac{\left(1 + g_n\right)\left[(1 - t) - \left(\frac{Re\,investments}{EBITDA}\right) - \left(\frac{Depn(1 - t)}{EBITDA}\right)\right]}{\left(WACC - g_n\right)}\right]$$